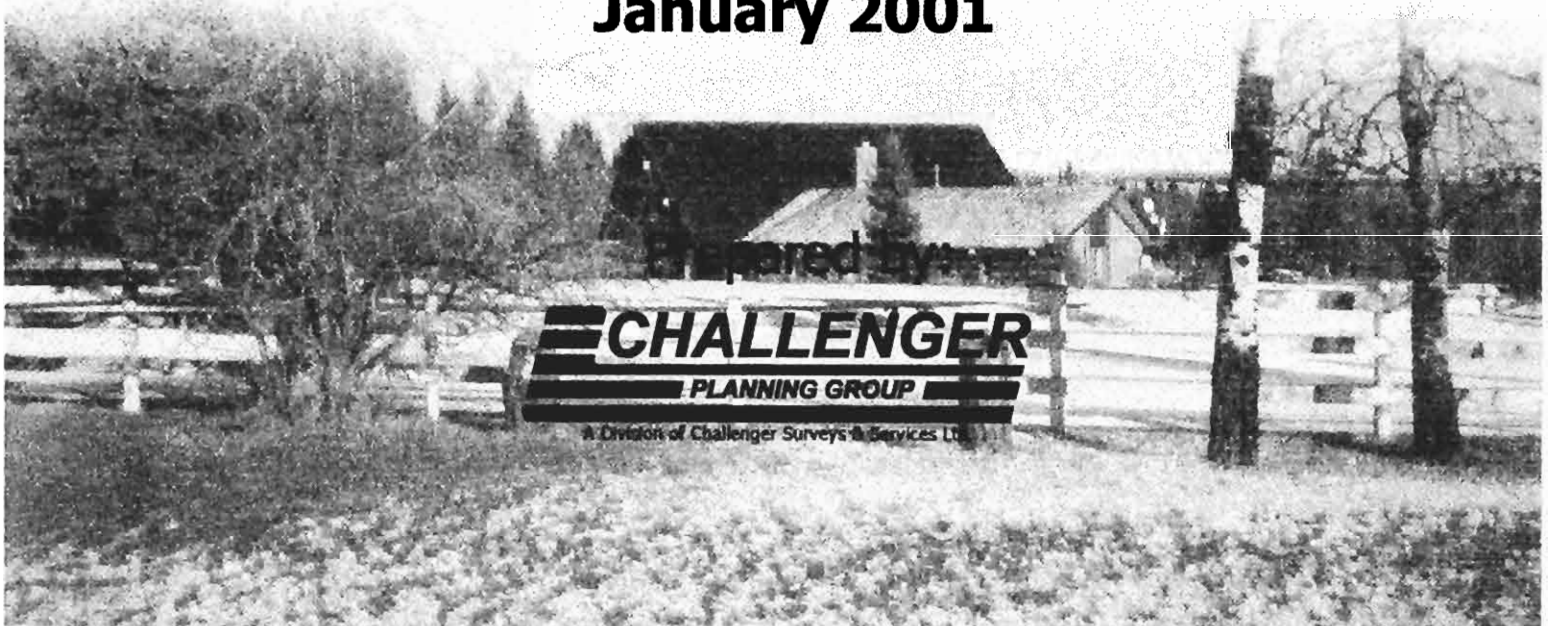


Simran Cove Estates AREA STRUCTURE PLAN

**Developed by Vince Sood
of
Soodco Developments Ltd.
SW 1/4 20-22-03 W5M**

January 2001



Prepared by:
CHALLENGER
PLANNING GROUP
A Division of Challenger Surveys & Services Ltd.

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 properties legally described as S.W. 20-22-3 W5; and

WHEREAS the Area Structure Plan has been prepared under the direction of the 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 "Simran Cove Estates Area Structure Plan".
2. The Simran Cove Estates Area Structure Plan being Schedule "A" attached hereto and forming part of this Bylaw.
3. That the Simran Cove Estates 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: November 9, 2000

Roy R. McLean
Reeve
Municipal Manager

SECOND READING: February 22, 2001

Roy R. McLean
Reeve
Municipal Manager

THIRD READING: February 22, 2001

Roy R. McLean
Reeve
Municipal Manager

PASSED IN OPEN COUNCIL, assembled at the Town of High River in the Province of Alberta this 22 day of February 2001.

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1. INTRODUCTION

1.1 PLAN PURPOSE

The purpose of this plan is to act as a guide to the future subdivision and development on the SW 20 – 22 – 03 W5M. This Area Structure Plan has been prepared pursuant to the provisions of Section 633 of the Municipal Government Act and amendments thereto.

1.2 BACKGROUND TO THE AREA STRUCTURE PLAN

In June of 1999, a redesignation application was submitted to the M.D. of Foothills No. 31. Upon the application being circulated, Alberta Community Development responded that they required a Historical Resources Impact Assessment. The Developer hired Stantec Consulting Ltd. to complete this assessment. Stantec Consulting Ltd. did not recover any items and based on their research concluded that there are no significant historical resources within the proposed development. This report is attached as Appendix A.

Upon the completion of the Historical Resources Impact Assessment the redesignation application was scheduled to a Public Hearing. At the Public Hearing on September 16, 1999, Council gave first reading to Bylaw 148/99. However, prior to further consideration of the Bylaw, Council was in the opinion that an Area Structure Plan would be required, including any future plans for the entire quarter section and may include the surrounding quarter sections. Council's decision is attached as Appendix B and the sketch showing the Plan Area is attached as Figure 1.

1.3 APPROVAL PROCESS

After formally submitting the Area Structure Plan to the M.D. of Foothills No. 31 a public hearing will be scheduled. This will allow the Developer and / or agent to formally present the Area Structure Plan to Council. Should Council be in the opinion that the Area Structure Plan has met all requirements for subdivision in the Municipal Government Act, the M.D. of Foothills No. 31 Municipal Development Plan and their Land Use By-Law, the document may receive first reading. Upon receiving third reading the Area Structure Plan will be adopted by bylaw. The land may then be redesignated to allow for the future subdivision of the subject lands. Upon receiving approval for the redesignation, the

subject lands may then be subdivided by submitting a subdivision application and receiving third reading to that application.

1.4 PLAN IMPLEMENTATION

Upon adoption and in accordance with the provisions of the Municipal Government Act, this Area Structure Plan becomes a Statutory Plan of the M.D. of Foothills No. 31. Any further subdivision of the SW 20 – 22 – 03 W5M that does not conform to the provisions of this Plan will require an amendment to this Area Structure Plan. Any amendment to this Area Structure Plan will be subject to the policies of the M.D. of Foothills No. 31 Municipal Development Plan and Land Use By-Law.

1.5 PUBLIC PARTICIPATION

On October 20, 1999, a letter detailing the specifics of the Area Structure Plan was sent to adjacent landowners of SW 20 – 22 – 03 W5M. This letter requested that adjacent landowners respond to the letter by contacting Challenger Surveys and Services Ltd. with any questions, comments, or interest in participating in this Area Structure Plan. The letter and the names of those circulated have been attached as Appendix D. The locations of those landowners contacted can be seen in Figure 2. By mailing this letter the Developer has involved the public in this Area Structure Plan, and we are confident that this Area Structure Plan will address the concerns raised by the adjacent landowners. We received two responses, of which both landowners were uninterested in participating in the Area Structure Plan. However, some concern was raised by one of the landowners about the surface of the existing East-West road that accesses the Plan Area from the South. This concern will be addressed in the transportation component of this document.

1.6 LEGISLATIVE FRAMEWORK

a) The Municipal Government Act

An Area Structure Plan is identified in the Municipal Government Act as a Statutory Plan. Section 633 of the Act reads as follows:

Area Structure Plans
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 the 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 consider necessary.

In the process of preparing and adopting this Plan the Council must comply with the provisions of Section 636, 637 and 638 of the Municipal Government Act which are quoted as follows for easy reference.

636 While preparing a statutory plan a municipality must	Statutory plan preparation
(a) provide opportunities to any person who may be affected by it to make suggestions and representations,	
(b) notify the public of the details of the plan preparation process and of the means to make suggestions and representations referred to in clause (a),	
(c) notify the school authorities with jurisdiction in the area to which the plan preparation applies and provide opportunities to those authorities to make suggestions and representations,	
(d) in the case of a municipal development plan, notify adjacent municipalities of the plan preparation and provide opportunities to those municipalities to make suggestions and representations, and	
(e) in the case of an area structure plan, where the land that is the subject of the plan is adjacent to another municipality, notify that municipality of the plan preparation and provide opportunities to that municipality to make suggestions and representations.	Effect of plans
637 The adoption by a council of a statutory plan does not require the municipality to undertake any of the project referred to in it.	
638 All statutory plans adopted by a municipality must be consistent with each other.	Plans Consistent

b) The Municipal Development Plan

An Area Structure Plan is defined in the Municipal Development Plan as a statutory plan, adopted by bylaw, which provides a land use strategy for subsequent redesignation, subdivision and development of a specific area of land in the Municipality. Municipal support for an Area Structure Plan is found in Section 5.3.5 of the Municipal Development Plan which reads as follows:

5.3.5 An Area Structure Plan drafted in accordance with the guidelines adopted by the Municipality shall be required as part of a Country Residential proposal that would create 8 new lots or more and for proposals of less than 8 new lots an Area Structure Plan may be required if in the opinion of Council one is necessary, due to:

- a) the impact the proposal may have on adjoining lands;
- b) the need to review, in greater detail, the infrastructure requirements of this proposal;
- c) the proposal being a continuation of an existing subdivision and leads to a density greater than 8 lots per quarter section;
- d) the proposal, in the opinion of Council being phase 1 of a development that will create 8 new lots or more.

1.5 INTERPRETATION

In this Plan:

- (a) "Act" means the Municipal Government Act 1995 and amendments thereto.
- (b) "Council" means the Council of the Municipal District of Foothills No. 31.
- (c) "Developer" means the landowner, Vince Sood, as listed on the title.
- (d) "Land Use Bylaw" means a Bylaw of the M.D. of Foothills No. 31 passed by Council pursuant to the provisions of the Municipal Government Act and intended to prohibit, regulate and control the use and development of land and buildings within the M.D. of Foothills No. 31.
- (e) "Municipal Development Plan" means the M.D. of Foothills No. 31's Municipal Development Plan.

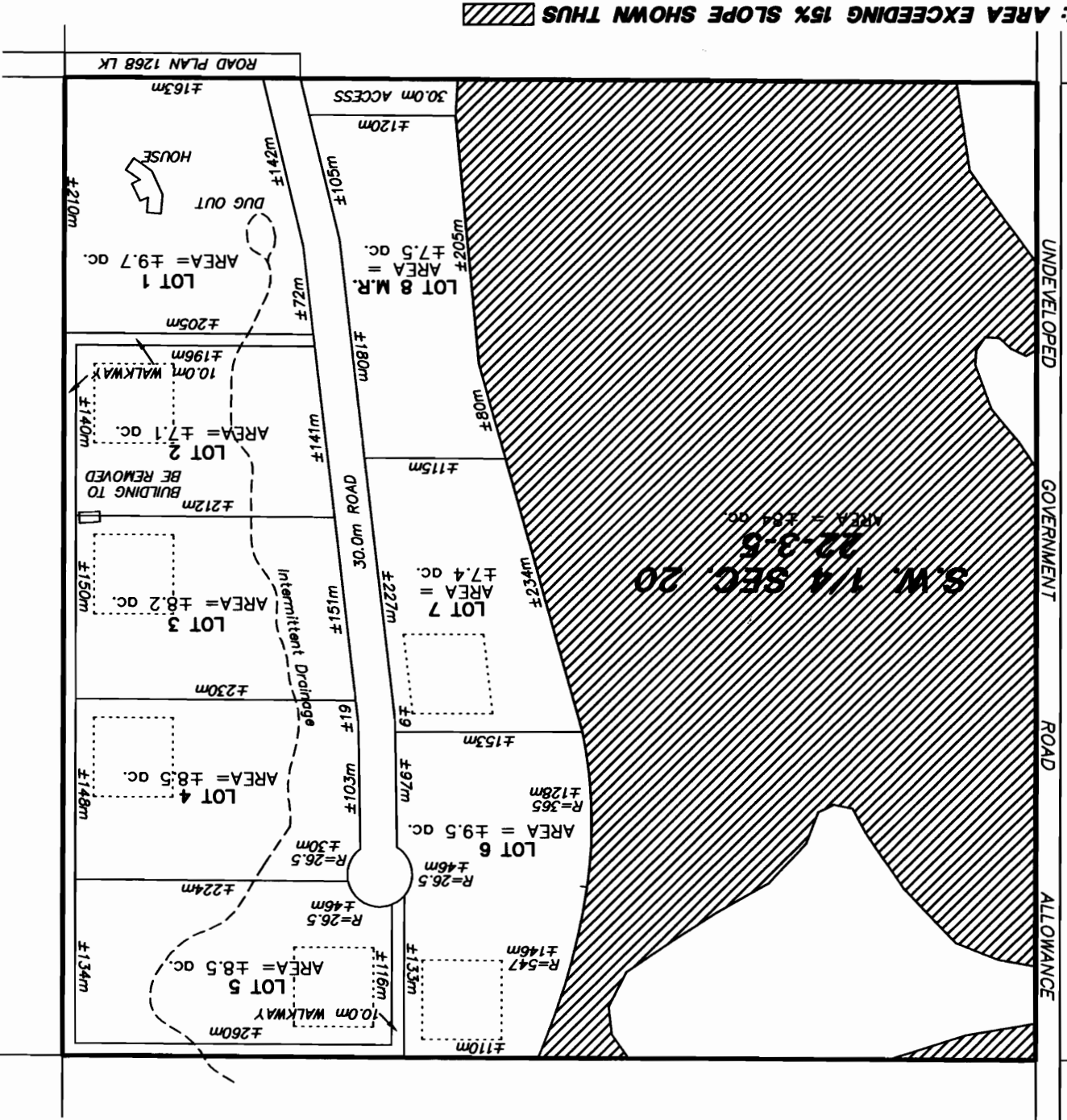
(f) "Municipality" means the area bounded and incorporated by the M.D. of Foothills No. 31.

(g) "Plan Area" refers specifically to the entirety of the SW ¼ 20 - 22 - 03 W5M as showed in Figure 1.

(h) "Subdivision Approving Authority" means the Council of the M.D. of Foothills No. 31.

All other words and expressions have the meanings respectively assigned to them in the Municipal Development Plan, Land Use Bylaw or the Municipal Government Act.

FIGURE 1 - PLAN AREA



NOTE: AREA EXCEEDING 15% SLOPE SHOWN THUS

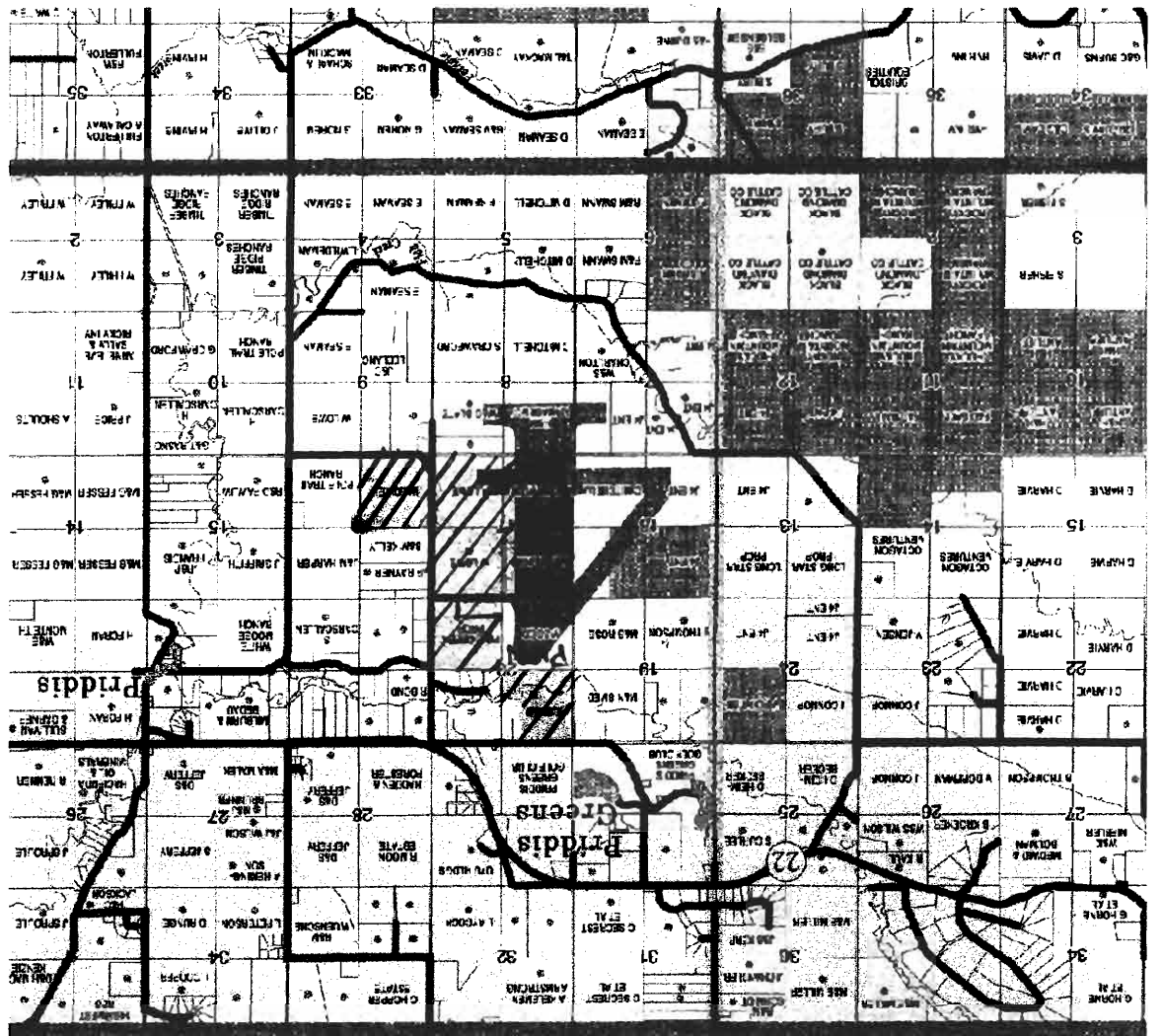
SKETCH PLAN
SHOWING
EIGHT LOTS TO BE SUBDIVIDED
FROM
S.W. 1/4 Sec. 20, Twp. 22, Rge. 3, W5M
MUNICIPAL DISTRICT OF FOOTHILLS No. 31
SCALE: 1:5000



NOT TO SCALE

Range 3

ST.W. 320 ST.W. 304 ST.W. 288 ST.W. 272 ST.W. 256 ST.W. 240 ST.W. 224 ST.W. 208



DWN By: BEC

File #: 11167

FAX 253-1985

(403) 253-8101

CALGARY, ALBERTA

CHALLENGER
SURVEYS & SERVICES LTD.

2. THE PLAN AREA

2.1 LOCATION/OWNERSHIP

The Plan Area is located less than 3.2 kilometres South of Highway 22, and between 272 Street West and 256 Street West. Pridis Greens is located approximately 1.6 kilometres to the North of the Plan Area. The land is more specifically identified as the SW 20 – 22 – 03 W5M and a copy of the Certificate of Title is attached as Appendix E.

2.2 DEFINITION OF THE PLAN AREA

a) Boundaries of the Plan Area

The Plan Area is bound by 272 Street West, to the West which is an undeveloped road allowance, and the quarter section line of SE 20 – 22 – 03 W5M to the East. The quarter section line of NW 20 – 22 – 02 W5M establishes the North boundary. The Southern boundary is defined by 194th Avenue. These boundaries are shown in Figure 3.

b) General Physical Description

The land located on the Western side of the SW 20 – 22 – 03W5M contains approximately 84.0 +/- acres which exceeds 15 percent slope or greater. All of the development has been located in the Eastern half of the quarter section, which consists of land that is less than 15 percent slope. The Plan Area gently slopes towards the centre of the Plan Area where an intermittent drainage course exists. This intermittent drainage course has been dammed by the previous landowners. The Developer will return this drainage course to its natural state, and use it as a feature of the Plan Area upon an approval. The topographical features can be seen in conjunction with the Plan Area in Figure 4.

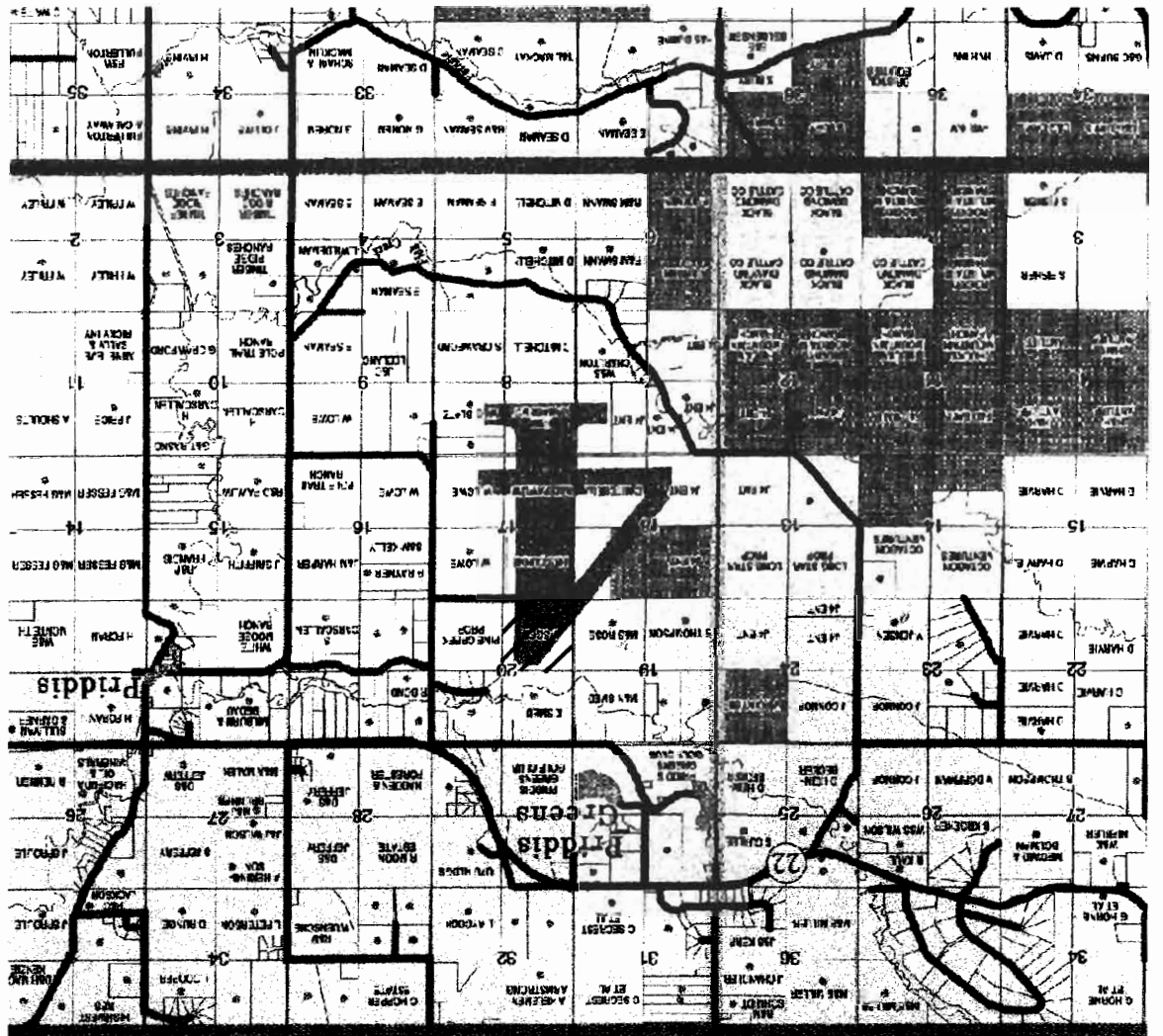
LOCATION MAP FOR SW 20 - 22 - 3 W5M
NOT TO SCALE

NOT TO SCALE

4e

Range 3

ST.W. 320 ST.W. 304 ST.W. 288 ST.W. 272 ST.W. 256 ST.W. 240 ST.W. 224 ST.W. 208

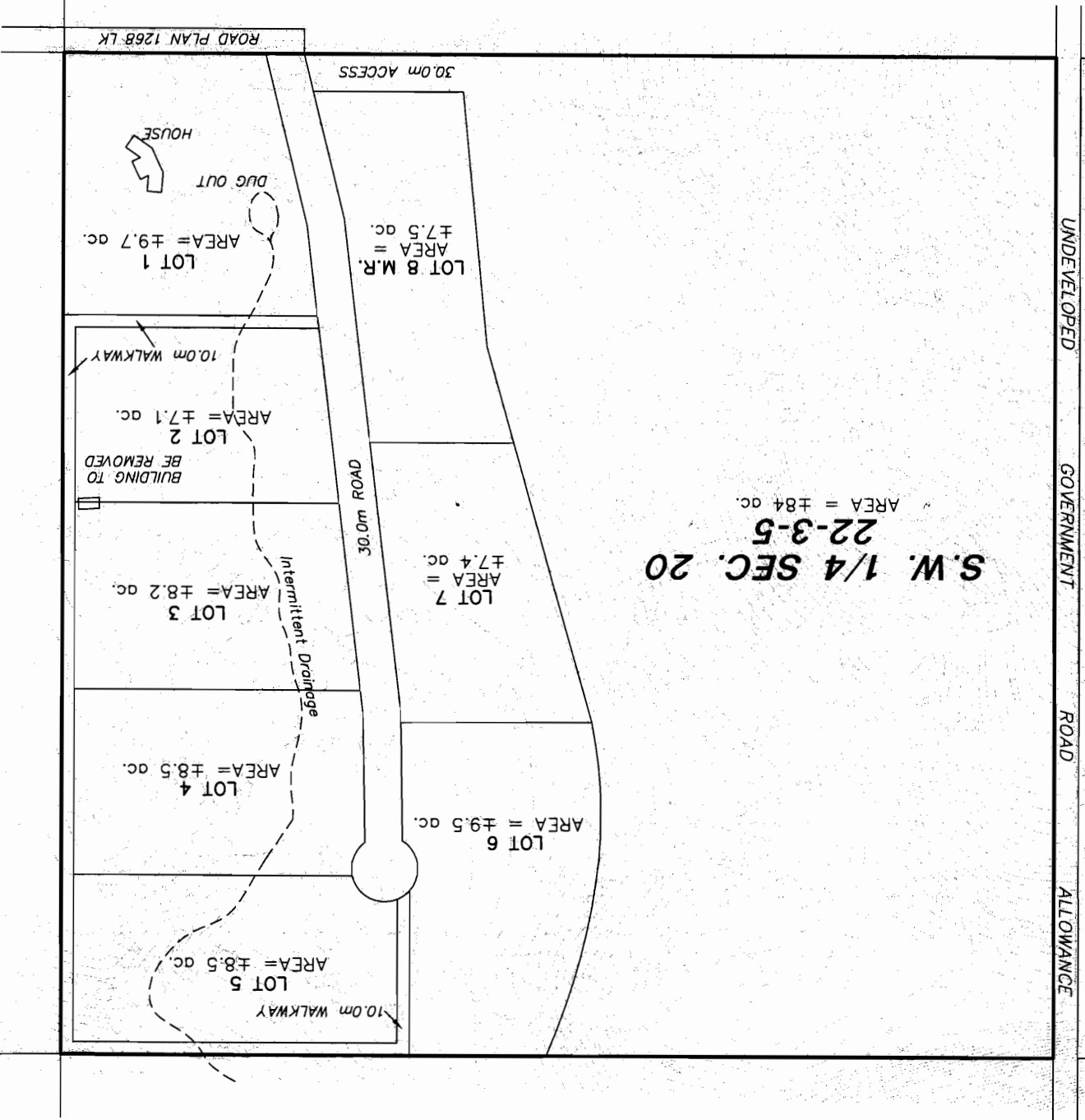


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FIGURE 4 – PLAN AREA WITH TOPOGRAPHICAL INFORMATION

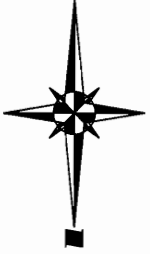


SKETCH PLAN

SHOWING EIGHT LOTS TO BE SUBDIVIDED

S.W.1/4 Sec. 20, Twp. 22, Rge. 3, W5M

SCALE: 1:5000



CLIENT(S): SODCO DEVELOPMENTS LTD.

NOTES:

1. DIMENSIONS SHOWN ARE IN METRES AND DECIMALS THEREOF.
2. SUBJECT AREA BOUNDED THUS AND CONTAINS ±64 ha. (±158 ac.)

FILE: 99-11167TNT
DWN BY: DAW/LRC
DATE: DEC. 20, 2000
CHK. BY: BEC

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CALGARY, ALBERTA
(403) 253-8101 FAX 253-1985

3. PLAN GOALS AND OBJECTIVES

3.1 GOALS AND OBJECTIVES

- a) To create an attractive rural development comprised of 7 country residential lots ranging between 7.0 to 10.0 +/- acres in size, that incorporates a Municipal Reserve and a walkway system.
- b) To maintain the natural features of the area and restore the intermittent drainage course to its natural flow pattern.
- c) To provide an open space walkway system which will enhance pedestrian and equestrian movements and provide linkage to the Municipal Reserve.
- d) To ensure that the development conforms to the goals and objectives of the M.D. of Foothills No. 31 Municipal Development Plan.

3.2 PRINCIPLES OF DEVELOPMENT

- a) Community Association
The Developer will create a self-governing community association, comprised of the landowners of the Plan Area. The purchaser of a lot shall become a member of the Simran Cove Estates Community Association (SCECA), which shall provide for the maintenance of all common spaces that may be leased from the M.D. of Foothills No. 31, should Council allow. The Community Association will also appoint objective experts as laid out in the Restrictive Covenant to handle any disputes between purchasers. The SCECA shall operate on a "Not-for-Profit" basis with the power to levy dues against all Purchasers.
- b) Restrictive Covenants

As mentioned, a restrictive covenant will be placed on the title of each new country residential lot. This restrictive covenant will require each purchaser to comply with the points laid out in this document. The proposed general restrictive covenant is attached as Appendix C. In addition, this restrictive covenant will require that each purchaser of a lot participate in the Simran Cove Estates Community Association (SCECA), which will be comprised of all purchasers in the Plan Area.

In addition to the general restrictive covenant that will be placed on each new country residential lot a Schedule will be attached to each new lot. The Schedule will define the developable area on each lot, and on lots 3, 4, and 6 that raised septic fields are required as per an engineered report.

4. DEVELOPMENT PROPOSAL

4.1 THE PLAN CONCEPT

As noted in the objectives, the Developer will make this development compatible with the existing rural character of the area. Lots will range between 7.0 to 10.0 +/- acres in size, which is similar to other subdivisions near the Plan Area. The larger lots in the Plan Area will establish a Country Residential lifestyle. The lots, as shown in Figure 1 will be the only lots to be developed on the SW 22 – 20 – 03 W5M. The Developer has incorporated a Municipal Reserve into the design, which is linked to all the lots by the walkway system and the internal road system. Additionally, adjacent landowners have easy access to the Municipal Reserve lot because it has been placed at the entrance to the Plan Area.

4.2 LAND USE COMPONENT

a) Country Residential District

This Area Structure Plan is compatible and consistent with the provisions of the Municipal Development Plan, and the Land Use By-law. Currently the Plan Area carries an Agricultural District (A) designation in the M.D. of Foothills No. 31 Land Use By-Law. In order to proceed with subdividing the land, the Plan Area will first need to be redesignated to Country Residential District (CR). As indicated earlier, this Area Structure Plan will restrict any further development on the SW 20 – 22 – 03 W5M.

b) Agricultural District

The balance of the SW 20 – 22 – 03 W5M will remain as an Agricultural District Land Use. Most of the balance contains lands that are greater than 15 percent slope and at this stage are not suitable for development according to the M.D. of Foothills No. 31 Municipal Development Plan. Approximately 84.0 +/- acres will remain in the balance, which the Developer plans retain. This quarter section does not have an agricultural component, as it does not lend itself to crop production, and is too steep and heavily treed at parts to graze livestock.

c) Phasing

This development will be completed in one phase with the road, walkway system and lots being developed and serviced concurrently.

d) Density

As indicated in the M.D. of Foothills No. 31 Municipal Development Plan, a quarter section may contain a total maximum density of 32 lots or one lot or unit per five acres under a Country Residential designation. Upon adoption of this Area Structure Plan the Developer shall apply to subdivide seven Country Residential lots from the SW 20 – 22 – 03 W5M. The quarter section contains 159.88 acres more or less, therefore, the Developer could develop 31 lots, however, only seven Country Residential lots will be developed on this quarter section, which is well below the maximum density allowed in the M.D. of Foothills No. 31 Municipal Development Plan.

Table 1: Density Table

Number of Lots	Seven
Area	159.88 +/- acres
Density	1 lot per 22.84 acres

e) Impact on Adjacent Lands

In recognizing that the Plan Area will add additional traffic to the existing roads, the Developer hired Morasch Transportation Ltd. to study how the Plan Area may affect the current road system accessing SW 20 – 22 – 03 W5M. The Developer will meet all recommendations laid out in the report attached as Appendix F, and discussed in section 4.5 of this Area Structure Plan. Once these recommendations have been met, the adjacent landowners will benefit by an enhanced road standard on 194th Avenue from 256th Street West to the proposed access of the internal road system.

A walkway system has been incorporated into the design to increase the aesthetics of the Plan Area. Additionally, this walkway system will provide a buffer to the lot to the East of the Plan Area in the Southwest corner of the SE 20 – 22 – 03 W5M and the multi-lot subdivision to the Northeast in the NE 20 – 22 – 03 W5M. Therefore, this walkway system will help to lessen any impact the Plan Area may have on the landowners to the East and Northeast.

The Municipal Reserve has been located in the Southwest corner of the Plan Area to lessen the impact the Plan Area will have on the landowner to the South. By locating the Municipal Reserve in this position a dwelling cannot be erected in view of this landowners property. Furthermore, the existing trees on the Municipal Reserve will buffer most noises created by the Plan Area, both during construction of dwellings and post-development.

The landowners to the West, Northwest and Southwest of the Plan Area will remain unaffected by the new lots because topography limits development to the East half of the quarter section and also provides a buffer to these landowners visually and acoustically. Additionally, these landowners will be relatively unaffected by additional traffic because they do not use the same North - South road system as the Plan Area.

A restrictive covenant shall be placed on the titles of all purchasers of lots within Simran Cove Estates. This restrictive covenant will regulate building times and outline the provisions to be followed during the building of dwellings and accessory buildings. Fines will be handed out to purchasers who break these provisions. This restrictive covenant will protect the adjacent landowners and lessen the impact on them during the development of Simran Cove Estates. A sample of this document is attached at Appendix C.

f) Walkway System

As noted earlier in this document, one of the goals of this development is to provide an open space walkway system, which will offer a range of recreational pursuits, such as horseback riding. In keeping with this goal, a 10 meter (32.8ft) wide walkway system has been designed to link all lots within the Plan Area with the Municipal Reserve.

The Municipal Reserve has been located in the Plan Area so that it will be easily accessible to the landowners of the Plan Area. This walkway system and the roadway will link all of the landowners of the Plan Area to the Municipal Reserve. As mentioned earlier, the location of the walkway system will also act as a buffer to the adjacent lands.

The walkway will be landscaped to ensure both visual and recreational variation for the users. To achieve this, shrubs, trees and other features will be placed along the walkway system. The Developer will fence the walkways, establishing the boundary of the walkway system from the lots within the Plan Area.

To ensure that the walkway system is cared for into the future, Simran Cove Estates Community Association (SCECA) shall be created, involving all purchasers of lots in the Plan Area. Should the M.D. of Foothills No. 31 agree to the SCECA leasing this land from them, the community association will collect funds for the care and maintenance of the walkway system.

4.3 ENVIRONMENTAL CONSIDERATIONS

The Developer was quite concerned about the effect that the Plan Area may have on the area. A groundwater study was completed, along with percolation tests to ensure that the area could be developed without negatively impacting the adjacent landowners and the environment. Additionally, a Historical Resources Impact Assessment was completed at the request of Council and Alberta Community Development. The results of these reports are included in this Area Structure Plan.

The Developer would like the land to remain as close as possible to its natural state and for this reason has designed the Plan Area with larger and fewer lots. The intermittent drainage course will also be restored to its original flow pattern correcting the damage done to the subject lands by the previous landowner. Therefore, the Plan Area will be beneficial to the existing environment and it will be a better use of the land. Additionally, a strict restrictive covenant will limit what can be done on the lots within the Plan Area, with an emphasis on protecting the environment.

a) Groundwater Study

A preliminary groundwater study was completed by Groundwater Exploration and Research Ltd. in February, 2000, to address the feasibility of finding sufficient volumes of groundwater to sustain an additional seven Country Residential lots in the SW 20 – 22 – 3 W5M. A copy of this study is attached as Appendix G.

Groundwater Exploration and Research Ltd. utilized information from Alberta Environmental Protection's groundwater database file to undertake this study. A total of 28 well records were available for review from the surrounding eight quarter sections of land, including four well records for the SW 20 quarter-section.

The information provided by Groundwater Exploration and Research Ltd. shows that the water resources in the area would support the 7 Country Residential lots that we are proposing. The Developer will drill wells on each new Country Residential lot within the Plan Area using all

recommendations from the Groundwater Exploration and Research report, attached as Appendix G.

b) Intermittent Drainage Course

The intermittent drainage course that drains through the Plan Area was disturbed by the previous landowners. The Developer shall restore this intermittent drainage course to its native flow pattern. To ensure that it is further protected, an environmental reserve easement shall be provided on either side of the drainage course and registered on each new title where the drainage course exists. By restoring the intermittent drainage course the Plan Area, as well as adjacent landowners will be benefit. As the restoration of the drainage course will be completed at the time the road plans are engineered, the exact measures for any necessary landscaping and possible changes to the location of the course will be defined at that time.

c) Historical Resources Impact Assessment

When the redesignation application for the Plan Area was circulated, Alberta Community Development responded, stating that they required a Historical Resources Impact Assessment (HRIA). The HRIA was required because the Plan Area is within 1 km of a creek, and because an area within 1 km of the Plan Area has been known to have archaeological sites. The Developer hired Stantec Consulting Ltd. to complete this assessment. Stantec completed surface reconnaissance, 15 defined subsurface assessment inspections and 13 shovel assessment tests and inspection areas. They discovered no significant historical resources within the proposed development and, therefore, recommended that the Plan Area be cleared of historic resource concerns. This report is attached as Appendix A. Should the Developer, or any purchasers of lots within Simran Cove Estates discover anything of historical importance the discovery must be reported to Alberta Community Development, as required in the restrictive covenant that will be registered on the title of each new lot.

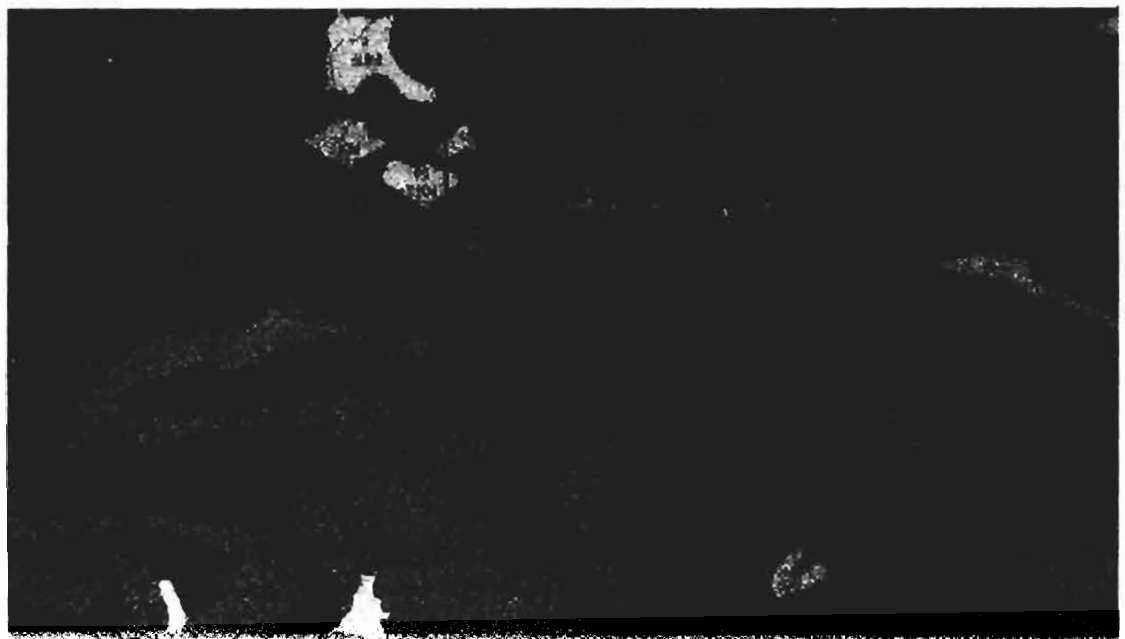
d) Canada Land Inventory Class / Topographic Constraints

The Soil Survey of the Calgary Urban Perimeter indicates that the Plan Area is primarily on Dunvargen¹ c & d soil, which has a Canada Land Inventory capability for agriculture of 3C. This land however, is heavily treed and has never been cultivated. The Developer will sell the proposed lots within the Plan Area in their natural state to maintain the natural features of the area as mentioned in the goals and objectives. By preserving the natural features of the Plan Area this proposed subdivision will better fit the character of the area.

The Developer originally intended to subdivide the entire quarter section. However, upon completion of a slope analysis it was found that the slopes exceed 15 percent in much of the Western half of the quarter section. According to the M.D. of Foothills No. 31 Municipal Development Plan adopted October 1, 1998, the Western half of the quarter section is not suitable for development due to these slopes. Therefore, the topography has constrained the further development of this quarter section.

Canada Land Inventory Class for SW 20 - 22 - 3 W5M

Figure 5:



Source: Soil Survey of the Calgary Urban Perimeter. Sheet 1. 1987.

- SPRUCE RIDGE - Fine loamy to loamy skeletal till
blanket to veneer overlying bedrock CLI capability for
agriculture - 6T & 7T
- DUNVARGEN - Fine loamy till. CLI capability for
agriculture - 3C
- DUNVARGEN - Fine loamy till. CLI capability for
agriculture - 3C
- ROUGH BROKEN - Fine silty to fine clayey
glaciolacustrine. CLI capability for agriculture - 6T

4.4 RESERVE LANDS

Under Section 666(1) of the Municipal Government Act, the Council may require the owner of a parcel of land that is subject to a subdivision proposal, to provide land for Municipal Reserve, or provide money in place of the Municipal Reserve. For a redesignation or subdivision application, when the reserves to be provided are more than 1.98 acres, a separate lot must be shown on the site plan. The Developer has indicated a 7.50 +/- acres Municipal Reserve in the Plan Area, as the Plan Area encompasses 75.0 +/- acres. The Municipal Reserve has been located on the sketch plan in the Southwest corner, closest to 194th Avenue. This location allows the landowners of the Plan Area easy access to the Municipal Reserve.

4.5 TRANSPORTATION

The Developer hired Morasch Transportation Consultants Ltd. to prepare a study that would review the impact that the Plan Area would have on the adjacent roads (this study is attached as Appendix F).

a) Internal Road System

The Developer will construct a high quality internal road system to the M.D. of Foothills No. 31 Road Construction Standards. A curving roadway has been designed to encourage slower vehicle traffic movements through the Plan Area. Proper ditching, culverts and engineered road plans for the internal road system will ensure that stormwater will drain properly and that the natural drainage patterns will be restored. Approaches for Lots 2 through 7, the Municipal Reserve and the balance shall come off of the internal subdivision road. Lot 1 shall gain access using the existing approach off of 194th Ave.

b) External Road System

A copy of this Area Structure Plan was forwarded to Alberta Infrastructure for any comments or recommendations. Their conclusion was that the Plan Area would not impact Highway 22 in a negative way and that upgrades would not have to be made to the intersection of Highway 22 and 240th Street West.

Upon completing a vehicle count at the intersection of 256th St. West and 194th Ave., Morasch Transportation Consultants Ltd. commented that 256th St. "is expected to have sufficient spare capacity to accommodate increases to traffic demand expected from the proposed subdivision, with no improvements warranted." (Page 13, Appendix F)

4.6 SERVICING

Upon meeting with the M.D. of Foothills No. 31 staff, it was advised that 194th Ave. might require upgrading. As this road was a concern of the MD staff and adjacent landowners, the Developer will upgrade this road from the intersection of 194th Ave. & 256th St. West westward to the proposed access point of the internal road system. This upgrade will be completed to standards acceptable to the M.D. of Foothills No. 31 Public Works Department.

a) Water Supply

Individual wells will provide water to the 7 Country Residential lots in the Plan Area. As indicated in the Groundwater report, sufficient water for this development will be readily available. Wells are to be developed in accordance with the recommendations contained in the Groundwater Exploration & Research Ltd. report attached in Appendix G, and all applicable legislation.

b) Sewage Disposal

The Developer hired Almor Testing Services Ltd. to complete a test of the shallow subsurface conditions (percolation study). Lots 2, 5, and 7 are suitable for the standard septic tank and field system. However, for Lots 3, 4, and 6, Almor Testing Services Ltd. recommended that raised septic fields or mounds of some 1.0m to 1.5m would be suitable. Upon an approval, the Developer will meet all of the recommendations of Almor Testing Services Ltd. This report is attached as Appendix H. Additionally, the Developer will meet Provincial Standards and complete testing as required by the M.D. of Foothills No. 31. To further ensure that septic fields on lots 3, 4 and 6, which require mounded systems are engineered and built to Provincial Standards, a Schedule will be added to the general restrictive covenant on titles of these lots requiring that these measures be taken.

c) Stormwater Management

An intermittent drainage course currently drains the Plan Area. The Developer shall restore this intermittent drainage course to its proper flow pattern to the satisfaction of the Municipality. Additionally, all necessary permits from Alberta Environmental Protection will be obtained prior to any work being conducted in the area of the intermittent drainage course. Properly engineered ditching and road construction along the internal road will also ensure that the Plan Area

drains properly and does not impact the adjacent lands in a negative way. The arrows on Figure 6 indicate surface water drainage patterns. A stormwater management plan will be designed to the satisfaction of the municipality and shall be completed and presented to the municipal engineer for review.

4.7 UTILITIES

The Developer, using the appropriate service companies for the area will provide electricity, gas, and telephone services on each lot.

4.8 PROTECTIVE SERVICES

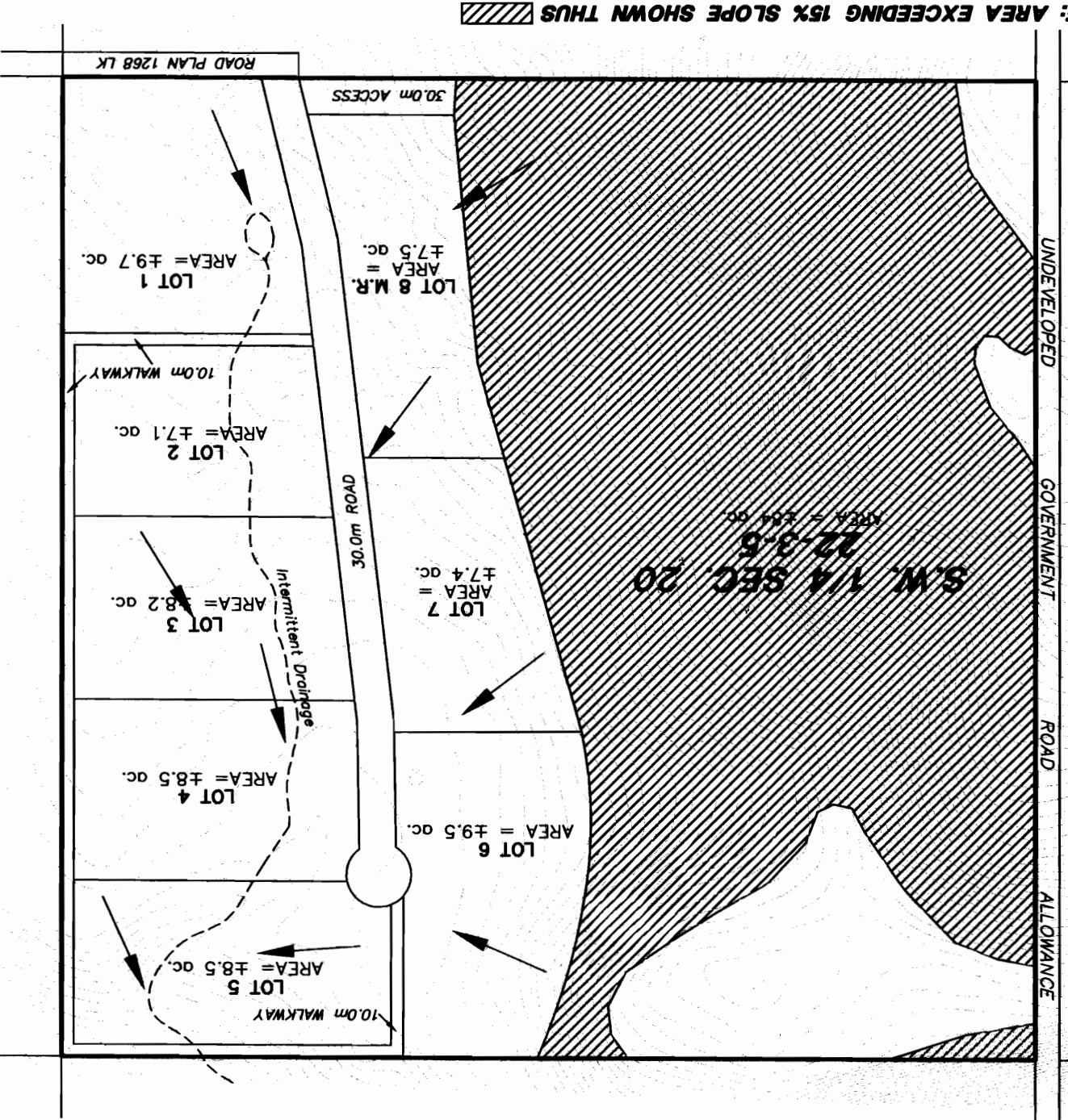
a) Fire Protection

Fire services can be dispatched from the Priddis Volunteer Fire Department, which is a few kilometres from the Plan Area. Easy access to the Plan Area, using Highway 22 will help to minimize response times. This fire department can service the Plan Area with three tanker trucks, which would provide water to the Plan Area in event of a fire. Priddis Fire Hall can also provide ambulance services, and if required, two additional tanker trucks could be dispatched from the Burby Fire Hall.

b) Police Protection

Police services will be dispatched from the Turner Valley detachment of the RCMP.

FIGURE 6 - PLAN AREA WITH DRAINAGE FLOW PATTERNS



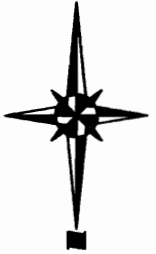
NOTE: AREA EXCEEDING 15% SLOPE SHOWN THUS

SKETCH PLAN

SHOWING EIGHT LOTS TO BE SUBDIVIDED

S.W. 1/4 Sec. 20, Twp. 22, Rge. 3, W5M
MUNICIPAL DISTRICT OF FOOTHILLS No. 31

SCALE: 1:5000



CLIENT(S):

SODCO DEVELOPMENTS LTD.

5.0 IMPLEMENTATION

5.1 IMPLEMENTATION

Before an approval to this Area Structure Plan may be granted from Council, the Developer must meet all requirements of the Council of the M.D. of Foothills No. 31. The Developer will work with the appropriate agencies to ensure that the Plan Area meets all guidelines and requirements.

When Council adopts this Area Structure Plan, in accordance with the provisions of the Municipal Government Act it becomes a Statutory Plan of the M.D. of Foothills No. 31. The Developer shall commence development of all lots, the walkway system and the roadway upon an approval from Council.

APPENDIX A

HISTORICAL RESOURCES IMPACT ASSESSMENT

**Historical Resources Impact
Assessment for a Proposed Residential
Development near Priddis, located in
the East half of the SW ¼ of Section
20-22-03-W5M,
Interim Report for Permit No. 99-114**

Prepared For:
Soodco Developments Ltd.
Prepared By:
Stantec Consulting Ltd.
Project No. 108-59186
September 1999



Stantec

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1.0 Executive Summary

This report outlines the results of the historical resources impact assessment of the proposed residential development located approximately 4 km west of Priddis in the east half of the SW-20-22-03-W5M for Soodco Developments Ltd. A background review of previously recorded archaeological and historical sites indicates that there are eight previously recorded sites in the vicinity. Nearby sites include EFPo-6 within 1 km to the north on the opposite side of Priddis Creek. Additional sites in a 5 km radius include EFPo-1, 3, 4, 5, 7, as well as EFPn-2 and 4. Significant clusters of previously recorded sites are located further east along the Fish Creek valley. This development is considered to be in a moderate to high historic resource potential area based primarily on its proximity within 200 m of Priddis Creek. The development is located on the base of a east facing slope within the Rocky Mountain Foothills proper. The vegetation is boreal including aspen on the higher rises and spruce in the lower and wetter locales.

A field historical resources impact assessment was completed on September 18, 1999. A detailed pedestrian survey inspection and observations at 13 shovel and exposure assessments did not identify any significant historical resources. No bison or other archaeo-fauna were identified and no flaked stone technology was evident in the proposed development area. It is recommended that development proceed as planned with no further historical study recommended.

2.0 Credits

Report Author:	Charles Ramsay (Permit Holder)
Field Crew:	Charles Ramsay
Graphics:	Charles Ramsay

3.0 Introduction

3.1 PROJECT DESCRIPTION

The proposed residential development is located the E1/2 of SW-20-22-03-W5M (Figure 1). Soodco Developments Ltd. acquired the historic resource investigation services of Stantec Consulting Ltd. in order to assess the historic resource concerns associated with this property.

3.2 PROJECT OBJECTIVES

We designed the historical resources inventory and assessment (HRIA) project to discover, record, assess and develop recommendations for avoidance or mitigation of any historical resources threatened by the proposed developments. Any historic resources recovered from these investigations will be collected, described and submitted to the Provincial Museum of Alberta. These items are curated primarily for research purposes and any collected items may be used in future public gallery projects.

3.3 PROJECT REGULATORY CONSIDERATIONS

We conducted this project under Permit to Excavate Historical Resources Number 99-114 to satisfy the "conditions imposed by *The Historical Resources Act*, the provisions of Alberta Regulation 124.79 being the Archaeological Research Permit Regulation and any other conditions that the Minister imposes under Section 26(4) of the Act." Soodco Developments Ltd. undertook this investigation in recognition of *The Historic Resources Act* and to ensure that historic resources are not unduly impacted in the course of their proposed developments.

4.0 Background

4.1 LOCAL ECOLOGY

The Alberta Natural Region Land Classification System Document is the primary source for the Natural Regions and Subregions Descriptions within this section. Alberta Natural Heritage Information Centre, Alberta Advantage, Alberta Environmental Protection, Copyright 1999 Government of Alberta. Other supplemental information is referenced by author and date. The Subregion corresponds with Strong and Leggat's (1992) Aspen Parkland Ecoregion.

The proposed developments are located in the Lower Boreal-Cordilleran Ecoregion in close proximity to Friddis Creek. The development is located between 1205 m asl. and 1265 m asl. at the base of a northeast facing slope of a foothill that peaks to the immediate southwest at nearly 1400 m asl. This location has moderate to high historical resource potential because of the general proximity to the Friddis Creek valley with its associated plant and animal resources, as well as the close proximity to the Fish Creek valley that is approximately 3.5 km south and southwest.

4.1.1 Geology and Landforms

The proposed development occurs along the Friddis Creek valley of the Rocky Mountain Foothills physiographic region (Alberta Natural History Information Centre 1999). The Porcupine Hills Formation, consisting of a series of cross-bedded sandstone and calcareous bentonitic shale, underlies the development area. This underlying structure is draped with the Upper Unit of the Spy Hill Formation that is composed of a high silt and lacustrine clay content in its till deposit. This unit is commonly stony and contains tan and yellow limestone, quartzite rocks (some with red and purple banding), and a few granitic and gneissic rocks (Moran 1986).

The proposed development is located in the Lower Boreal-Cordilleran Ecoregion (Strong and Leggat 1992). The local soils are gray luvisols and organic horizons between 10 to 40 cm thick with light brown to gray silty clayey soil below. A few small pebbles and cobbles were noted likely transported naturally as colluvium or via fluvial or slope-wash deposition. Current land-use is primarily natural forest wildlife habitat with some residential and horse pasture along its eastern margins.

4.1.2 Climate

There is a large range between summer and winter temperatures. However, the mean summer temperature for this Lower Boreal-Cordilleran environment is 12.8°C with a total summer precipitation between 182 mm to 444 mm. The mean winter

temperature is -7.8°C with a total annual precipitation ranging between 285 mm and 756 mm (Strong and Legat 1992).

4.1.3 Soils

The study area's topography is sloped from southwest to northeast on the lower toe slope with a minor drainage along its eastern margins that drains slowly north-to-south toward the Friddis Creek proper. Northern and central portions of the property include lower and swampy localities that composes the margins of the Friddis Creek drainage. The soils include gray luvisols and include organic moss or leafmat accumulations. The silty clay soils in the proposed development areas reflects a base of slope wash, fluvial, and colluvial accumulation.

4.1.4 Vegetation

This locality is in the Lower Boreal-Cordilleran Ecoregion (Strong and Legat 1992). This ecoregion represents the ecological and climatic transition between Upper Boreal-Cordilleran and southern Aspen Parklands Ecoregions. Vegetation includes a mixture of aspen and balsam poplar with white spruce and lodgepole pine, and a transition into a more black spruce dominated ecotone in the lower portions of the development. Understorey vegetation includes hairy wild rye, fireweed, wintergreen, composites, and mosses in poorer drained areas (Strong and Legat 1992; Alberta Natural Heritage Information Centre 1999).

4.1.5 Wildlife

The wild animals of the Lower Boreal-Cordilleran have increased wildlife diversity along the creeks, river valleys, and coulees as well as in deciduous dominated stands at lower elevations (Cottonwood Consultants 1983). This type of terrain is good wintering habitat for elk and mule deer but also include ruffed grouse, common snipe, yellow-bellied sapsucker, black bears, woodchuck, broad-winged hawk and rose-breasted grosbeak. Also, common species from the adjacent parklands will extend habitat particularly to inhabit more open grasslands, pastures or hayfields. These include the red-eyed vireo, red-tailed hawk, least flycatcher, Baltimore oriole, yellow warbler, white-tailed deer, American porcupine, northern pocket-gopher and snowshoe hare. Any open swamps, lakes, or creeks may also include a variety of wetland birds, reptiles, and amphibians (Strong and Legat 1992; Alberta Natural Heritage Information Centre 1999).

4.2 ARCHAEOLOGICAL BACKGROUND REVIEW

The culture history of the study area, as far as we currently know, began with the retreat of Pleistocene, alpine glaciers between 11,900 and 10,000 B.P. (GSC 1976). People have been living in Alberta since at least 11,500 years ago. The earliest people were hunter-gatherers who subsisted on late Pleistocene megafauna such as woolly mammoth, camel, horse and extinct species of bison (Dyck 1983). One such site may include the recent discoveries at the St. Mary's Reservoir in southwest Alberta where mammoth foot prints, musk-oxen, and Pleistocene horse remains were

found. The latter were found in close association with human chipped stone flakes (Kooyman 1999).

Archaeologists generally divide the post-Pleistocene cultural chronology into three periods which reflect faunal changes, climatic changes, and cultural changes. For example, *Bison occidentalis* is associated with the Early Precontact period, Hypsithermal Climatic Optimum with the Middle period, and the presence of pottery vessels or bow and arrow on the Plains for the Late period (Table 1).

A hunting technology using large lanceolate spear points also characterizes the Palaeo-Indian or Early Precontact Period (10,500 B.P. to 7,000 B.P.). These people were communal bison hunters who used mass kill techniques such as traps and jumps, particularly from the central high plains (Frison 1991).

Archaeologists recognize the Archaic or Middle Precontact Period (approx. 7,000 B.P. to 2,000 B.P.) by the appearance of Early Side-notched projectile points that we believe to have been atlatl (throwing stick) dart tips. A variety of other projectile point styles also include lanceolate, stemmed, and corner notched types. The people of this period still practiced communal bison hunting, but artifact and archaeological evidence suggest a broader range of resource exploitation, likely due to a more marginal environment at the time. Most sites of this period reflect a seasonal re-inhabitation of campsites (e.g., Cactus Flower and Redtail Creek sites, see Brumley 1975 or Ramsay 1993).

The Late Precontact period (2,000 B.P. to 300 B.P.) is generally associated with the introduction of the bow and arrow and ceramic pottery to the Northern Plains. The people of this period were communal bison hunters as well. The pottery styles help delineate more specific band-sized archaeological groups and provide evidence for intermarriage and trade-networks which occurred throughout the Plains and beyond. Near the end of the period, the horse was introduced in the area and European trade goods appear in artifact collections, and this is often referred to as the Protohistoric period. European traders followed in-person soon after this time and initiates the Fur Trade period proper. By the mid-to-late 1800s established forts and police posts helped to establish the immigration and settlement of Europeans, eastern Canadians and other nationalities into the west.

TABLE 1: Culture History of the Northern Plains

Archaeological Periods	Archaeological Cultures	Archaeological Site Types	Geological Period/ Paleoclimate
Radioarbon Years Ago (Before Present or B.P. from c.1950)	Europeans, Asians, Euro-Canadians, Afro-Americans, Nations' Reserve	Homesteads, Forts, Cemeteries, Burials, Town sites, and various industrial sites (i.e., mining, forestry, brick plants, etc.).	Holocene: current climate
from approximately 150 years ago (4-5 generations)	Post-contact Settlement Period	Fortes, Posts, Portages, Trade Items.	Holocene: cooler and moister conditions
150 to 300 years ago (9 generations)	Post-contact Fur Trade Period	Europeans, Euro-Canadians, and First Nations	Holocene: periods are warmer and varied from dry to moist.
from 2,000 to 300 years ago (60 generations)	Late Precontact Period (Arrowheads and Pottery)	Plains Side-Notched Prairie Side-Notched Avonlea Bessant-Sonota	Holocene: Late Sub-Atlantic, Scandic, Neo-Atlantic, and Pacific Climatic periods are warmer
from 7,000 to 2,000 years ago (200 generations)	Middle Precontact Period (Various shaped Atlatl-sized spear tips)	Pelican Lake McKean (McKean, Duncan, and Hanna) Early Side-Notched (Oxbow and Gowen)	Holocene: Hypsithermal or Atlantic Climatic Optimum (Warm and Dry)
from 10,500 to 7,000 years ago (300 generations)	Early Precontact Period (Plano - large lanceolate spears but no fluting)	Late Plano Cody (Eden, Scottsbluff) Alberta Agate Basin/Hell Gap	Plleistocene-Holocene Transition (cold)
from 11,500 to 10,500 years ago (330 generations)	Plleistocene Big Game Hunter Period (Llano - large lanceolate spears with fluting)	Folsom Clovis	Late Pleistocene: Glacial Retreat
13,000 to 30,000 years ago or 400 to over 800 generations ?	Pre-Clovis Period?	Monte Verde, Chile no Pre-Clovis cultures identified in Alberta	Late Pleistocene: Glacial Advance

4.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITE DATA

The surrounding study area is delimited as an approximate 5 km radius in order to focus on the specific relevant previously recorded archaeological resources (Figure 1). Closest previously recorded sites include numbers EFPo-1, 3, 4, 5, 6, 7 and EFPn-2 & 4. EFPo-6 is approximately 1 km north of the proposed development on the north side of Priddis Creek. EFPo-6 is on a south facing slope located inside the confluence of Priddis Creek and another smaller creek and is within 100 m of Priddis Creek.

Diagnostic artifacts from sites in the region range from large stemmed projectile point spearheads that date to the Alberta culture (over 9,000 years ago), through Oxbow culture (5,000 years ago), Pelican Lake culture (2,500 years ago), Besant culture (1,500 years ago), and Old Women's culture (600 years ago).

In addition, several historic period artifacts are scattered throughout the general area and range from earlier Fur Trade period (approximately 300 to 150 years ago) axes, earthenware, and trade items, to later Settlement period (approximately 150 to 50 years ago) farming implements and associated ethnic material culture. Overall, this background archaeological data indicates that there is a high probability for archaeological resources to be located in the proposed development area.

TABLE 2: Selected Previously Recorded Archaeological Sites in the Area

Site	Site Type Category	Location	Comments/Notes
EFPo-1	Kill/camp - SS	~3 km south	Aresco-75-42, 78-75, and updated 79-96
EFPo-3	Campsite ? - SS	~5 km NW	75-15
EFPo-4	Campsite - SS	~2.5 km N	75-15, 78-75
EFPo-5	Camp/Kill	~4.5 km S	75-42, 78-75
EFPo-6	Campsite?	~1 km N	75-42, 78-75
EFPo-7	Surface Scatter	~5 km NW	86-15
EFPn-2	Campsite - SS	~4.5 km E	U. of C.
EFPn-4	Campsite ? - SS	~4 km E	75-15
Historic	Coal Mine	~200 m W	

Previously recorded sites indicates a foci of precontact and historical activity along the Fish Creek valley its tributaries. This valley provided a foci for human occupation both in precontact, fur trade, and settlement periods.

5.0 Investigation Methods

The Historical Resources Inventory and Assessment study included five stages:

- 1) Inventory and Historical Review. We visited the resource centre of Alberta Community Development to search the files for previously recorded historical resources in the general study area.
- 2) Visual reconnaissance: Pedestrian transect surveys were conducted in approximately 20 m to 50 m wide swaths across the entire proposed development area. Most of the area was treed and provided generally poor surface visibility. However, some previous trails, dozed access cuts and minor clearing provided *improptu* subsurface inspection locations along cut profiles and surface disturbed areas.
- 3) Prospective test excavations: Tests were conducted using approximately 40 cm x 40 cm shovel probes in previously undisturbed areas judged to have archaeological potential in the impact zone.
- 4) Photographic recording: No intact historical vintage buildings were present in the proposed development area, although current-use buildings are present.
- 5) Report: The information gathered in the study is presented in this final permit report.

6.0 Results

We visited the proposed development on September 18, 1999. Surface exposure ranged from poor to good with better ground surface visibility in the disturbed areas of the proposed development (Figure 2). Also, a few northern pocket gopher back dirt piles also provided another type of subsurface exposure that was routinely inspected. Our surface reconnaissance did not identify any historic resources nor did 15 defined subsurface assessment inspections (see Figure 2).

Our subsurface testing program included 13 shovel assessment tests and inspection areas in total (Figure 2 and Table 3). These were judgmentally and opportunistically placed to sample areas on the upper and lower portions of the development where potential historic resources may be located.

Table 3: Test Data Results Summary

Test Number	Ah/plowzone thickness (cm)	Bottom of test (cm)	Recovered items	Comment
1	35	45	no	Lot 5, low area, moss organic
2	10	60	no	Lot 6, relatively level area
3	15	130	no	Lots 4 and 6, road cut 40 m
4	10	140	no	Lots 2, 3, & 4, road cut & clear
5	10	140	no	Lots 1 & 8, road cut 30 m
6	40	50	no	Lot 1, low area, organic
7	surface exposure	5-10	no	Lots 1 & 8, cleared ~50x50 m
8	30	65	no	Lot 2, on ridge overlooking low
9	20	75	no	Lot 3, on ridge overlooking low
10	10	100	no	Lot 3, low area, moss organic
11	surface exposure	5-10	no	Lots 2, 3, & 4 clear ~50x50 m
12	18	35	no	Lot 4, east ridge, organic
13	18	40	no	Lot 4/5, west ridge, organic

7.0 Recommendations

Based on this background historic information and standard field archaeological investigations there are no significant historical resources within the proposed development. It is, therefore, recommended that the proposed development be cleared of historic resource concerns. This recommendation is with the understanding that any new information or chance encounters of historic resources be brought to the attention of Alberta Community Development, as this is standard with any development. Stated personnel may be called on a moment's notice to evaluate or verify potential historic, archaeological or palaeontological resources chance discoveries..

8.0 References

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- Phillips, D. 1990. *The Climates of Canada*. Environment Canada. Minister of Supply and Services Canada.
- Ramsay, C. L. 1993. *The Redtail Site: A McKean Habitation in South Central Saskatchewan*. M.A. Thesis on file at University of Saskatchewan, Saskatoon.
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General Location of Proposed Residential Development

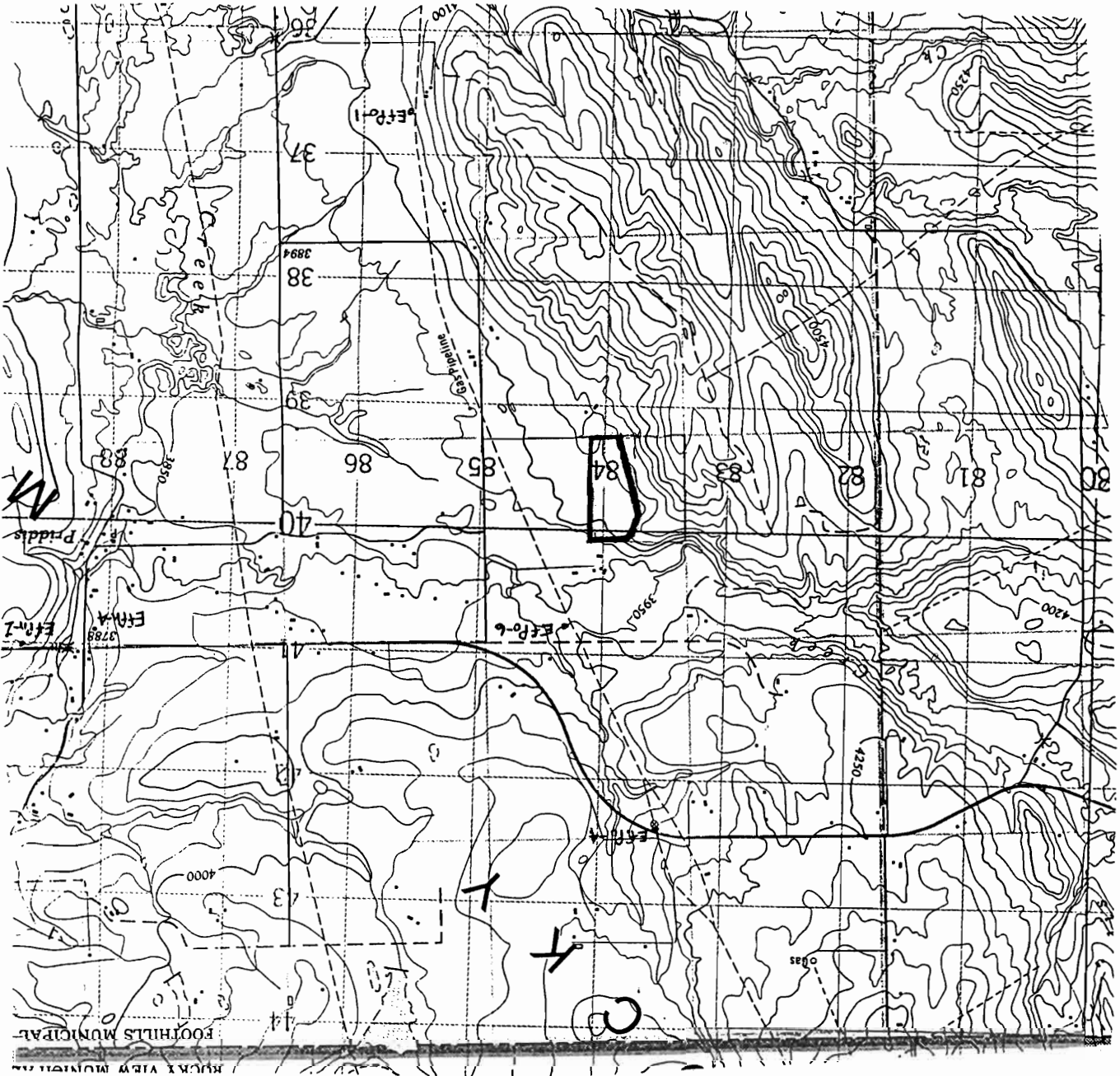
Title

1.0

Figure No.

Client/Project
SCOTT DEVELOPMENTS LTD.

Legend
66 Archaeological Sites
Proposed Development





Stantec

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Scale: 1:8000

Proposed Residential Development Plan and Inspection Observations

Title

2.0

Figure No.

Client/Project: SODOCO DEVELOPMENTS LTD.
HISTORIC RESOURCE
IMPACT ASSESSMENT NEAR PRIDDIS

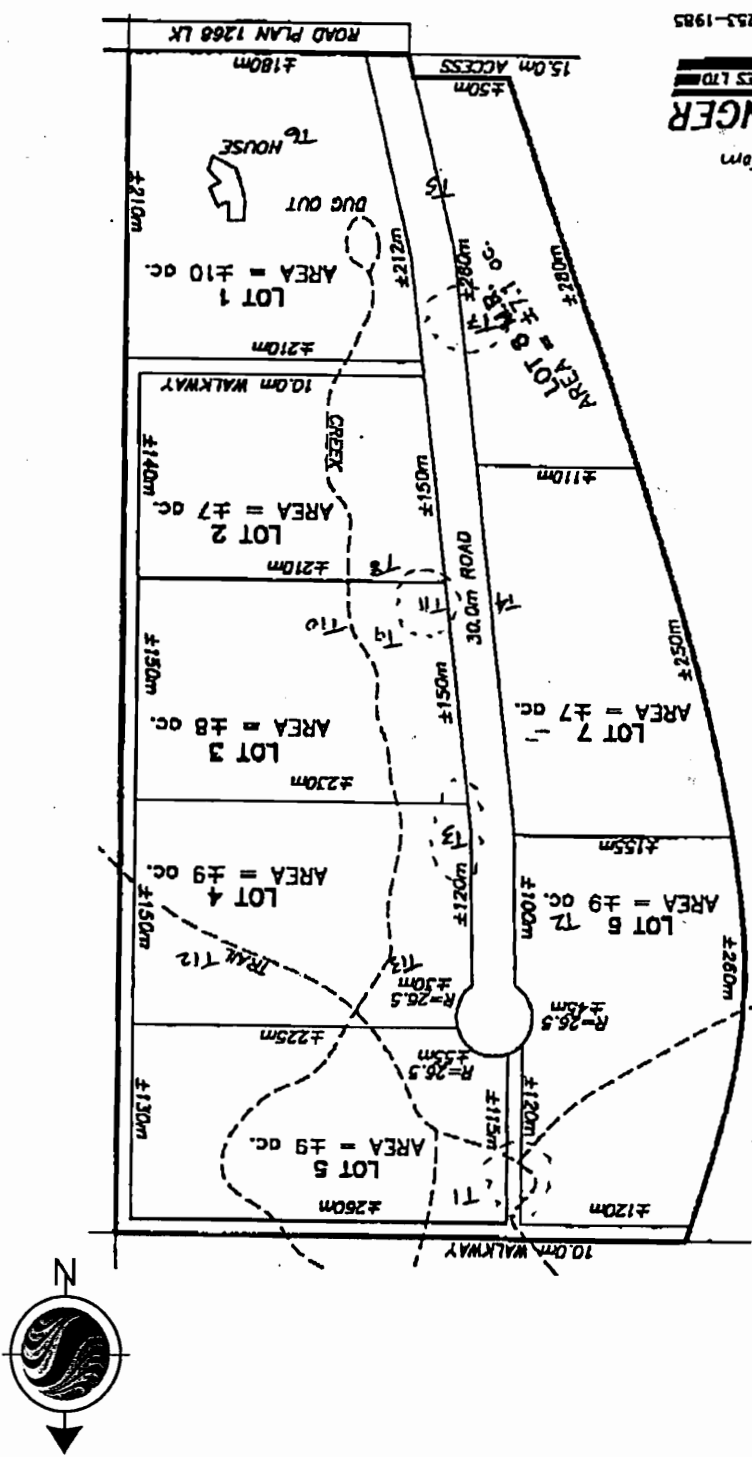
LINE 1
LINE 2
LINE 3

Legend

CHALLENGER
SURVEYS & SERVICES LTD.
CALGARY, ALBERTA
(403) 253-8101 FAX 253-1985

Modified from

S.W. 1/4 SEC. 20
22-3-5



APPENDIX A:
ARCHAEOLOGICAL SITE INVENTORY DATA FORMS

September, 1999

ARCHAEOLOGICAL SITE INVENTORY DATA

Return to:
Archaeological Survey
10158 - 103rd Street
Edmonton, Alberta T5J 0X6

Historic Resources Division

CULTURE



Borden No. EFR-1
Cross Ref.
SITE RE-EVALUATION
Aresco Ltd.
12356 - 40 Ave. N.E.
Calgary, Alberta

1. Site Name
2. N.T.S. Map Ref. 82J/16
3. Latitude
4. Longitude
5. U.T.M. Location 11UPG856367
6. Legal Description NE % SW % of Section 9 T 22 R 3 W of 5 M
7. Air Photo Reference Number Series Elevation 1235 m
8. Location/Approach West on Hwy 22 into Prid's turn W onto section road and follow for 1.6 km to T junction, turn S and drive to Fish Creek Bridge, turn in just before bridge. After 300 m take road to right and drive 1.3 km to Jack Robbins farm.
9. Site Type Kill site/campsite 10. Description located below a series of spring on gentle E-facing slope. Site consists of found material (bison & elk) scattered in field as well as campsite remains (FBR & flakes). Site area lies east of AgTL right-of-ways (Alaska Highway line & 36" mainline)
11. Local Environmental Setting Undulating ground Moraine. Land cleared in 1930's. Aspen and spruce in vicinity.
12. Cultural Affiliation Unknown 13. Dating Evidence None
14. Material Collections and Storage Location None
15. Site Condition:
☐ undisturbed
☒ largely disturbed
☐ partially disturbed
☐ destroyed
16. Current and Potential Site Disturbance Factors Ploughing and 36" Foothills Mainline have impacted site. Alaska Highway line will not impact site.

17. Inspection Status: ☒ observed by Ron McFee

☐ surface collected by _____ tested by Ron McFee (26 Auger tests

☐ excavated by _____ Date August 1979

18. Recommendations No further work unless to be impacted

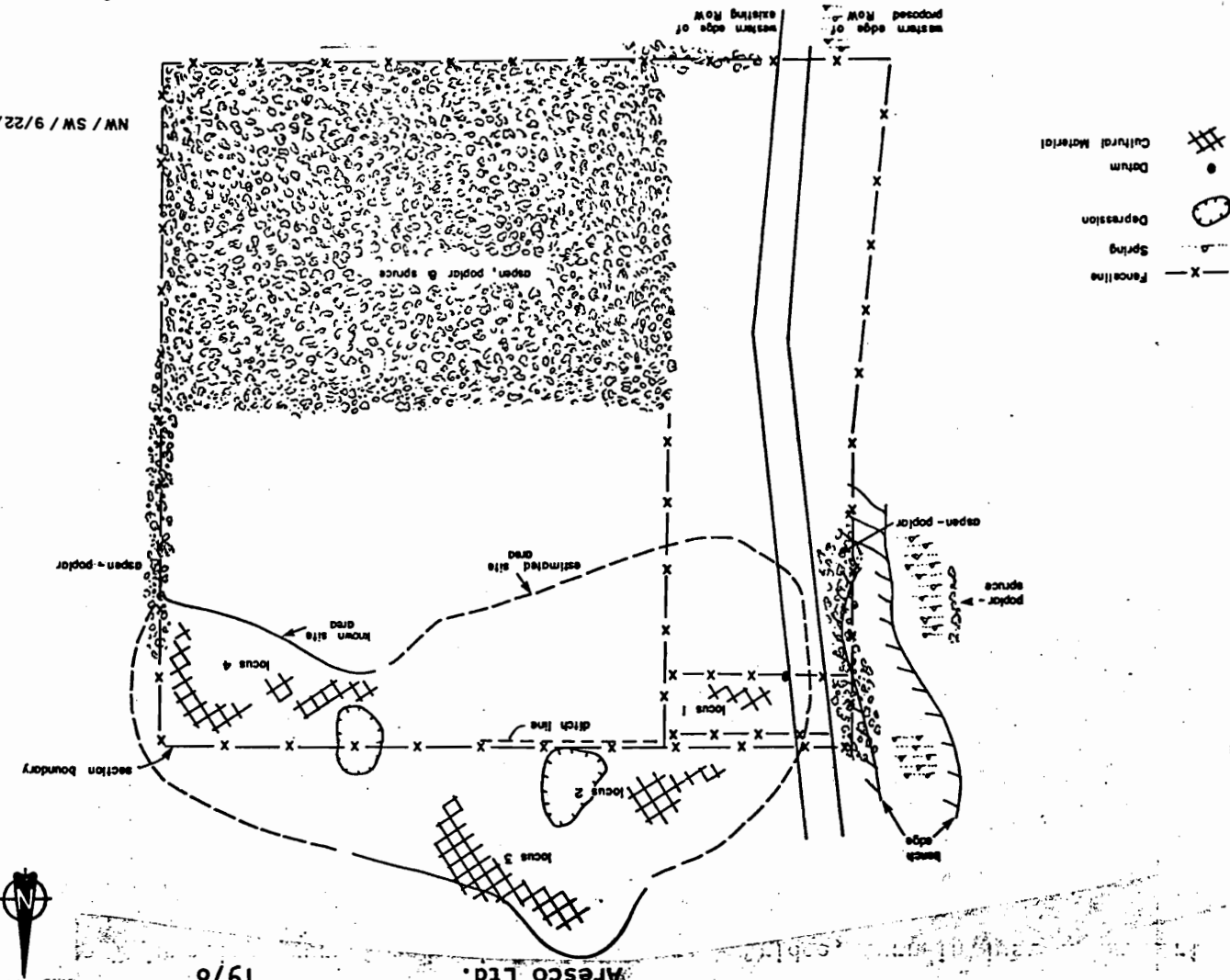
by Bruce Wright

19. Land Owner/Occupant and Address Jack Robbins, Box 6, Site 6, RR #1, Priddis, Alberta

20. Sketch Map and/or Additional Comments

Previously Reported

D.R. King, Glenbow Museum 1961
Lifeways of Canada Ltd. 1976
Aresco Ltd. 1978



21. Form Completed by Bruce Wright Date November 1979

22. Information Supplied by Ron McFee Date November 1979

23. Project Affiliation 78-79-96 Date _____

ARCHAEOLOGICAL SITE INVENTORY DATA

(UPDATED)

Borden No. **FPo-1**
Cross Ref. **75 CAGSL**

1. Site Name **82J/16 PRIDDIS**
2. N.T.S. Map Ref. **11UPG856367**
3. Latitude **50° 51' 22" N**
4. Longitude **114° 22' 22" W**
5. U.T.M. Location **11UPG856367**

6. Legal Description **6616-26-86C Aerial Mosaic: 2C-0200-1007 M.D. of Foothills**
7. Air Photo Reference Number **5019, R127-12** Series **Elevation** **#31**
8. Location/Approach **Follow Highway 22 West from Highway #1 to Priddis turnoff.**

Continue west for 2 miles, turn south for 3 miles to road west along north side of Fish Creek. Follow road for less than a quarter of a mile to private road on to ...
9. Site Type **Kill site**
10. Description **Scattered bones and**

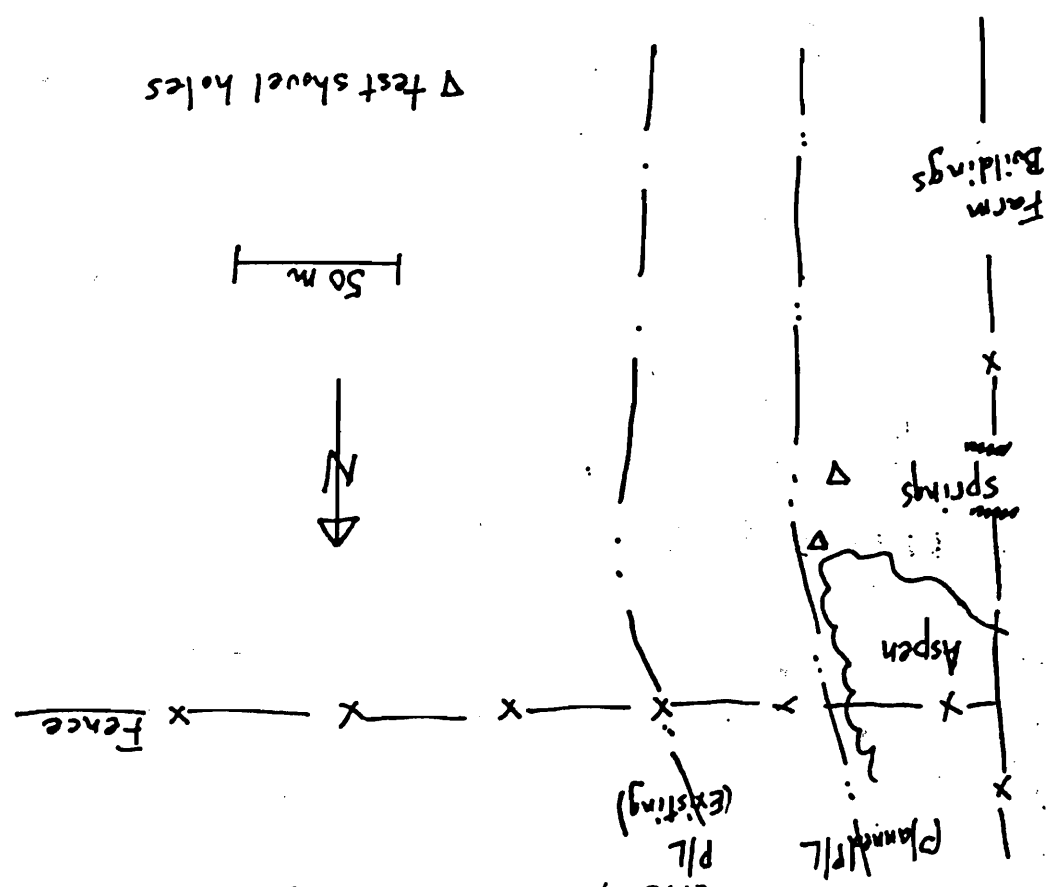
FBR in field just east of AGTL Row. One possible core fragment collected. Some non-bison bone also collected. One bone fragment exposed in small cutbank - approx. 25 cm. B.S. Very boggy ground strewn with buffalo bones and elk. Break plough went to 20-25 cm below surface
11. Local Environmental Setting **Originally undulating swampy ground gently falling off in easterly direction. Aspen and spruce covered all land into 1930's.**

12. Cultural Affiliation **13. Dating Evidence**

14. Material Collections and Storage Location **Bones, core fragment, non-bison bone fragment collected in 1961.**

15. Site Condition: ☐ undisturbed ☒ largely disturbed ☐ partially disturbed ☐ destroyed
Area has been broken, cleared, ploughed, planted
Current and Potential Site Disturbance Factors **Water erosion. Construction of Alaska Highway Pipeline. and dug-highly disturbed. Would directly impact the site.**

17. Inspection Status: ☒ observed by D.R. King (May 17, 1961); T. Head (1975); R. Maag (Oct. 16, 1978) ☐ surface collected by Tom Head (1975) ☐ tested by R. Maag (Oct. 16, 1978) ☐ excavated by _____ Date _____
18. Recommendations Testing required (T. Head). Place (1 x 1m²) test pits to determine extent of site. Site is of moderate value (R. Maag)
19. Land Owner/Occupant and Address Jurisdictional/Management Unit: MD of Foothills #31. Jack Robbins- Box 6, Site 6, RR#1, Priddis
20. Sketch Previously reported: D.R. King, Glenbow Museum 1961 Lifeways of Canada Ltd. 1976



17. Inspe

✓

□

18. Reco

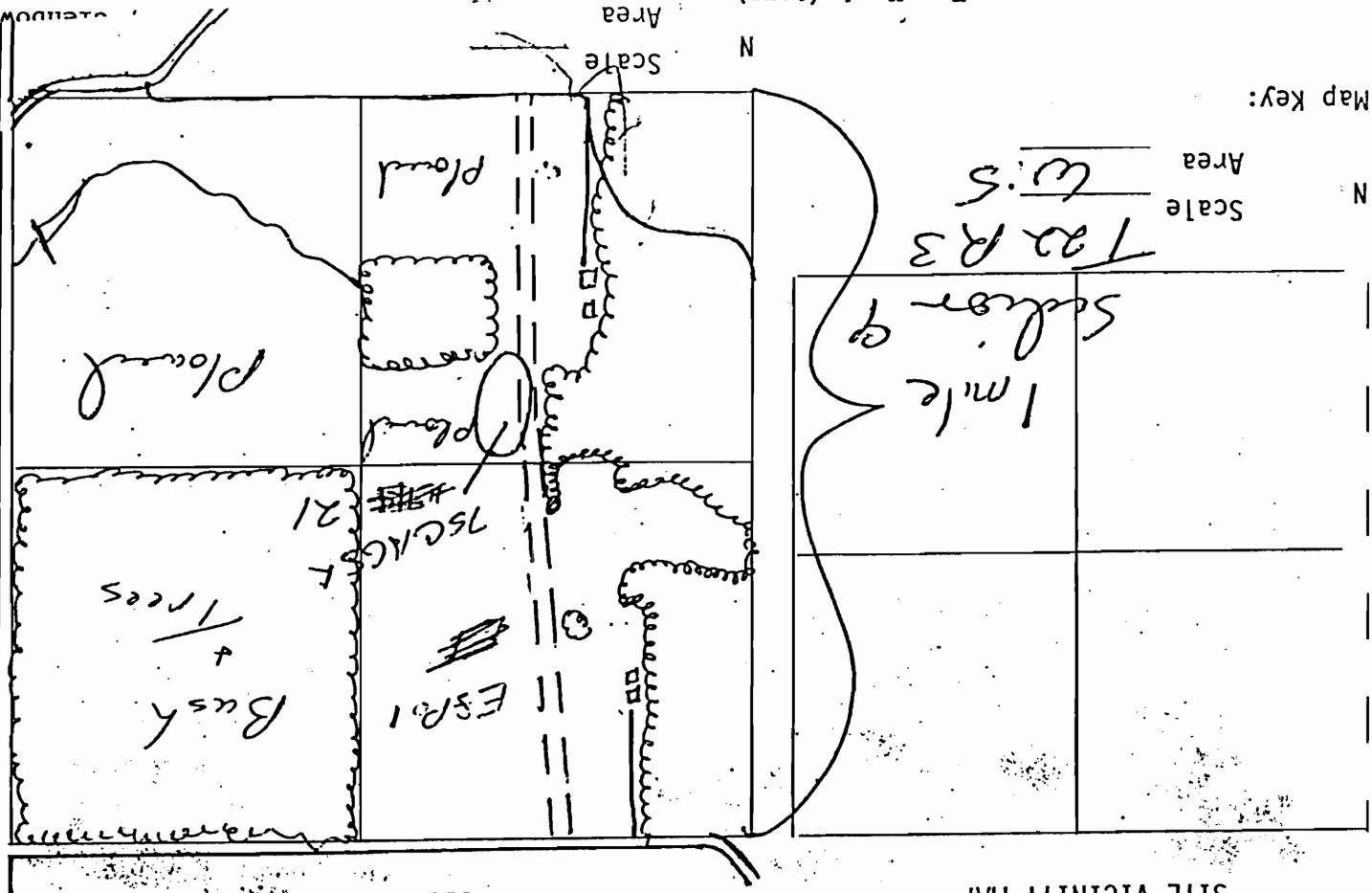
exte

19. Land

20. Sketch map and/or Additional comments

...J. Robbins farm. Follow road to AGTL Row and proceed south about 1/3 mile.
located below a series of springs on gentle E-facing slope.
CAGSL
Site is east of proposed ROW. Possibly pipeline construction.

SITE VICINITY MAP SITE DESCRIPTION MAP



21.

Form Completed by

-Tom Head (1975)

Date

-R. Maag (November 8, 1978)

Date

Information Supplied by

Jack Robbins, Piddis

Date

October 16, 1978

Lifeways of Canada Ltd. (75-42)

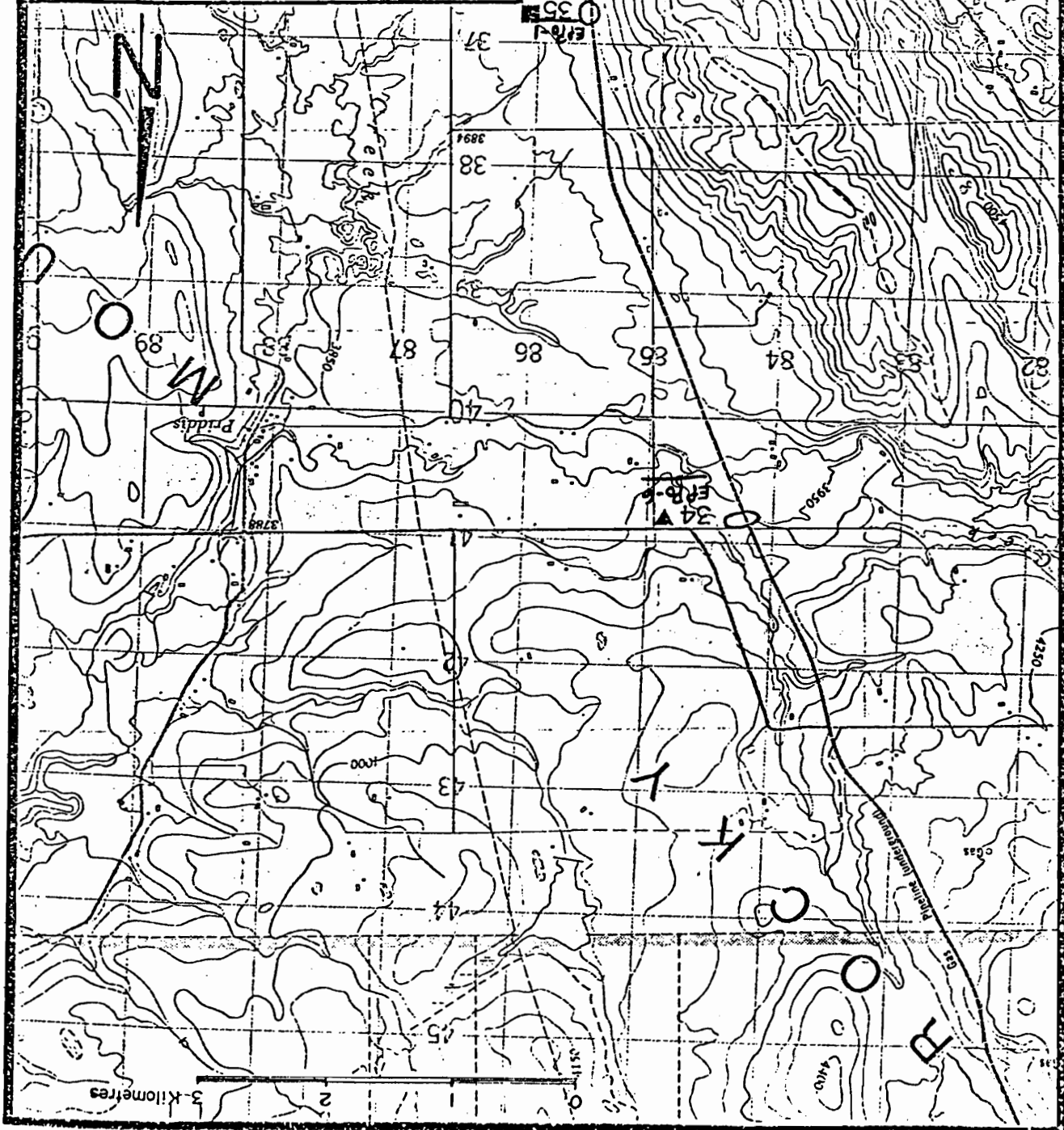
Date

Heritage Site Inventory Form

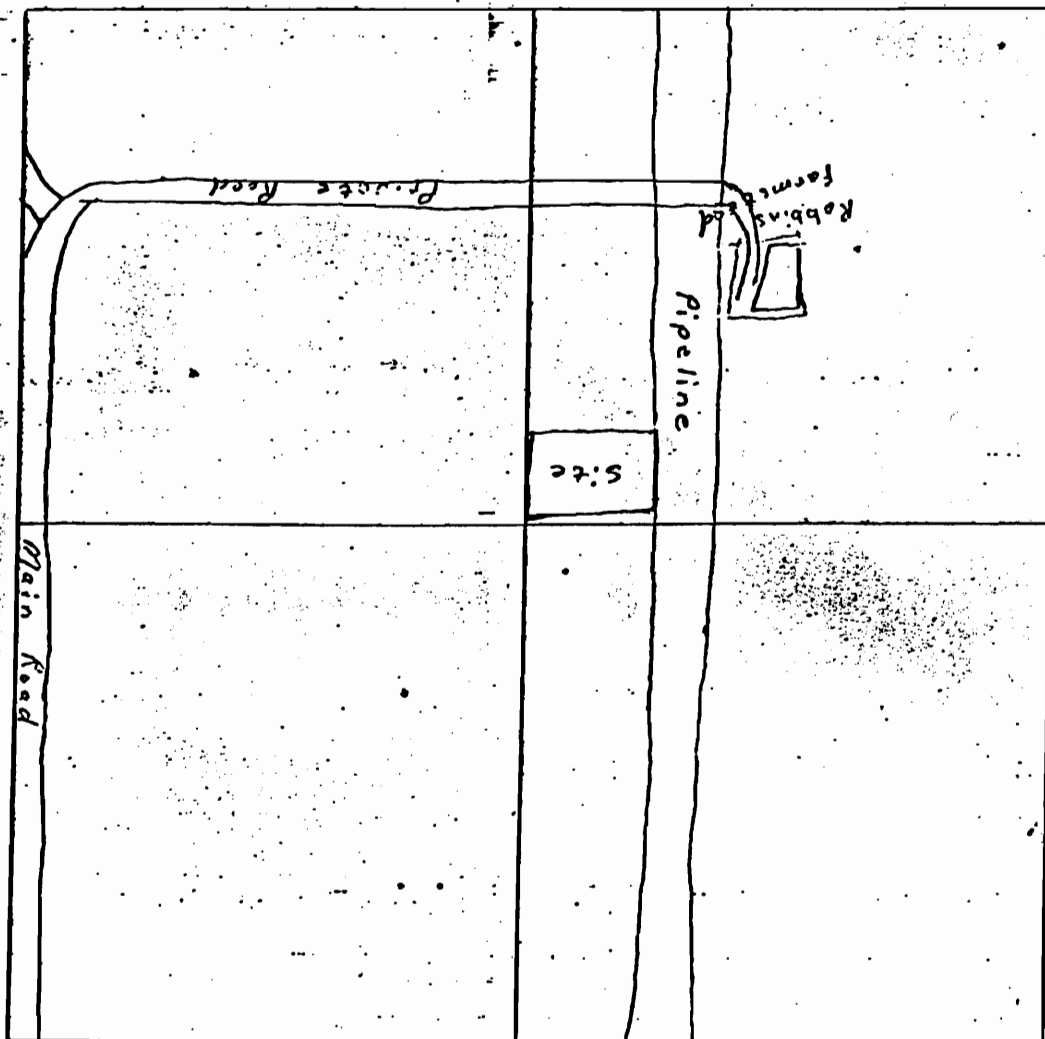
78-75 + 79-96

ARCTIC GAS HERITAGE SITE
 LOCATION MAP (82J/16)
 Site Area
 PREHISTORIC
 Campsite
 Kill Site

FIGURE 8: FISH CREEK



N



1" = 1000'

SCALE

When entire square represents a section, 1" = 1000'

2. APPROACH TO SITE. From Priddis go West ca. 1 mile - turn South $2\frac{1}{2}$ miles then west again about 1 mile to Robbins place on side of hill - private road. Site is in valley about $\frac{1}{2}$ mile North of house.

23. REMARKS: No sign of Indian. Inasmuch as site is very boggy at present I suggest animals may have been trapped and died naturally.



Archaeological Site Inventory Data
Archaeological Survey of Alberta
10158 - 103rd Street
Edmonton, Alberta T5J 0X9

Return to:

Cross Ref.

Borden No. EFO-4

1. Site Name Priddis

2. N.T.S. Map Ref 821/16

3. Latitude 50° 54' +

4. Longitude 114° 23' +

5. U.T.M. Location 11UPG835424

6. Legal Description NW 1/4 of Section 29, T. 22, R. 3, W. of 5, M. 5

7. SR922-14 mosaic 3 and 4 of 5

8. Location/Approach Approx 4.5 mi W on SR922 from Jct of Hwy 22 and SR922. Site is located where SR922 swings W once again after heading N, at Highway 22 & pipeline intersection. Located on highest terrace above unnamed tributary to Priddis Creek.

9. Site Type Campsite

10. Description Flakes, calcified bone frags, a hearth, and FBR were located on the S side of the alignment on the upper W side of a small creek valley. No cultural material observed when site revisited in October of 1978.

11. Local Environmental Setting Foothills/ closed coniferous and deciduous forest/ Valley edge. Undulating, well drained stony ground with slight to moderate slope to SE.

12. Cultural Affiliation 13. Dating Evidence ...

14. Material Collections and Storage Location Flakes collected in 1975.

15. Site Condition: ☐ undisturbed ☒ largely disturbed

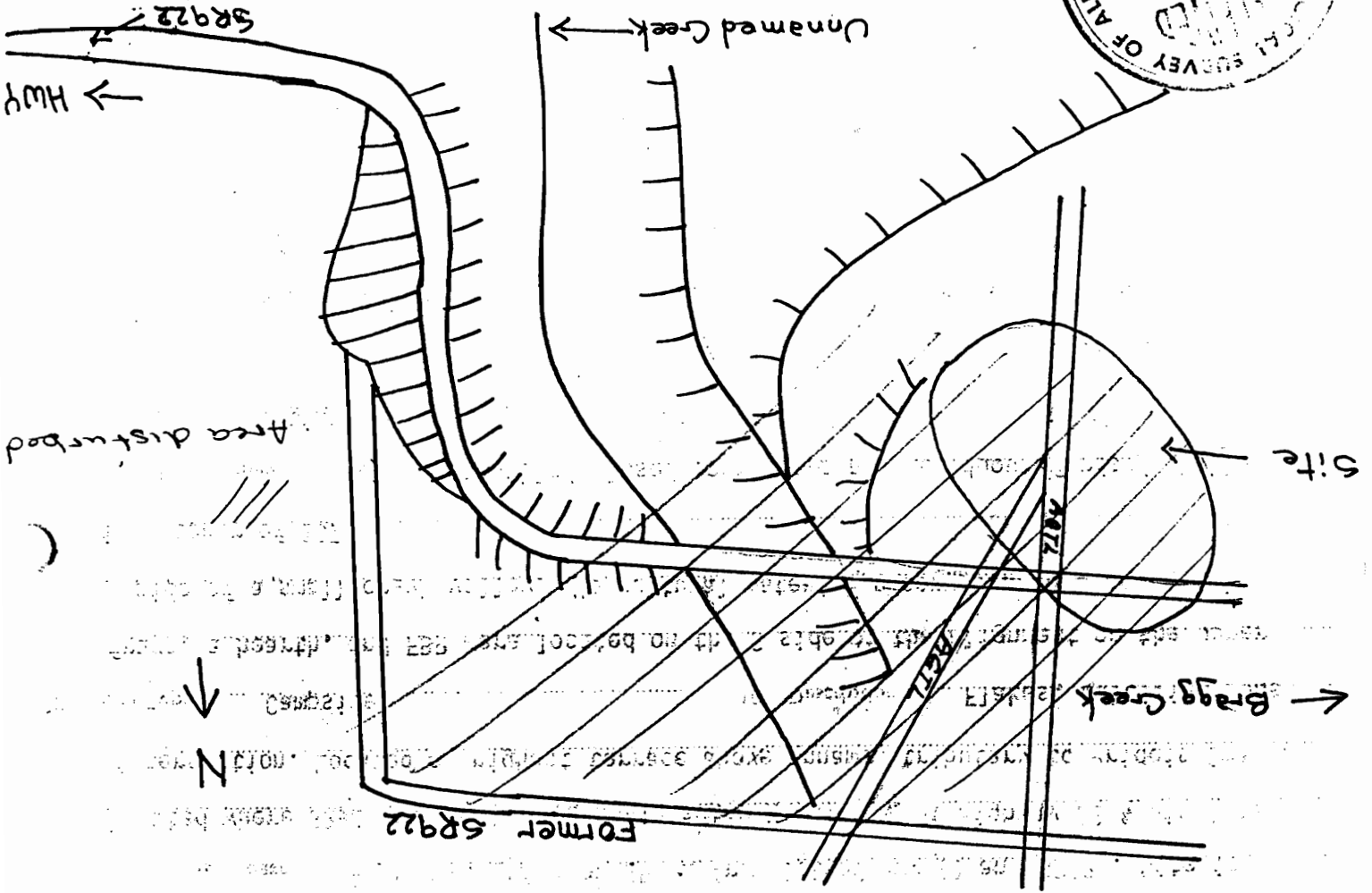
16. Current and Potential Site Disturbance Factors 1. Past AGIL pipeline construction

2. SR922-14 alignment clearance has largely disturbed site area. 3. Local road access

4. Construction of Alaska Highway Pipeline would directly impact the site-



23. Project Affiliation 75-15 & 78-75 Date Aug/75
22. Information Supplied by R. Maag R. Anderson Date Aug/75
2. Form Completed by November 9, 1978



20. Sketch Map and/or Additional Comments

19. Land Owner/Occupant and Address Province of Alberta
18. Recommendations None. Site area has been extensively disturbed.
excavated by Date
surface collected by R. Anderson (Aug/75) tested by S.J. Baldwin (Oct. 16/78)

17. Inspection Status: observed by R. Anderson (Aug/75); S.J. Baldwin (Oct. 16/78)
surface collected by R. Anderson (Aug/75) tested by S.J. Baldwin (Oct. 16/78)

1. Site Name 2. N.T.S. Map Ref. 82J/16 Priddis.
3. Latitude 4. Longitude 5. U.T.M. Location 11UP6 843 408
6. Legal Description NW 1/4 NE 1/4 of Section 20, T. 22, R. 3, W. of 5, M. 5616-26-866
7. Air Photo Reference Number 5020 R127-11 Series Elevation 3950' ASL
8. Location/Approach Site is located on the north side of Priddis Creek, west of Priddis, Alta where AGTC R/W crosses Fish Creek. On high terrace overlooking creek, observed east of right-of-way.
9. Site Type Campsite 10. Description FBR exposed in ploughed field Could relate to clearing activities. When viewed in Oct., 1978 only a few pieces of possible FBR observed on surface. No cultural material noted.
11. Local Environmental Setting Foothills. High, flat, grass-covered terrace (Oct. 1978) at west.s of locality: breaks into gentle knolls, grass-covered on east side of location. Dense aspen forest immediately north of locality of supposed site. Creek valley with aspen an spruce, plus grass to south of locality. Area of supposed site is well drained with good soil development.
12. Cultural Affiliation 13. Dating Evidence
14. Material Collections and Storage Location
15. Site Condition: ☐ undisturbed ☐ largely disturbed
16. Current and Potential Site Disturbance Factors Arctic Gas System. Previous AGIL pipeline construction Future Alaska Pipeline construction would directly impact the site.

ARCHAEOLOGICAL SITE INVENTORY DATA

Return to:

Archaeological Survey
10158 - 103rd Street

Edmonton, Alberta T5J 0X6

Historic Resources Division

CULTURE



Borden No. EFP-6
Cross Ref. 2C-34
75 CAGSL 34

23. Project Affiliation 78-75 & 75-42 Date

Information Supplied by Date

21. Form Completed by B. Reeves Date November 2, 1978
July 5, 1976

20. Sketch Map and/or Additional Comments

19. Land Owner/Occupant and Address

18. Recommendations Site is of limited to unknown value.
excavated by
surface collected by
shovel
Tom Head (Sept. 1975); Stuart J. Baldwin (Oct., 1978)
observed by
tested by S.J. Baldwin (Oct., 1978)
Date

17. Inspection Status: ☒ observed by
Tom Head (Sept. 1975); Stuart J. Baldwin (Oct., 1978)
shovel
tested by S.J. Baldwin (Oct., 1978)
surface collected by
excavated by
Date

20. Sketch Map and/or Additional Comments

No material recovered in Oct., 1978, from shovel test.

Sketch Map and/or Additional Comments

Open Forest

Road

Reported Site Area

Ridge

Flood plain

Pridais Creek

Schematic - Not drawn to scale

ACR 1/1

S.J. Baldwin

B. Reeves

HISTORIC SITES

CULTURE



INVENTORY SITE FORM

SUB-TYPE COAL

TYPE MINE

Borden Number

Research File R

72727

5

8

Legal

12 13 15 17 19 22 24

LOT 26 29 32

BLOCK 35

PLAN 38

5W 1/4 S 20 T 022 R 03 W 5

Address

41 46 49

71 75

Urban/Rural

Town

Name

78 82 85 88 91 95 99

Style

Present Use

Alterations

Original Use

Active/Occasional Use/Abandoned/Ruins/Demolished

Condition

98 99

Dimensions

View

Date of Photo

Source

Negative

View

Date of Photo

Source

Negative

COUNCIL'S DECISION – SEPTEMBER 16, 1999

APPENDIX B

Municipal District of Foothills No. 31

309 MACLEOD TRAIL, BOX 5605,
HIGH RIVER, ALBERTA T1V 1M7
TELEPHONE (403) 652-2341 or (403) 931-1905
FAX (403) 652-7880



September 24, 1999

Challenger Surveys & Services
C/O Brandy Clements
#300 - 6940 Fisher Road SE
Calgary, AB T2H 0W3
CANADA

Dear Ms. Clements:

Re: Redesignation - PTN: S.W. 20-22-03-W5M

Please be advised that at its September 16, 1999 meeting, Council gave first reading to Bylaw 148/99 authorizing the redesignation of the above-noted land from Agricultural Conservation District to County Residential District in order to permit the future subdivision of seven lots. Prior to further consideration of the Bylaw, Council is of the opinion that an Area Structure Plan is necessary and therefore you will be required to prepare a Plan that includes any future plans for the entire quarter-section. This plan may include the surrounding quarter-sections should you choose to proceed in this manner.

We would like to make you aware that third and final reading must be given within two years from the date of first reading. You therefore have until September 16, 2001 to finalize this application or your Bylaw will automatically be rescinded.

Should you require any further assistance please contact Kelley Fiske-Nielsen of our Planning Department.

Sincerely,
MUNICIPAL DISTRICT OF FOOTHILLS NO.31

Judy Gordon
Planning Coordinator

/cg

CC: Vince Sood
120 Oakside Circle SW
Calgary, AB T2V 4H1

APPENDIX C

RESTRICTIVE COVENANT

**RESTRICTIVE COVENANT RESPECTING
SIMRAN COVE ESTATES**

WHEREAS:

A) Soodco Developments Ltd. (the "Developer") is the Owner of the lands, depicted in Land Use Map No. 3, legally described as: W5M, R3, Twp. 22, Sec. 20, S.W. Quarter, Province of Alberta (the "Lots") forming the **Simran Cove Estates** development;

B) The Developer will sell the Lots only to individuals who desire to live in a country residential community of good quality and have the benefit of the covenants herein (the "Purchaser");

C) The Developer will permit to be built upon the Lots only single-family, country residential structures of good quality that shall take advantage of and complement the existing peaceful forested environment in the Priddis area of the M.D. of FOOTHILLS No. 31; and

D) The Developer intends that the burden and benefit of all of the covenants contained herein shall permanently run with and bind the above land including each and every part of each and every one of the Lots, such that this document shall be annexed to the Title to each of the Lots binding each and every Purchaser of each and every Lot and all their successors in title.

NOW THEREFORE the Developer, as current Owner of all the Lots, subject to such liens, encumbrances, and interests as are notified by a memorandum on title, in consideration of the promises and mutual covenants contained herein, on its own behalf and on behalf of its successors in title to the land and to each Lot, does accordingly covenant with the Purchaser of each of the Lots to which this Restrictive Covenant shall be permanently annexed, in Good Faith as follows:

1) The Developer and the Purchaser acknowledge that the following Alberta legislation may govern the Parties and be paramount over certain matters dealt with hereinafter:

***Municipal Government Act,
Environmental Protection and Enhancement Act, and
Wilderness Areas, Ecological Reserves and Natural Areas Act.***

2) All references herein to: "Municipal Development Plan and "Land Use Bylaw", shall be to the Municipal Development Plan and Land Use Bylaw respectively of the Municipal District of FOOTHILLS No. 31. The Developer hereby adopts all the applicable portions of:

a) the definitions set out in, current section 2.3 of, the Municipal Development Plan, and
b) the interpretations set out in, current section 34 of, the Land Use Bylaw

c) the General Land Use Regulations & Provisions, currently section 7, of the Land Use Bylaw,

each of which shall be presumed to define the minimum standard to be employed implementing this Restrictive Covenant where no express provisions for any matter set out herein have been supplied.

3) Wherever any term or word used or referred to in this Restrictive Covenant is not sufficiently defined herein to permit an unambiguous interpretation of the same, the Parties shall first refer to the Simran Cove Estates Concept Plan and Outline Plan, if any, after which the Parties shall refer to the Developer's Web-site for Guidelines, all of which resources are hereby incorporated by reference hereinto for the better clarification of the meaning of this Restrictive Covenant. As a last resort, the relevant Developer's Expert identified in Schedule "1" hereto (or any group of said Experts) shall have the sole and unfettered discretion to define such term or terms and to otherwise determine all objective Standards and Methods required to resolve any dispute hereunder. Each Purchaser waives all rights of Mediation, Arbitration, and Litigation respecting this Restrictive Covenant, and promises to apply common sense in honoring the spirit of this document. By example and not in limitation, in relation to what constitutes each of: a "tree", a "shrub", a "bush", "grass", "water", "commercial", "substantive", "aesthetically pleasing" and all the other common elements of nature and basic terminology that (regardless of: size, type, or appearance) it is necessary to refer to in this Restrictive

Covenant, the Parties intend that no "battle of experts" shall arise hereunder, to which end the Parties confirm that the Developer's Expert's definitions shall be final and binding on the Purchaser.

4) The Lots shall only be used for the purpose of single family, country residential, development. No attached or semi-detached dwelling, duplex or apartment shall be erected on the Lots providing that nothing herein shall prevent the Purchaser of any lot making adequate provision for domestic staff, subject to review by an Architect to be appointed by the Developer, and a satisfactory report by the Architect relating to the said staff accommodations, resulting in the Developer's consent, which shall not be unreasonably withheld, thereto. The Guidelines provided in Schedules A, B, C hereto shall govern the matters with which they deal and shall form the basis for such architectural review.

5) The Purchaser(s) shall, automatically upon purchasing a lot, become a member of the Simran Cove Estates Community Association ("SCECA"), which organization shall provide for the maintenance of all common spaces and ensure that the terms of this Restrictive Covenant are honored in the best interests of all Purchasers. SCECA shall operate on a "Not-for-Profit" basis in accordance with all applicable Alberta legislation granting the power to levy dues and other charges against all members for the common good. SCECA shall appoint an Architect to act as an objective Expert in Restrictive Covenant related disputes between Purchasers. In the absence of such formally appointed professional, the Developer's Architect shall fill this role. The Developer's appointee shall hold a permanent seat on the Board of Directors of SCECA. The Developer shall further retain a sufficient interest in all common spaces, including all natural areas, to commence action in any capacity and may bring such action in the Court of Queen's Bench of Alberta to enforce this Restrictive Covenant. The Purchaser(s) hereby waive all right to deny the Developer's standing to bring action hereunder and are thereby estopped from denying the Developer's valid standing.

6) Each Purchaser shall supply the Developer with extensive photographic evidence of the condition of the Purchaser's lot, as well as all the immediately adjacent properties, prior to any development of that lot by the Purchaser. This photographic portfolio of the subject lot is a condition of approval of any development thereof. The Developer hereby reserves the right to confirm the content of the photographic portfolio so supplied and to further have its agents enter upon the Purchaser's lot at any time prior to or during any construction work to confirm compliance with this Restrictive Covenant and to observe, inspect, photograph, and/or correct that construction work or any violations hereof.

7) Each Purchaser agrees it would be difficult to measure damage to the Developer from any breach by the Purchaser of any of the provisions set forth herein and relating in any way to any failure to comply with any of the Purchaser's restrictions or obligations under this Restrictive Covenant. The injury to the Developer from any such breach would also be difficult to calculate, and money damages would be an inadequate remedy for such breach. Accordingly, the Purchaser agrees that if he shall breach any of such provisions, the Developer shall be entitled, in addition to all other remedies it may have, to an injunction or other appropriate order to restrain any continuation of such breach of the Purchaser, without need of showing or proving any actual damage sustained by Developer.

8) There shall be no building commitment attached to the Lots, however, not more than 12 months shall pass from the commencement of construction to the completion of the exterior of each building and its associated landscaping, subject to reasonable seasonal influences preventing construction to proceed, in which case construction shall be completed as soon as the weather conditions reasonably permit. While there is no building commitment imposing the construction of any building on any lot, the Purchaser acknowledges that during its undeveloped existence, the Purchaser's lot will be maintained in a good and tidy condition. Notwithstanding that certain of the Lots may be maintained in a state for an extended period of time, the Purchaser covenants diligence in compliance with the *Weed Control Act* of Alberta and any SCECA or M.D. of Foothills No. 31 weed control Bylaws.

9) There shall be no restriction on the re-sale of any of the Lots that are undeveloped, however all the Lots are sold subject to the Developer's right of first refusal at the time of any such re-sale. Should the Developer choose not to exercise its right to re-acquire any of the Lots at the time of such

sale, the Purchaser covenants and shall be responsible to ensure that any permitted assign or subsequent Purchaser shall have full and effective notice of and shall be bound by all of the restrictions contained herein respecting which the subsequent Purchaser shall also have notice run with the land. Should the Purchaser wish to assign its right and/or interests in the lot to any third party, prior notice shall be given to the Developer who shall not unreasonably withhold its right of consent thereto in the instance of any assignee who is reasonably financially capable of honoring all of the obligations of the Purchaser in respect of lot and/or building maintenance and/or construction.

10) The minimum formal standards for development shall be those established by the Municipal District of Foothills No. 31 Land Use Bylaw. Conformity with this Restrictive Covenant and the various documents incorporated by reference hereto does not supersede any portion of the required approval process of the Municipal District of Foothills No. 31. Notwithstanding the above requirement, all development at the Simran Cove Estates project shall remain architecturally compatible with the existing Simran Ranch development. In the event that there should, at any time, be a substantive change to the "country residential" compatible aspects of the Land Use Bylaw, Soodco Developments Ltd. shall have a right of veto in respect of the applicability of those changes to the Simran Cove Estates development. The within architectural and landscape standards shall be presumed to remain in force, subject only to the consent of the Developer in its sole discretion.

11) No Lot or any building thereon within the Simran Cove Estates development shall at anytime be used for a commercial purpose whether profession, trade, or business activity or any other description not expressly permitted under the home occupation provisions of the Bylaws of the M.D. of Foothills No. 31. Notwithstanding the said Bylaws, no permitted home occupation shall be operated in a manner or to an extent that creates traffic (whether pedestrian or vehicular), noise, or a visual impact (by any means) that tends to disturb the quiet residential character of Simran Cove Estates. Specifically, there shall be no permanent helicopter landing facility on any lot. Generally, there shall be no activity on any Lot, apart from approved construction work, that regularly or periodically causes an increase of 5 decibels or more in the Sound Pressure Level (SPL), or such other increase or level as shall be defined by SCECA from time to time, or the background ambient noise measured from any location on any other Lot within Simran Cove Estates, measured at any time of any day.

12) No equipment, vehicle, material or supplies that, in the sole discretion of the Developer, would normally be associated with a commercial or other non-residential activity may be kept, parked, stored, or stock-piled on any lot within Simran Cove Estates. These restrictions do not preclude the screened storage of recreational vehicles, machinery, or equipment owned by the Purchaser of the subject lot and dedicated to the personal residential use of that Purchaser. Notwithstanding the permissibility of screened storage, all such recreational vehicles, machinery, and equipment of every description that is kept within Simran Cove Estates by such Purchaser shall at all times be maintained in good and operational condition, aesthetically pleasing in appearance, fully protected by insurance, and bearing any current Provincial or Federal licences and/or permits that such vehicles, machinery or equipment would require for their normal operation and use.

13) No lot within Simran Cove Estates shall be used for depositing, dumping, burning or storage of any refuse, trash, garbage or discarded building materials. All such rubbish, trash, garbage or discarded building materials shall be removed from the lot and shall not be allowed to accumulate thereon. No garbage truck or related use trailer exceeding 1,000 Kg G.V.W. shall be parked, stored, placed, or otherwise located on any lot. Burning of garbage or any other material is strictly prohibited.

14) Subject to all buildings being located within any predefined building envelope, and further subject to the Purchaser's regard for the reasonable privacy of adjacent properties, choosing the location, frontage, and orientation of the residence and outbuildings shall be the privilege of the Purchaser. The Purchaser shall select the location of each building on the property to be complementary, from the perspectives of both privacy and view, to the existing structures on adjacent properties. It is the intention of the Developer that all dwelling houses erected at Simran Cove Estates shall have, as far as possible, a desirable view of the surrounding countryside. Each new member of the Simran Cove

Estates community shall cooperate in these respects with the existing co-residents of all immediately adjacent properties when the new property Purchaser commences development. The determination of the SCECA Architect shall be conclusive in all instances where adjacent Purchasers cannot agree.

15) The design of each building on each lot within Simran Cove Estates shall be in harmony and architectural balance with the "country residential" community being created hereby. No particular building form restrictions will be imposed, subject to the requirement that all properties be consistent with the architectural principles of good design and good taste, as well as architecturally balanced with the immediately adjacent properties and consistent with the overall "look and feel" that creates the quality residential atmosphere required by the Developer.

16) No building shall be erected within Simran Cove Estates except of new materials in good condition. To create an exterior finish that is aesthetically pleasing and conforms with the style of the residential community, all exterior finishing materials shall be selected only from high quality products.

17) Only one single-family dwelling house and (up to a triple) garage attached or unattached to such dwelling house, may be erected on each lot. A maximum of one outbuilding not exceeding 600 square feet in floor area or greater than 18 feet in height shall be permitted. The private garage and outbuilding shall in all cases conform in style and exterior finish to the dwelling house located on the same lot. Each dwelling house in Simran Cove Estates shall have the minimum ground floor area, if any, set out in the Land Use Bylaw and the guidelines attached hereto. In calculating the ground floor area of a dwelling house, the measurements used shall be taken as the outside dimensions of the main walls of the building, however the ground floor shall not include any garage that does not have habitable rooms above the parking space. The calculation of said floor area shall similarly not include any porch, veranda, or unheated sun room. The exterior building height of any dwelling house shall not exceed a maximum height of 36 feet above the average grade level. The combined surface area occupied by all buildings on each lot shall not exceed 40 percent of the land area available on each such lot. No detached garage greater than 28 feet in width by 36 feet in length (i.e. 1008 square feet floor area) or 18 feet in height is permitted in Simran Cove Estates.

18) No excavation shall be made except for the purpose of construction or improvement of the buildings, gardens or grounds. Subject only to the Developer's consent for the purpose of achieving improved drainage designs, no person shall alter the existing drainage and all open areas of the Lots shall be maintained in a dust free condition by landscaping with trees, shrubs, suitable ground cover or undisturbed natural growth. Trees should be planted in rows on the north side of properties parallel to Highway 22X. All other trees shall be in clusters. All fencing at Simran Cove Estates shall be in accordance with the LANDSCAPE DESIGN GUIDELINES attached hereto as Schedule B. The approach and driveway to each lot shall be a hard surface of good quality, with coloured concrete or interlocking stone preferred. All buildings on each lot shall be maintained in a clean and tidy manner and in good and substantial repair at all times. Noxious weeds shall be controlled everywhere within Simran Cove Estates in compliance with the SCECA Bylaws and the *Weed Control Act* of Alberta.

19) All repair and maintenance work conducted, whether by the Purchaser or by contractors, on any of the lots within Simran Cove Estates shall be implemented in an efficient and professional manner between the hours of 8:00 a.m. and 4:00 p.m. daily, completed within a reasonable time, and shall in all cases cause the absolute minimum disturbance, to the Simran Cove Estates community, appropriate to the nature of the work being undertaken. All construction waste garbage containers and receptacles shall be enclosed or screened from view at all times.

20) All electrical, gas, water, telephone, and other utility services involving cables, pipes, hoses, and/or conduit of any kind must be installed and buried underground. The cost of installing all common services, if any, shall be borne by SCECA, which shall manage and maintain all such Services and Infrastructure for the common good. Septic tanks and fields are the Purchaser's responsibility and must conform to: M.D. of FOOTHILLS No. 31 requirements, the *Alberta Building*

Code 1997, and every other construction, safety, and health related code imposed by any competent authority enforcing good engineering design in structures and/or services within Alberta.

21) Precautions shall be taken during construction work to avoid damage to the natural environment within Simran Cove Estates. Fluid flows resulting from construction must be handled with care to avoid damage to any natural areas and all adjacent properties. No construction related fluids or chemicals shall be released into the natural drainage system. Each Purchaser accepts absolute responsibility for all damage caused by all fluid flows and/or chemicals escaping Purchaser's lot and shall restore to their prior good condition any natural areas and adjacent properties damaged thereby.

22) No contamination or littering of adjacent properties shall be tolerated during or after any construction work. Each Purchaser accepts absolute liability for the escape from Purchaser's lot of any construction related litter and other forms of contamination, whether escaped to adjacent properties or to any common space. Each Purchaser shall ensure that a suitably sized garbage container is located on site during the construction process to minimize the garbage and debris blowing into other areas of Simran Cove Estates or into adjacent fields. Each Purchaser shall also ensure that every form of debris and other material escaping Purchaser's lot is policed on a daily basis restoring the community to an unspoiled condition. This restriction shall be interpreted broadly to include all forms of debris whether construction related or otherwise. Specifically, all cigarette butts, wrappers, and food or beverage containers shall daily be recovered and placed in appropriate disposal facilities. The Purchaser is given notice hereby that video camera surveillance of the entire community may be in place throughout the construction process and each failure or violation of this debris control condition shall result in a \$100 fine payable to the SCECA maintenance fund.

23) No construction practice creating an unsightly condition shall be tolerated. Excess fill arising from footings, foundations, basements, swimming pools, and all other forms of excavation shall be promptly redistributed or removed from the site in any instance when such material cannot reasonably be reincorporated into the site. The Purchaser shall be absolutely responsible for any damage, whether by compression or surface breakup or otherwise, to the roadways throughout Simran Cove Estates, where such damage or deterioration has been caused by the Purchaser or contractors employed by anyone for the purpose of working on the Purchaser's lot. Similarly, the Purchaser shall indemnify the Developer against any and all claims relating to damage, caused by any agents, employees, or other contractors of the Purchaser, to Highway 22X or any other provincial, municipal, or private roadway adjacent to but outside the Simran Cove Estates road system. The Purchaser further accepts responsibility to restore (to a condition satisfactory to the Owner of) such damaged roadway in at least as good a condition as such roadway was immediately prior to such damage.

24) Subject to the requirements of the M.D. of Foothills No. 31, during construction, mobile homes or construction trailers registered with all the appropriate fully paid permits will be allowed on site to facilitate the efficient and timely completion of all construction work relating to the subject lot. All such mobile homes or construction trailers must be maintained in good condition and appearance throughout and then removed immediately upon completion of construction.

25) No signage of a commercial nature will be permitted on any lot within Simran Cove Estates, whether during or after construction. Family name signs and property identification signs are encouraged if: professionally manufactured, of a reasonable size, and consistent with the standards of good quality and taste throughout the community as determined by SCECA acting reasonably. "For Sale" signs, the dimensions of which shall not exceed 18 inches by 24 inches, are only permitted during the time period for which the associated lands and buildings are actually available for sale.

26) No animals of a commercial nature, or otherwise normally associated with farming and/or husbandry shall be permitted on any lot within Simran Cove Estates. Subject to the express approval of SCECA, exercising such discretion reasonably, up to 2 horses properly maintained to ensure no danger or odor offensive to the community, may be permitted in individual circumstances. This restriction does not prevent Purchasers from maintaining a limited number of domestic cats and/or

dogs, registered and licenced by SCECA, which pets are maintained at all times under the care and control of the Purchasers who, upon their mandatory membership in SCECA, accept absolute liability for all of the conduct of their pets within the Simran Cove Estates community. Neither cats nor dogs are permitted to be at large within the community. Purchasers who permit their cats and/or dogs to trespass and urinate or defecate on other lots within Simran Cove Estates shall be subject to a minimum \$100 fine, and such other penalty as may be lawfully imposed by SCECA, for each occasion on which such pets are found to have so transgressed. Dogs of a vicious or loud disposition are not permitted within Simran Cove Estates at any time or for any reason whatsoever.

27) Notwithstanding anything else contained herein, the existing development known as **Simran Ranch** shall be "grandfathered", meaning that no existing structures thereon shall retroactively be required to comply with any of the obligations contained herein. Henceforth all new structures erected on **Simran Ranch** shall comply with the standards and guidelines imposed hereby, but all existing structures located within the building envelope of Simran Ranch, as it stands on 30 May 2000, shall be treated as exempt from all obligations imposed hereby.

28) In the event that any provision of this Restrictive Covenant is for any reason held invalid, illegal or unenforceable by a Court of competent jurisdiction then such provision(s) shall be restricted in application or severed only to the extent required to render the provision(s) valid, legal or enforceable and the remaining provisions shall in no way be diminished.

29) The Parties hereby agree that the Developer shall be entitled to recover from the Purchaser all of the Developer's costs of every kind reasonably expended enforcing this Restrictive Covenant. For greater certainty, but not in limitation, the Purchaser shall pay all of the Developer's legal costs (both fees and disbursements), relating to said enforcement if the Purchaser is determined by a Court of competent jurisdiction to be in breach hereof, on a "solicitor and own client basis" in full recovery.

30) The terms "hereof", "hereunder" and similar expressions are broad references to this Restrictive Covenant including any document incorporated herein by reference. Whenever the context of this agreement so requires, the masculine gender includes the feminine or neuter and the singular number includes the plural. This Restrictive Covenant shall enure to the benefit of and be binding upon the Parties hereto and their respective heirs, executors, administrators, and successors.

The following schedules and documents are subject to revision by and in the sole discretion of Challenger Surveys and Services Ltd., at any time, without notice to the Purchaser:

**NATURAL SITE PLANNING GUIDELINES
LANDSCAPE DESIGN GUIDELINES
BUILDING DESIGN GUIDELINES**

WRITTEN ACCEPTANCE OF THE ABOVE TERMS AND RESTRICTIONS IS A CONDITION OF PURCHASING ANY LOT WITHIN THE SIMRAN COVE ESTATES DEVELOPMENT.

Schedule 1 – Legal Description and Contact Information

The Simran Ranch lands and buildings, registered to Vince Sood under Title No. 991 118 821, being 159.88 acres more or less, legally described as: M5, R3, Twp. 22, Sec. 20, S.W. Quarter.

Municipal District of FOOTHILLS No. 31

309 MacLeod Trail South

Box 5605

High River, Alberta T1V 1M7

Phone: (403) 652-2341 or 931-1905, Fax: (403) 652-7880

The Developer's Experts with sole discretion over Purchaser disputes shall be:

- Challenger Surveys and Services Ltd. (Survey and Planning)
- Nick Mehta Architect Inc. (Architecture)
- McIntosh Lalani Engineering Ltd. (Geotechnical)
- EnviroConsult Inc. (Environmental)
- Westhoff Engineering Resources (Storm Water Management)
- Eagle Engineering Corp. (Traffic Impact)
- Bison Historical Services Ltd. (Historical Resources Impact)

Common Services and Infrastructure to be Managed by SCECA

- potable water supply and distribution (a limited resource)
- wastewater efflux (septics or sanitary sewers) and treatment
- storm water management (retention ponds and wetlands)
- floodways
- utilities (gas, electric, telephone, cable)
- subdivision internal roadways constructed to municipal standards
- emergency service routes
- cyclist and pedestrian pathways (with lighting) - registered easements over impacted lots
- nature reserves, recreational and open spaces

1) The site planning respecting each of the Lots is influenced by a focus on the preservation of the natural area, the large tree growth, and the delicate ground cover. It is important to remember that the landscape is fragile and it will take years to naturally restore any adverse impact to site vegetation. Each Simran Cove Estates lot may have a defined natural area and a building envelope depicted on the lot plan. Any portion of the Purchaser's lot designated to be a natural area shall be preserved. Such "natural area" is that portion of the subject lot that is not developable and is a no access, protection area that will retain existing vegetation. Natural areas are set aside to maintain the mature character of Simran Cove Estates. Lots may also include a wildlife corridor or geotechnical setback.

2) The Simran Cove Estates development shall specifically take appropriate advantage of any existing waterways, aquatic and riparian habitat, and other resources of nature that enhance the quality of life for the Purchasers of the lots. The intention of the Developer in leaving native vegetation in place is to support and preserve the existing ecosystem(s) to that same end.

3) The Developer will provide a lot plan at 1:200 metric illustrating: the lot property lines, legal corner notes, adjacent Lots, road right-of-way, carriage locations, and approved driveway location as well as generally locating existing specimen trees and groupings. A preliminary grade slip may also be provided to establish appropriate house locations relative to the existing form of grades, existing utility drops, suggested front grade and top of footing grades. Purchaser's site design will confirm driveway location, servicing connections, electrical distribution boxes, and street light standards. Although the lot plan may be based on an on-site survey, the Developer does not warrant the absolute accuracy of the lot plan supplied, for any purpose. It is the Purchaser's responsibility to ensure that the lot plan is compatible with existing specimen trees and significant native vegetation features. The side yard natural areas are tree protected areas defined from the property line by a minimum distance of 1.5 to 3 metres for residential areas. The Purchaser may carefully relocate existing vegetation from the building envelope into these areas as visual and climatic buffers.

4) During construction, the entire natural area must be temporarily fenced to prevent any vehicles from entering, material stock piling, and any other construction related activity that could adversely impact surface vegetation or the soil profile.

5) Lots within Simran Cove Estates, may, based on the natural features of the subject lot, have a pre-defined building envelope. The building envelope is the only portion of any subject lot within which improvements and construction activities of any kind may occur. If a specific building envelope has been identified for your lot, any setback requirements defined on your lot plan shall govern the relationship between your building alternatives and each of the Lots adjacent to yours. The disturbed area inside a building envelope must be replanted to complement the adjacent natural area.

6) Geotechnical Setbacks are sometimes required to ensure foundation stability adjacent to steep slopes. If your lot is burdened by a Geotechnical Setback it will be shown on your lot plan.

7) Each home should take maximum advantage of the natural and man-made characteristics of its lot. Access off the street, planning with the natural grade, incorporating sun angles, view, and consideration of neighbors should all be taken carefully into account. Each home should be designed to minimize over-view and/or shadowing of the existing and future homes on adjacent lots.

8) Lot grading and drainage are the responsibilities of the Purchaser. Grading must be restricted to the areas within the building envelope and must not impact any natural area preservation zone of the subject lot. Drainage swales and retaining walls, if required, must be carefully designed to conform to the overall site grading and drainage plan and to enhance the site's natural feeling. Lot grading is to follow the general slope of the land. Slope adaptive housing design is part of a quality design.

- 9) Natural drainage shall not be obstructed. Each building and other improvements must be sited to avoid drainage courses. If there is no realistic alternative, naturally appearing swales are permitted.
- 10) Surface runoff control during, or as a result of construction, will require special precautions, such as straw bails and filter cloth curtains, for flow and erosion control. These controls must be removed as soon as construction is completed and landscape development occurs. Drainage before, during, and after the construction on each lot should appear and be as natural as possible.
- 11) Driveways may be constructed individually or in common with a suitable adjacent lot and Purchaser. The orientation of the doors of each garage and driveway is important to the country residential character of Simran Cove Estates.
- 12) Subject to the access and approach requirements and to the standards of the M.D. of Foothills No. 31, all driveway entrances to each road or street should be a maximum of 3 metres wide at the carriage way edge and 5 metres at the property line. Up to a 60 degree angle of intersection to the carriage way is possible. Driveways are required to have a quality hard surface, however the driveway surface is not to interfere with the water supply to trees (simply boxing the trees is not adequate).
- 13) The Developer will install culverts with appropriate end treatment or provide a suitable swale along the boulevard at the driveway surface. However, the Purchaser is responsible to ensure and maintain the natural road right-of-way drainage. Any changes to the approach for a lot must be pre-approved by the M.D. of Foothills No. 31, the Developer, and SCECA (if any at the time of change). All culvert end treatments shall be used to create a sense of entry (a gateway), complementing the house character and consistent with the overall image of the Simran Cove Estates.
- 14) Entrance walkways are to be incorporated within the driveway. Appropriate walkways, preferably of stone, are allowed from a driveway to the front door and/or to connect with the community walkway.
- 15) The goals of Simran Cove Estates include the creation of a cohesive "sense of community and place" by using the interconnected walkways to access the open spaces and natural reserves consistent with the "country residential" lifestyle. This goal is considered fully compatible with the use of tree lined access routes to create a "sense of arrival" at Simran Cove Estates.
- 16) Construction limits are to be shown on the site plan illustrating the location of the temporary fencing to be installed by the Purchaser's builder prior to construction of any buildings. The temporary fence protects the natural areas and defines the work area where all activity is to be maintained during construction. Fencing must be kept upright and properly aligned throughout the construction process. A minimum of 1.5 metres clearance from such fence to all tree trunks must be established.
- 17) Winter salting of driveways and paths is severely restricted to protect the trees and vegetation.

Schedule B - LANDSCAPE DESIGN GUIDELINES

- 1) An important goal of Simran Cove Estates is to maintain the existing natural environment to the fullest extent possible while creating a unique and special "country residential" community.
- 2) A significant part of the character of Simran Cove Estates is its natural setting with hills, nearby mountain views, and natural vegetation. Specifically, given the extremes of our long winter and short summer growth conditions, the "flora" is fragile and an important ingredient in maintaining the natural setting. It is critical that the minimum possible disturbance occurs to the natural tree and other plant growth on each lot during the design and the construction of each home.
- 3) These guidelines have previously referred to natural areas, building envelopes, construction techniques and allowances that are necessary to protect and enhance the landscape. The following notes are further detail for your compliance.

- 4) The tree protection zone on each lot includes any natural area and arises when a group of trees or specimen trees the Developer wishes to save is within the building envelope or at its edge. These trees are to be flagged and preserved undamaged by construction activity. Physical Barriers (i.e. boards or temporary fencing) located at or beyond the tree drip line are to be constructed as high as required to protect them. Minor cosmetic pruning is possible but generally these trees are to be left natural. No stock piling of material or irrigation systems are permitted in any tree protection zone.
- 5) Raking leaf litter in natural areas is not encouraged to ensure that nutrients are returned to the soil. The removal of dead trees is not encouraged (unless unsafe) as these are important to bird nesting. Some fallen trees are important for birds and small mammals. There should be no removal of the vegetation from any natural areas, and no weed spraying is permitted in the natural areas.

- 6) Tree planting is encouraged as part of the Purchaser's lot and house design process. Trees should be planted in loose groupings and, as far as possible, be of indigenous plant varieties. Non-native ornamental trees are not permitted. Avoid formalized lines or patterns of trees and hedges.
- 7) Lawn areas of typical suburban variety are not encouraged. If lawn areas are created, so as to not dominate the site, the seed mixture should be planted within the building envelope only. No lawn areas are permitted outside of the building envelope. Enhancement of the native ground covers is preferred using a seed mixture approved by the Developer, and SCECA (if any at the time of change).
- 8) Retaining walls are to be constructed in a manner that takes on the appearance of the house detailing, and shall be built of a complementary material. All such walls must be constructed completely within any building envelope and meet the following requirements:
 - a) The exposed height of wall shall be a maximum of 1.0 metres (3.28 feet).
 - b) If more retaining height is required, then a stepped construction is necessary.
 - c) Provide planting adjacent to and within the terrace areas of the retaining wall to minimize the visual impact.
- 9) The Developer wishes to minimize the interference with wildlife movement that fences tend to cause. However, subject to any "environmental restrictions" that may be imposed by any authority of competent jurisdiction, fences professionally constructed, of good quality material, and continuously maintained in good condition are considered a necessary feature to protect privacy within Simran Cove Estates. Each Purchaser shall consult the Developer's Architect or the SCECA prior to constructing any fence on or around Purchaser's lot. All fences within or around Simran Cove Estates shall be coordinated and architecturally compatible with the "look and feel" of the community. The Developer's approved fence designs are set out by example in **sub-Schedule B1** attached hereto.

Schedule C - BUILDING DESIGN GUIDELINES

1) The Concept Plan and Outline Plan are intended to help the Purchaser maximize the potential for superior building sites and views on which to construct a superior dwelling house. The building design information in this guideline is intended to assist the Purchaser in realizing a design that begins to create an architecture that belongs in Simran Cove Estates. The intent is to achieve a sensitive integration of building masses into the landscape, merging with and becoming a part of it. This may be accomplished through the use of appropriate materials, colours, forms, and planning. Good design is also being a good neighbor in the planning and architecture of your new residence and buildings.

2) Forms and masses are to conform to the existing slopes and site conditions. Roofs are to be used to aesthetically minimize the building bulk (e.g. including second floor spaces within a roof volume). The use of dormers of all sizes contributes to residential texture, appealing roof character, and an apparent reduction of the building mass. Consequently, such features are encouraged.

3) Building size: Simran Cove Estates has no minimum requirement respecting the size of your buildings. Subject only to any limitations set by the M.D. of FOOTHILLS No. 31, maximums are established by required setbacks, height restrictions, and "good design" to fit within your lot. Good design within your building envelope will ensure a high quality environment. Building law articulation will provide proportionate variations in the plan and elevation of your building.

4) Residential front and rear elevations exceeding 6 metres in vertical height and side yard elevations of height of 7 metres will require a setback of 1.8 metres in addition to the specific building envelope for each lot. Purchasers are encouraged to set each building back from the front slope with a single story in front of 2 stories. Building walls exceeding 6 metres in length must have an offset of 1.2 metres prior to continuing. Building height should take advantage of the view opportunities, while at the same time being sensitive to adjacent lots and tree growth, the land slope, and be in accordance with the M.D. of FOOTHILLS No. 31 Land Use Bylaw as amended from time to time.

5) Garages and garage doors have become a visually dominant form in many home designs and sub-divisions. In Simran Cove Estates, particular care must be given to the design and orientation of the garage itself. Garages should not dominate the street face of the residence, they should be angled away from the street view, or if this is not practical, single garage doors are required. Triple car garages facing directly onto the street are not permitted. Screening walls enclosing or screening patios in courtyards must be within the building envelope and be constructed of the same materials with complementary or the same finishes as the house itself. These must also be discontinuous in appearance, not over 4 metres in a single line or panel, and 1.5 metres maximum in height.

6) Finishing for the various building faces, walls and roofs must adhere to the following:

- a) Non-reflective materials are to be used, including non-reflective glazing.
- b) Colour selection is intended to enable the Simran Cove Estates community, when viewed externally, to merge with its natural setting. To achieve this objective, colours are to be earth related tones, ranging from weathered driftwood (a very light gray) through to mocha brown (a rich earthy brown). The use of blue may be allowed in certain shades. Forest green and related tones are important as well.
- c) Materials for roofs may be wood (cedar, pine, treated or natural), shakes or shingles, flat concrete or fibre cement tile, slate or other cut stone.
- d) Materials for walls may be stained wood or wood left to weather naturally, painted fibre cement "lap" siding, stone, cultured stone and for small areas only (such as dormers) a coloured stucco (may be used in soft grays or greens and browns in the range suggested).
- e) Materials for garage doors are preferred in wood but may be metal or other man made material (including vinyl or plastic) with molding and panel detail, painted or stained to complement or match the house siding.

f) Exterior siding must be selected to enhance the atmosphere of Simran Cove Estates. Variations on the above are permitted where pre-approved in writing by the Developer's Architect.

7) Exterior lighting must not interfere with others' enjoyment of the night time panorama. Lighting on individual lots must be limited to a small area within building envelope, with low intensity non-glare fixtures. Uncovered light fixtures or non-focused, non-downward lighting fixtures are not permitted.

8) Building accessories are those various attributes of residential living that are a part of the "home like" atmosphere of each residence. The following are directions respecting how some of the more common home accessories may be used within Simran Cove Estates:

- a) Antennae are restricted to interior attic applications. Exterior Antennae may be permitted only if of the "whip" variety mounted non-intrusively on the residence.
- b) Satellite dishes may be used if in dark green, gray or brown colours, 24 inches in diameter or smaller, and screened by plantings from adjacent street, neighboring property and walkway views. Satellite dishes must be located within the building envelope.
- c) Solar applications are encouraged when integrated into the surface in which they are mounted. "Add-on" type solar collector applications are discouraged.
- d) Address identification signage is suggested near the roadway by the driveway for emergency response purposes.
- e) Garbage must at all times be managed so as to prevent unsightly conditions arising.
- f) Recreational facilities such as tennis courts and swimming pools are not recommended and may be permitted only if the site conditions allow the amenity to be constructed within the defined building envelope, if any;
- g) Out buildings, such as sauna or garden sheds, are to be developed to coordinate with the architectural motif and finish of the principal residence building. They are to be located within the defined building envelope, if any.

9) Compliance with other Legislation and supporting Regulations remain the responsibility of the Purchaser who must ensure that the construction of any buildings on site conforms with Federal, Provincial, and Municipal legislation, regulations and/or Bylaws as well as any encumbrances registered on the Title to the property, including without limitation, Utility Rights of Way, Easements, and Restrictive Covenants including all requirements outlined in the grade slip and the M.D. of FOOTHILLS No. 31 Land Use Bylaw as amended from time to time.

APPENDIX D
COPY OF LETTER SENT TO ADJACENT LANDOWNERS
& THE LANDOWNERS CONTACTED

File #: 11167

October 21, 1999

Adjacent Landowners

RE: Soodco Developments Proposed Subdivision - SW - 20 - 22 - 3 W5M

Challenger Surveys and Services Ltd. is the planning agent for the above landowner. We recently prepared and submitted a redesignation application to the M.D. of Foothills for this land. At its September 16, 1999 meeting, Council gave first reading to Bylaw 148/99 authorizing the redesignation of the above-noted land from Agricultural Conservation District to Country Residential District in order to permit the future subdivision of seven lots. Prior to further consideration of the Bylaw, Council is of the opinion that an Area Structure Plan is necessary and therefore we are required to prepare a Plan that includes any future plans for the entire quarter section. The municipality has also suggested that there would be merit in considering the potential for future subdivision of adjacent lands. If our proposed Area Structure Plan was expanded to include other lands adjacent to our clients' property that document would include a study of an expanded internal road system possibly linking the various owners' lands. Parcel density and sizes, soil studies to prove the suitability of future building sites and an analysis of the potential for servicing future lots with individual wells will also be subjects covered in the Area Structure Plan. At this point we would like to establish contact with the adjacent landowners and determine which landowners would like to participate in the development and cost of this Area Structure Plan.

Should you wish to participate in this Area Structure Plan, or if you have any questions or comments, please contact Challenger Surveys and Services Ltd. at 253-8101 as soon as possible.

Yours truly,

CHALLENGER PLANNING GROUP

Brandy Clements, B.A.
Associate Planner

Landowners Contacted

James Orr and Patricia Bryans-Orr – Block 2, Plan 9010303 – SE 20 – 22 – 3 W5M
Randy and Donna Pawliw – Block 1, Plan 9512328 – W 17 – 22 – 3 W5M
Kristine Falk Smed – NW 20 – 22 – 3 W5M
Pine Creek Properties – SE 20 – 22 – 3 W5M
William Mervyn Lowe – NE 17 – 22 – 3 W5M
Harry and Susanne Dunne – NE 17 – 22 – 3 W5M
Geoff Shurrock and Petra Nagel – NW 17 – 22 – 3 W5M

APPENDIX E
CERTIFICATE OF TITLE

*** END OF REPORT ***

TOTAL INSTRUMENTS: 3 ***

*** END OF TITLE - 991 118 821

GRANTEE - MEOTA GAS CO-OP LIMITED.

991 325 221 1999-11-04

ORIGINAL PRINCIPAL AMOUNT: \$362,500

ALBERTA T3G3N5

CALGARY

260 CROWFOOT CR NW

MORTGAGEE - THE TORONTO DOMINION BANK.

991 118 822 1999-05-03

MORTGAGE

ALBERTA T2B1N1

CALGARY

238, 1830-52 ST SE

C/O DALMINDER S HAYER

CAVEATOR - VINCE SOOD

RE : REAL ESTATE PURCHASE CONTRACT

991 024 809 1999-01-28

CAVEAT

REGISTRATION DATE (Y-M-D) PARTICULARS

ENCUMBRANCES, LIENS & INTERESTS

VINCE SOOD
OF 120 OAKSIDE CIRCLE SW
CALGARY
ALBERTA T2V4H1

OWNERS

REGISTRATION	DATE(Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSID
991 118 821	1999-05-03	TRANSFER OF LAND		\$1,100,000	\$1,100

REFERENCE NUMBER: 841 181 745

D.C.T. ISSUED: NO

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

ESTATE: FEE SIMPLE

AREA: 64.7 HECTARES (159.88 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS
QUARTER SOUTH WEST
SECTION 20
MERIDIAN 5 RANGE 3 TOWNSHIP 22

LEGAL DESCRIPTION

0013 996 012 5;3;22;20;SW
LINC SHORT LEGAL

TITLE NUMBER
991 118 821

LAND TITLE SEARCH

USER ID : EN0091
REQUEST ID: R0068913
REF.: 11167

DATE:
PAGE:

APPENDIX F

TRANSPORTATION STUDY

AREA STRUCTURE PLAN
SW¼ 20-22-03-W5M

TRANSPORTATION STUDY

PREPARED FOR:

CHALLENGER SURVEYS AND SERVICES LTD.

PREPARED BY:

MORASCH TRANSPORTATION CONSULTANTS LTD.

Project Number: 99/072

May 31, 2000

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1.1 Background

Morasch Transportation Consultants Ltd. (MTCL) was retained through Challenger Surveys & Services to undertake an analysis of transportation issues related to the proposed residential subdivision of 7 Country Residential lots in the Municipal District of Foothills No. 31.

1.2 Study Objectives

The purpose of this Transportation Study is to evaluate the proposed residential subdivision by analyzing the expected influence of the subdivision on the adjacent transportation network. In order to complete the analysis, existing operating conditions of the transportation network are established; the expected traffic characteristics of the proposed subdivision at full build-out are then superimposed on the baseline scenario to determine the post-development traffic conditions. Pre- and post-development traffic demand conditions are then evaluated on the basis of the capacity of key components of the transportation network within the influence area of the proposed subdivision.

The specific objectives of this Transportation Study are as follows:

- establish the existing operating conditions of 256 Street W/ 194 Avenue intersection, in order to establish baseline conditions;
- determine the traffic volumes and travel characteristics anticipated to be generated by the proposed subdivision at full build-out;
- superimpose generated traffic onto background traffic to determine the influence of the proposed subdivision on the surrounding transportation network, 256 Street W, 194 Avenue on a 24-hour basis and the intersection of 256 Street W/ 194 Avenue during the peak hour periods;
- review of potential requirements for local area roadway upgrades which may be required.

2.1 Subject Lands - Location

The Subject Lands are located within the boundaries of the Municipal District of Foothills No. 31, off of 194 Avenue West. The land is legally described as the portion of SW 1/4, Section 20, Township 22, Range 3, West of the 5th Meridian. The location of the Subject Lands is illustrated in **Exhibit 2.1**, and **Exhibit 2.2**.

2.2 Transportation Network

The proposed subdivision is located within the primary influence of the City of Calgary as a commuter destination route and commercial/ services opportunity node. Primary access to the City of Calgary is provided by Highway 22X via Highway 22 located approximately 2 km north of the proposed subdivision. The existing transportation network in the vicinity of the Subject Site is illustrated in **Exhibit 2.3**.

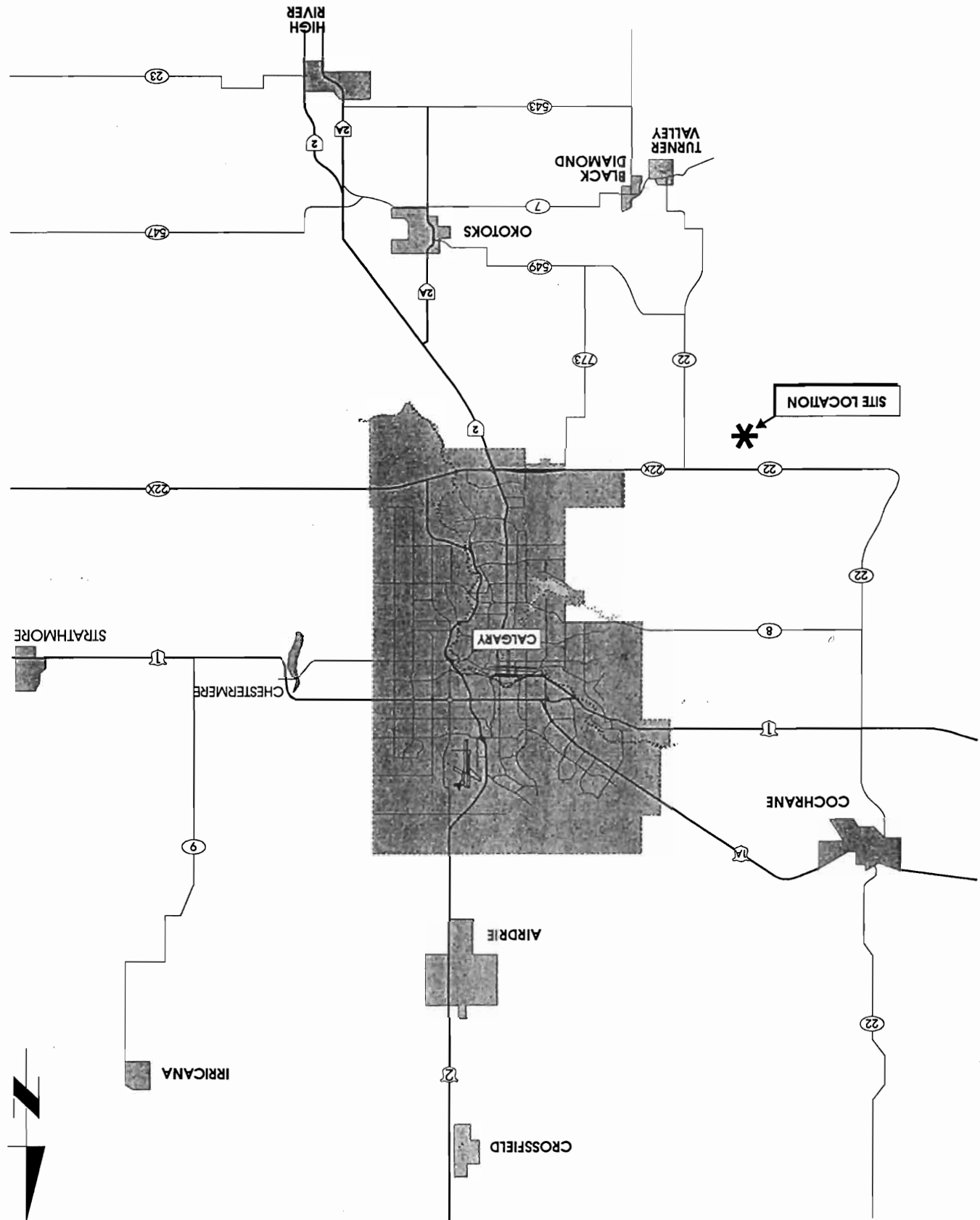
Highway 22X is a four lane divided rural expressway facility west of the Calgary city limits. Current long term plans identify Highway 22X west of Calgary as a potential future freeway facility.

Highway 22 is a two lane undivided rural highway facility with a westbound left turn bay and an eastbound right turn deceleration lane provided at the intersection of Priddis Greens Drive. Traffic generated by the proposed subdivision is expected to utilize this intersection to access Highway 22.

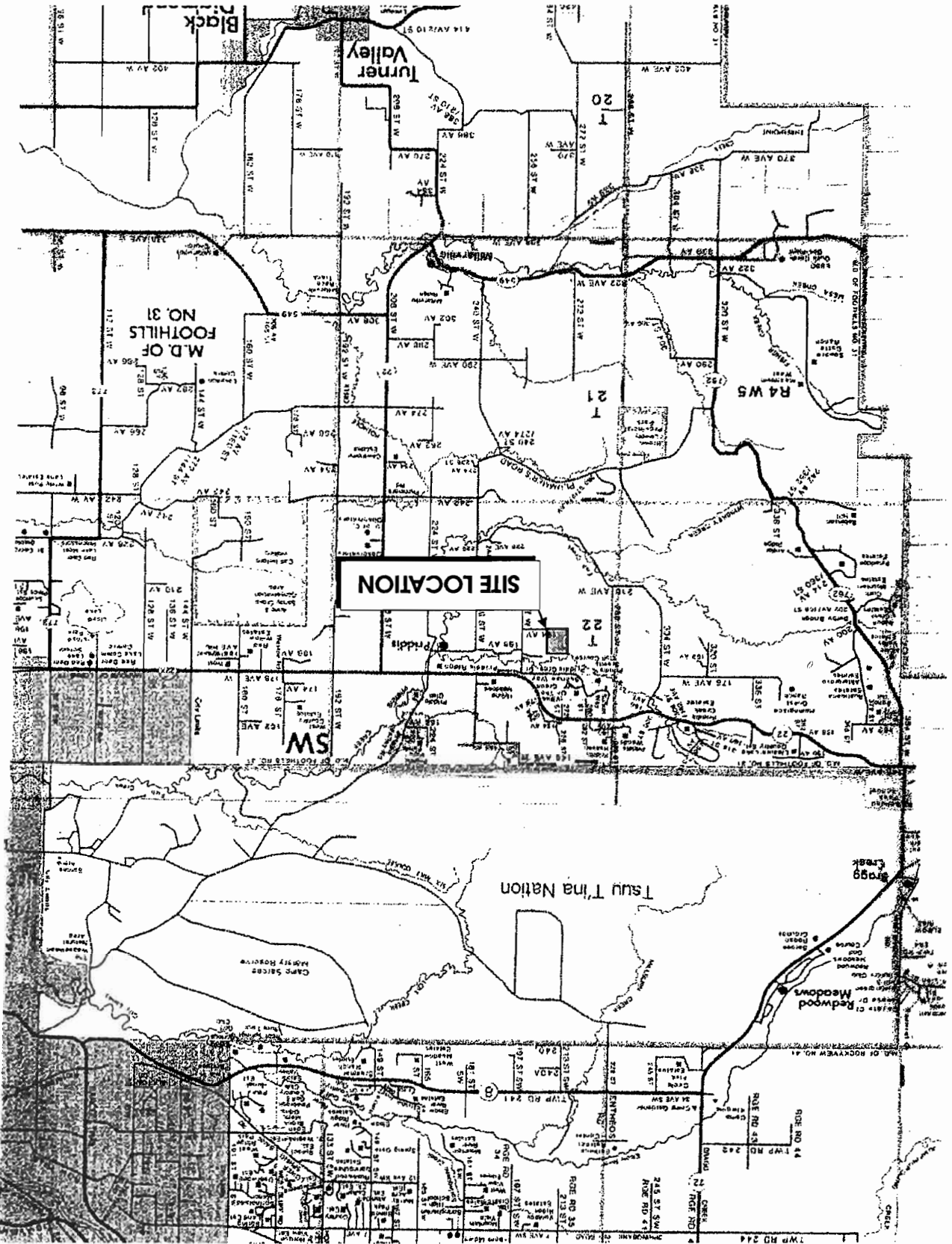
Priddis Greens Drive is a two lane paved roadway. Priddis Greens Drive intersects with Highway 22 at an existing stop controlled intersection. An eastbound acceleration lane is provided on Highway 22 at this location.

256 Street W provides access to Highway 22 via Priddis Greens Drive. *256 Street W* is a two lane rural roadway with a rough graveled surface. *256 Street W* intersects Priddis Greens Drive at a stop controlled T-intersection, with free-flow conditions on Priddis Greens Drive.

194 Avenue intersects with *256 Street W* providing access to Highway 22. The proposed subdivision will take access off 194 Avenue at a new driveway. 194 Avenue is a two lane graveled rural roadway with a 20 m right-of-way. The M.D. of Foothills requested the upgrading of this roadway to municipal standards as approved by Council.



Area Structure Plan SW1/4 20-22-03-W5M
Transportation Study
REGIONAL SITE LOCATION MAP



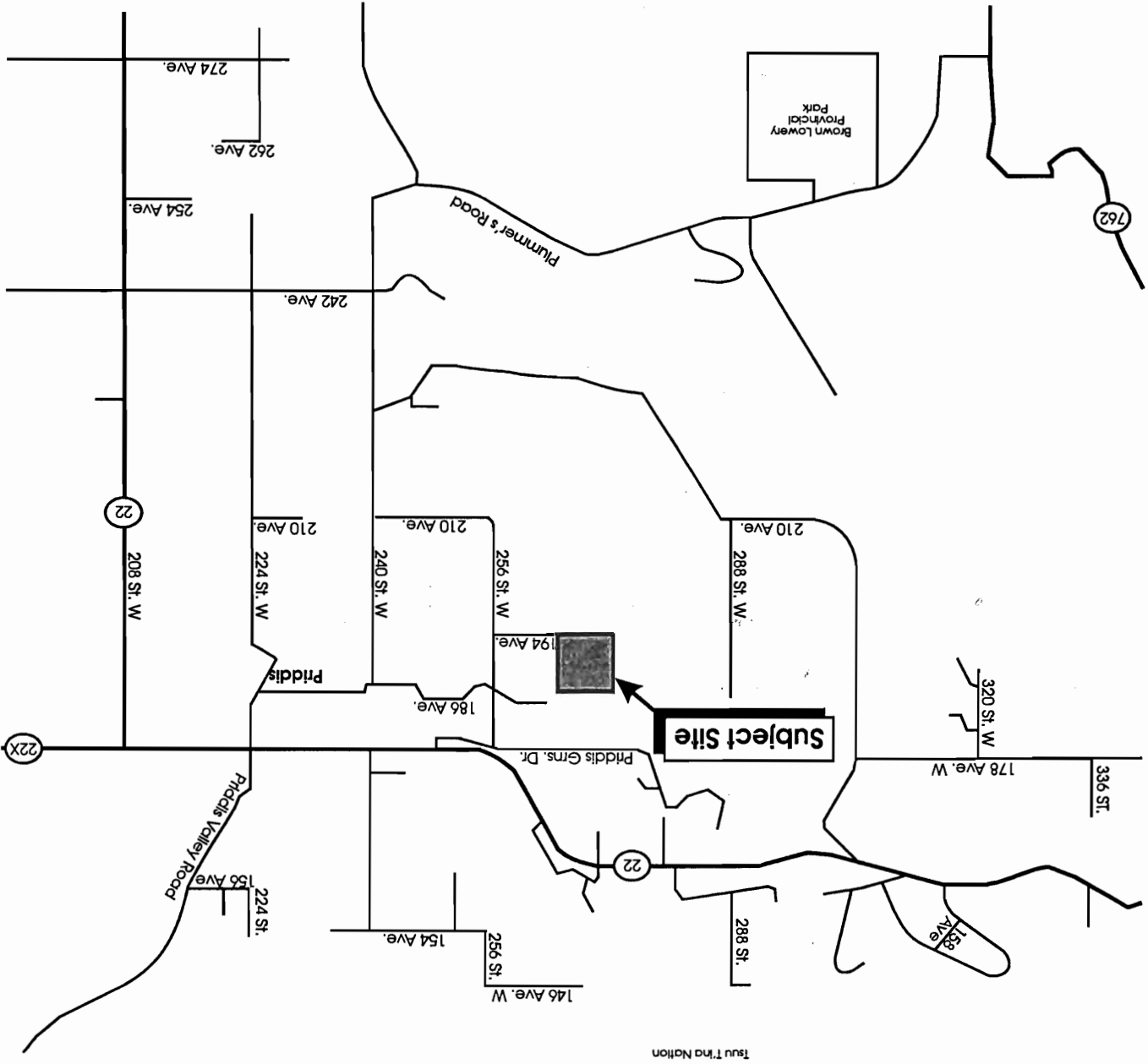
Area Structure Plan SW1/4 20-22-03-W5M
 Transportation Study
 EXISTING TRANSPORTATION NETWORK

Exhibit 2.3

Scale: N.T.S.

Page 5

MORASCH TRANSPORTATION CONSULTANTS LTD.

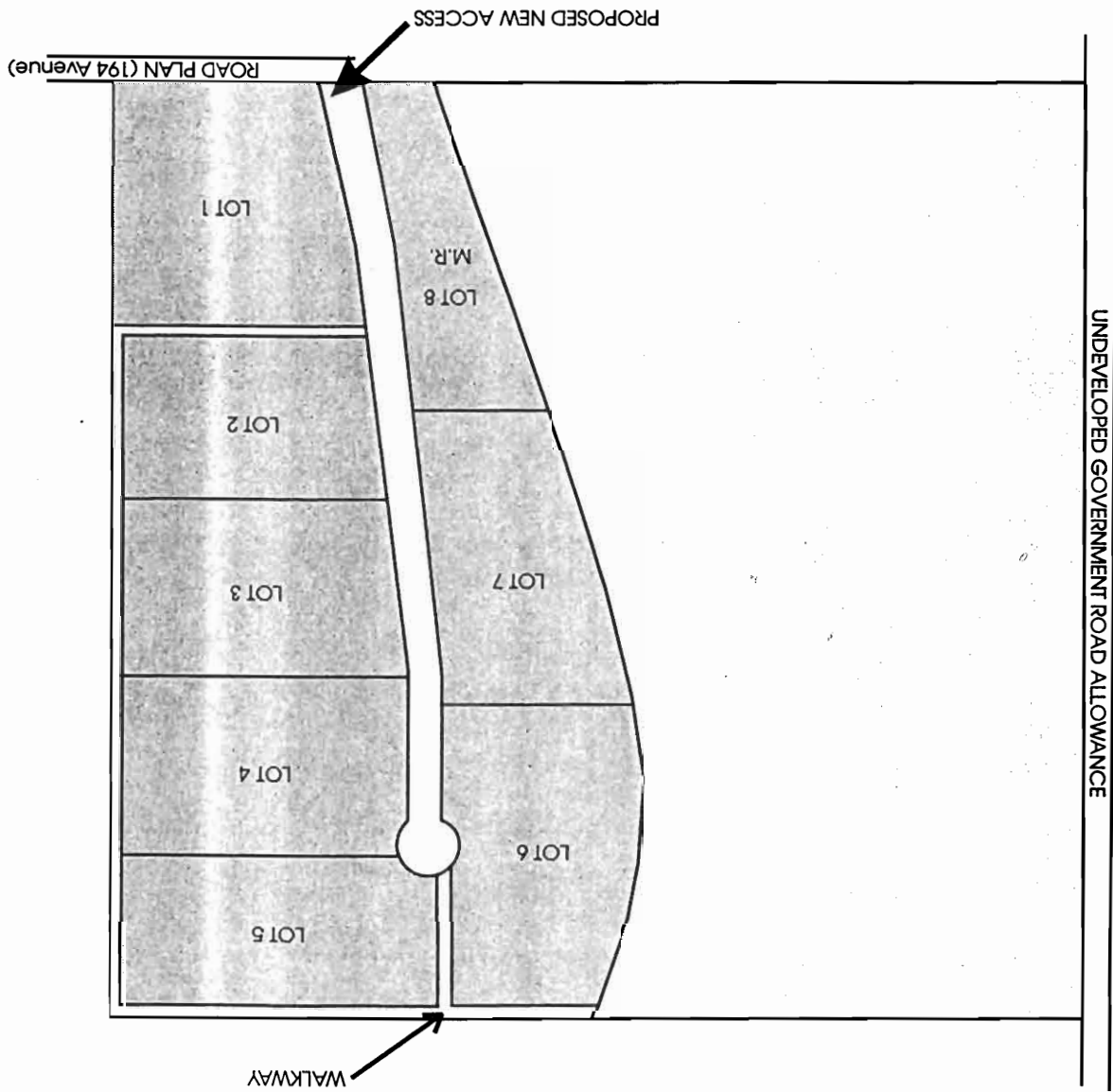


2.3 Subject Lands - Description, Site Development, and Access

The proposed subdivision is legally described as the portion of the SW 1/4, Section 20, Township 22, Range 3, West of the 5th Meridian. The Subject Lands consist of approximately ± 28.7 hectares (± 71 acres). The remainder of the 1/4 section is not planned to be developed.

Development of the proposed subdivision is assumed to consist of 7 single family residential lots, plus one MR parcel in the southwest portion of the subdivision as shown in **Exhibit 2.4**. The residential lots range in size from ± 7 acres to ± 10 acres.

Proposed vehicular access to the subdivision is via a north-south access road intersecting with 194 Avenue to the south and terminating in a cul-de-sac at the north end. The proposed access road intersects 194 Avenue approximately 985 m west of the 256 Street W intersection.



UNDEVELOPED GOVERNMENT ROAD ALLOWANCE



The total post-development traffic volumes forecasts are shown in **Exhibit 3.1** for the AM and PM peak hour periods and in **Exhibit 3.2** for the 24-hour period.

Site generated trips were superimposed onto observed AM and PM peak hour background traffic volumes at the intersection of 256 Street W/ 194 Avenue, and onto the estimated daily (24-hour) background traffic volumes on 256 Street W and on 194 Avenue.

3.4 Post-Development Traffic Characteristics

The assignment of trips to the transportation network is based on the most efficient and shortest route to and from the origin and destination within the expected distribution pattern. Because the only access to the Site is to/ from the north via Highway 22, 100% of the traffic was assigned to 256 Street W north of the Site to access the highway. The Site generated AM and PM peak hour traffic and the estimated 24-hour traffic volumes are illustrated in Appendix B.

Trips have been distributed to the local and regional transportation network on the basis of anticipated employment locations and non-work related primary trip attractors, including shopping areas and other services. The major trip attractors including employment locations, shopping and other services, are located predominantly in the City of Calgary. Regional access to Calgary would be gained by Highway 22X via Highway 22.

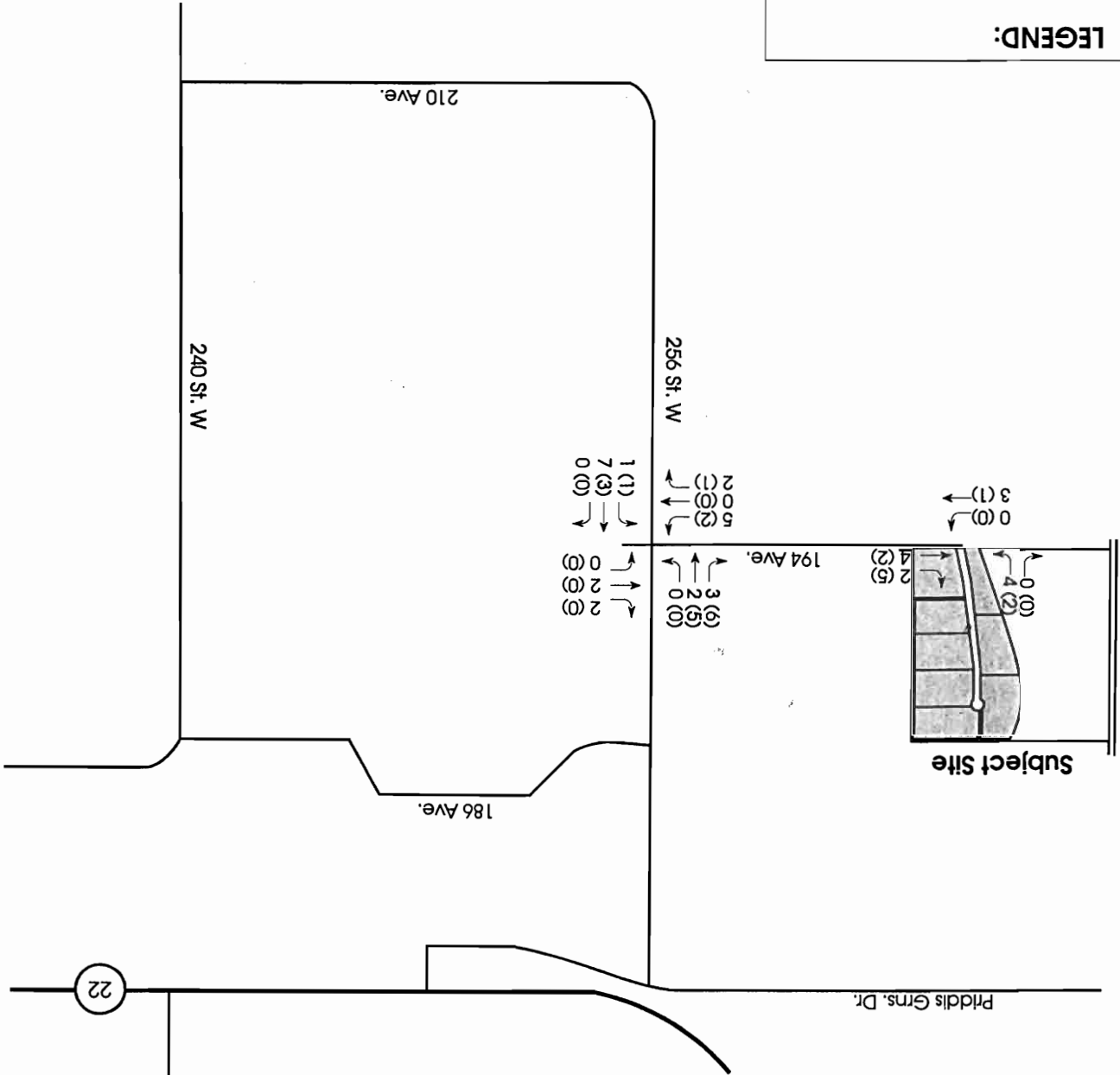
3.3 Site Traffic Distribution and Assignment

Size	Daily Trip Rate	Daily Trip (24-Hour) Trips	Trip Generation, 24-Hour Period			
			In		Out	
7	8.0/ unit	56	50	28	50	28
			%	#	%	#

Table 3.2

xx - AM Peak Hour
 (xx) - PM Peak Hour

LEGEND:



Area Structure Plan SW ¼ 20-22-03-W5M - Transportation Study
 POST-DEVELOPMENT TRAFFIC VOLUMES
 AM & PM PEAK HOUR PERIODS

Exhibit 3.1

Scale: N.T.S.

Page 10

MORASCH TRANSPORTATION CONSULTANTS LTD.

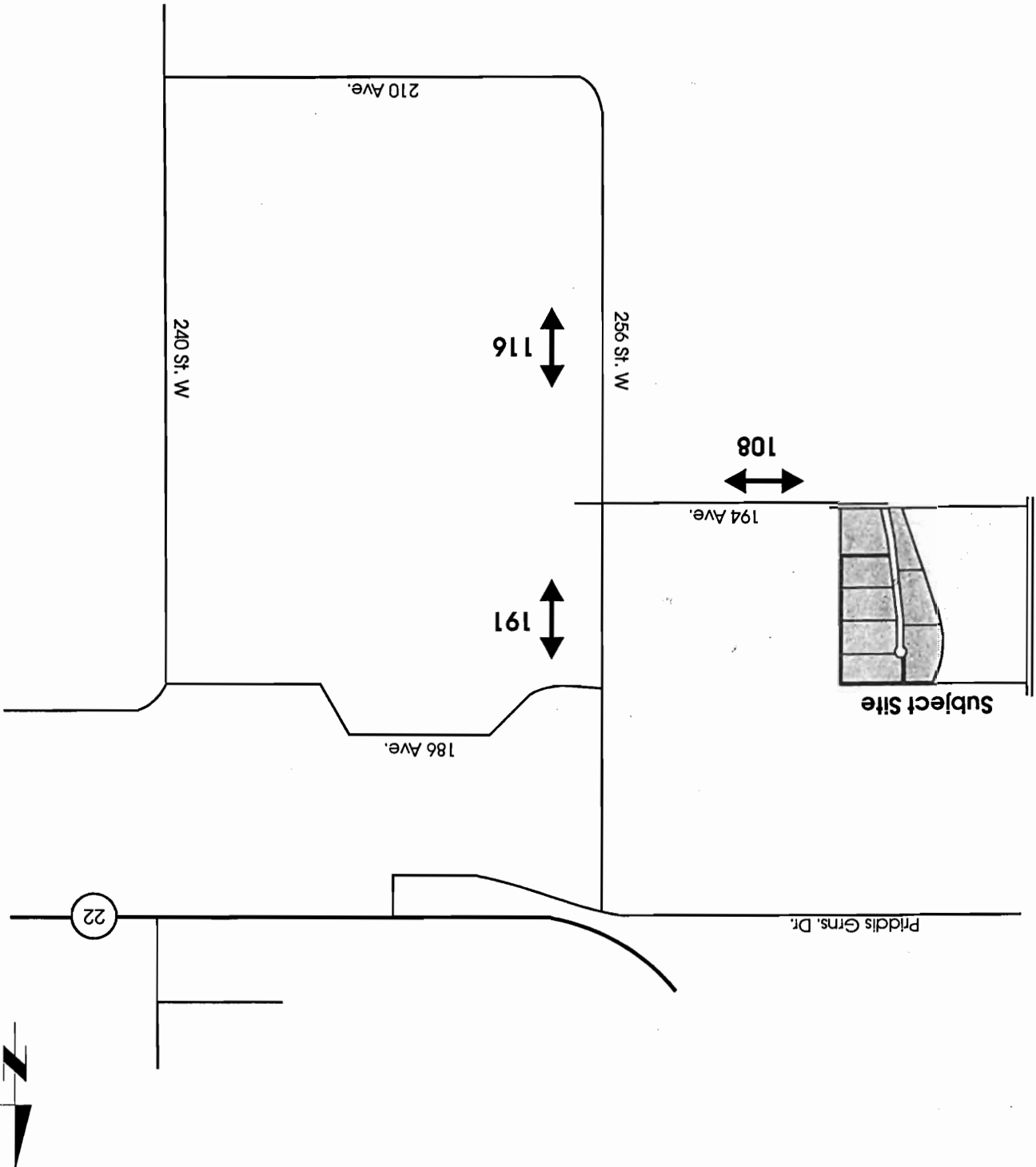
Area Structure Plan SW ¼ 20-22-03-W5M - Transportation Study
 POST-DEVELOPMENT TRAFFIC VOLUMES
 24-HOUR PERIOD

Exhibit 3.2

Scale: N.T.S.

Page 11

MORASCH TRANSPORTATION CONSULTANTS LTD.



4.1 Introduction: Methodology

In analyzing the influence of the proposed subdivision on the adjacent transportation network, the capacity of the network to accommodate the additional expected traffic demand was evaluated. This involves comparing the expected and post-development traffic volumes on 256 Street W and 194 Avenue over a daily (24-hour) period, and evaluating the existing and post-development intersection demand/capacity at the 256 Street W/ 194 Avenue intersection.

Standard techniques for determining the performance of stop controlled intersections are normally applied to evaluate pre- and post-development intersection demands relative to intersection capacity during the peak hour periods. However, in the case of the 256 Street W/ 194 Avenue intersection, standard techniques are not applicable since this intersection is uncontrolled due to the very low traffic volumes. For purposes of intersection analysis, MTCL has compared the pre- and post-development traffic demand volumes, and combined with field observation, used the relative increase of traffic under post-development conditions as the basis of evaluation.

4.2 AM Peak Hour

Based on traffic data collected by MTCL on May 24, 2000, there were 18 vehicles using the 256 Street W/ 194 Avenue intersection during the AM peak hour between 7:00 AM and 8:00 AM, including 4 school bus movements. Full development of the subdivision is expected to increase the traffic demand at the this intersection by 6 vehicle movements to/ from the west. Presently, the operating conditions of this intersection suggest that spare capacity exists in the intersection during the AM peak hour period, and the intersection is expected to have sufficient capacity to accommodate the development related traffic increase. Based on projected traffic volumes, no intersection control improvement is necessary at this location, but if the M.D. of Foothills has a request for a traffic control sign, a yield sign eastbound on 194 Avenue may be considered.

4.3 PM Peak Hour

Based on traffic data collected by MTCL on May 24, 2000, there were 12 vehicles using the 256 Street W/ 194 Avenue intersection during the PM peak hour between 4:00 PM and 5:00 PM, including 4 school bus movements. Full development of the subdivision is expected to increase the traffic demand at this intersection by 7 vehicle movements to/ from the west. Presently, the operating conditions of this intersection suggest that spare capacity exists in the intersection during the PM peak hour period, and the intersection is expected to have sufficient capacity to accommodate the development related traffic increase. Based on projected traffic volumes, no intersection control improvement is necessary at this location, but if the M.D. of Foothills has a request for a traffic control sign, a yield sign eastbound on 194 Avenue may be considered as suggested in Section 4.2.

4.4 Daily Traffic (24-Hour Period)

4.4.1 256 Street W

The current estimated daily traffic volumes, based on data recorded by MTCL, on 256 Street W north of 194 Avenue is in the order of 135 vehicles per day (vpd); and south of 194 Avenue is in the order of 115 vpd.

The proposed subdivision is expected to add in the order of 56 vpd to 256 Street W north of 194 Avenue, based on a full build out of 7 units. The post-development traffic on this section of 256 Street W is expected to be approximately 194 vpd. The M.D. of Foothills classifies 256 Street W as a rural local road. Typically this type of road has an environmental guideline of 1000 vpd. Given the capacity of this roadway, it can be concluded that 256 Street W is expected to have sufficient spare capacity to accommodate increases to traffic demand expected from the proposed subdivision.

4.4.2 194 Avenue

The current estimated daily traffic volumes, based on data recorded by MTCL, on 194 Avenue west of 256 Street W is in the order of 52 vpd. The proposed subdivision is expected to add in the order of 56 vpd to 194 Avenue west of 256 Street W, based on a full build out of 7 units. The post-development traffic on this section is expected to be approximately 108 vpd.

The M.D. of Foothills requires the upgrade of 194 Avenue, from the proposed Site access to the intersection of 256 Street W, to M.D. of Foothills No. 31 Road Construction Standards (Adopted: December 22, 1993).

4.5 School Bus Service

The Foothills School Division provides school bus service along 256 Street W, with a pick up location near 194 Avenue. Depending on school busing requirements and eligibility of future residents of the proposed subdivision, it may be necessary to extend or modify school bus routes to service the Site, which may include a school bus route for the Separate School system. Determination of the actual need to extend school busing to the future subdivision would be made by the respective school authorities.

5.0 CONCLUSIONS

Morasch Transportation Consultants Ltd. has completed a Transportation Study for a proposed 71 acre Area Structure Plan (ASP). The intent of the ASP is to create 7 residential lots and one municipal reserve lot, as well as an internal access road within the Municipal District of Foothills No. 31. The purpose of the Study is to evaluate the influence of the proposed subdivision on the existing transportation network, by analyzing the relationship between the expected traffic demands and the capacity of the transportation network facilities. The time periods in the analysis are the morning (AM) and afternoon (PM) peak hour periods, and the weekday 24-hour period. The main conclusions and recommendations which were drawn from the Transportation Study are as follows:

5.1 The proposed subdivision is expected to generate in the order of 56 vehicle trips per day, approximately 6 trips during the AM peak hour, and approximately 7 trips during the PM peak hour.

5.2 Access to the proposed subdivision is proposed via an internal roadway which intersects 194 Avenue, approximately 985 m west of 256 Street W. 256 Street W via Priddis Greens Drive provides access to Highway 22.

5.3 Based on the evaluation, it is concluded that the 256 Street W/ 194 Avenue intersection has sufficient capacity to accommodate traffic increases caused by the proposed subdivision during the AM and PM peak hour periods. Based on this conclusion, no improvements to the intersection would be warranted as a result of the proposed subdivision on the basis of intersection capacity.

5.4 Given the capacity of 256 Street W, it is concluded that this roadway has sufficient spare capacity to accommodate increases to traffic demand expected from the proposed subdivision, with no improvement warranted.

5.5 The M.D. of Foothills has requested the upgrade of 194 Avenue to M.D. standards from the proposed Site access to the intersection of 256 Street W. Adequate right-of-way, surface width, and surface treatment should be provided as approved by Council.

Appendix A

Current Traffic Volumes

Area Structure Plan SW 1/4 20-22-03-W5M - Transportation Study
 CURRENT TRAFFIC VOLUMES
 AM & PM PEAK HOUR PERIODS

Source: MTCL traffic count, Wednesday, May 24, 2000

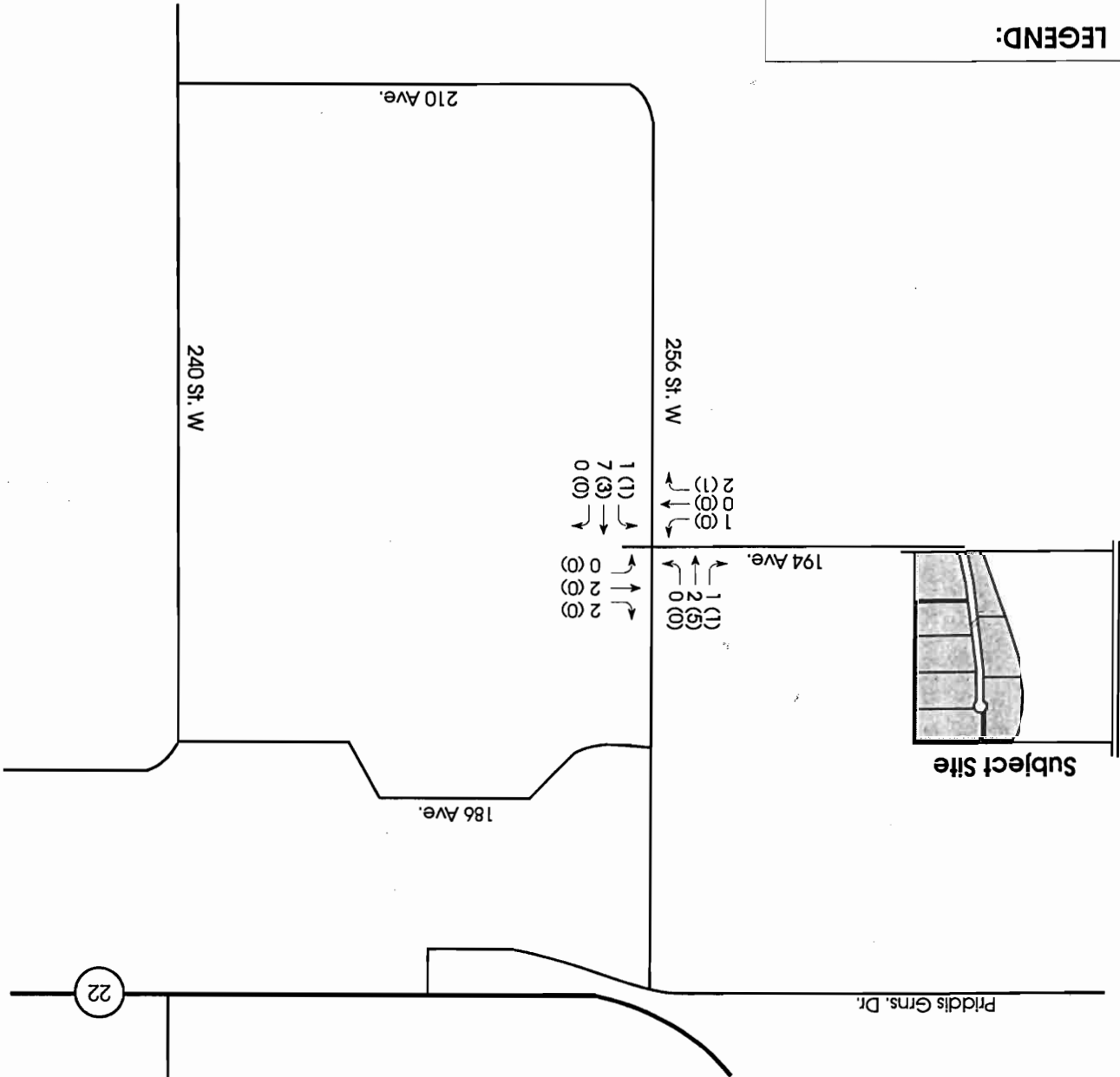
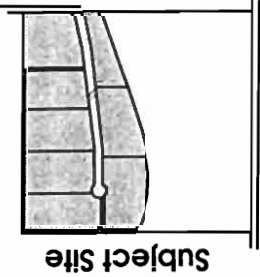
Exhibit A-1

Scale: N.T.S.

MORASCH TRANSPORTATION CONSULTANTS LTD.

xx - AM Peak Hour
 (xx) - PM Peak Hour

LEGEND:



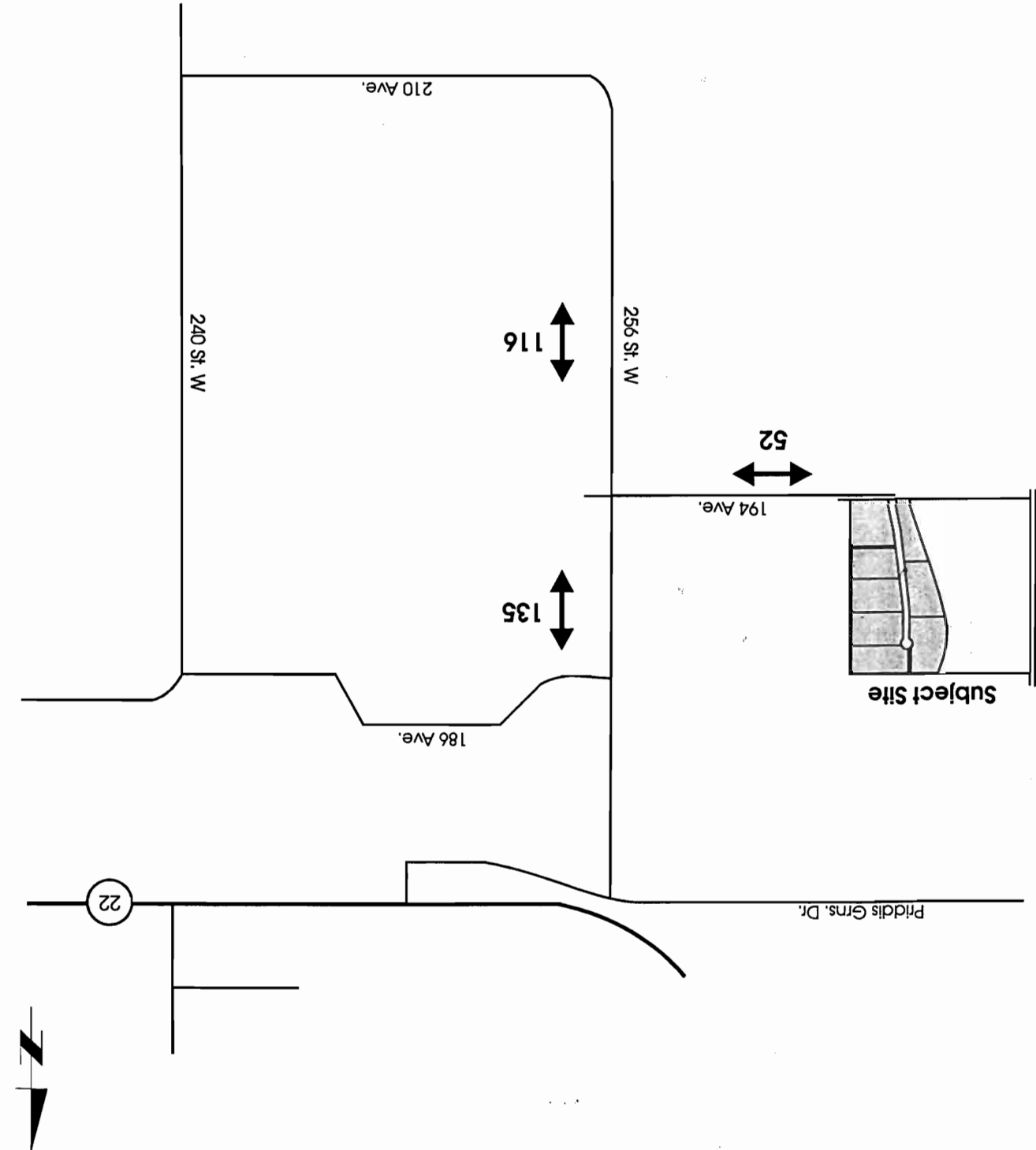
Area Structure Plan SW ¼ 20-22-03-W5M - Transportation Study
CURRENT 24-HOUR ESTIMATED TRAFFIC VOLUMES

Source: MTCL traffic count, Wednesday, May 24, 2000

NOTE:
 24-hour volumes are derived
 by applying a 2.1 expansion factor
 to observed 6-hour volumes

Exhibit A-2

Scale: N.T.S.



Appendix B

Site Generated Traffic Volumes

Area Structure Plan SW ¼ 20-22-03-W5M - Transportation Study
 TOTAL GENERATED TRAFFIC - FULL SUBDIVISION BUILD-OUT
 AM & PM PEAK HOUR PERIODS

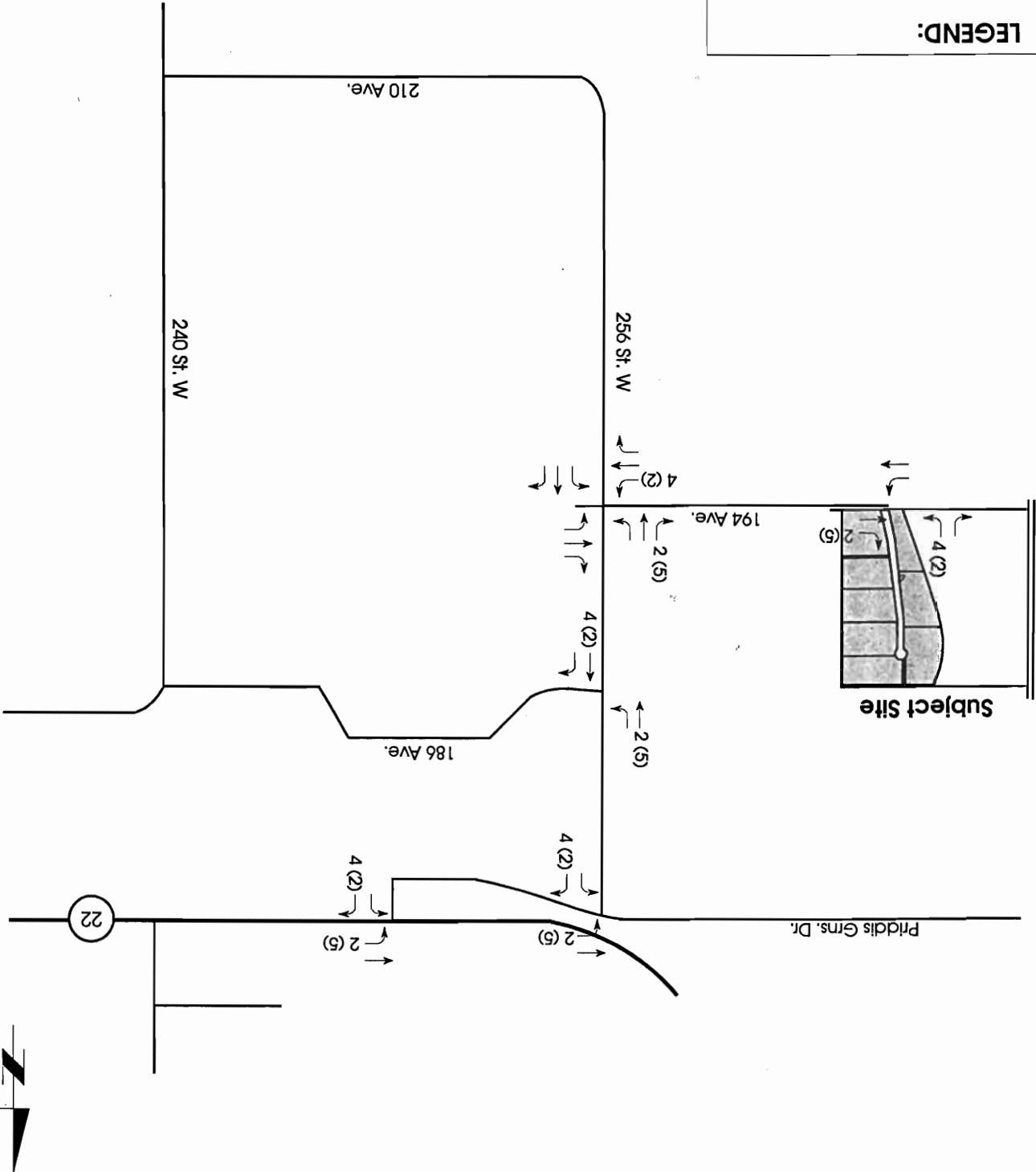
Exhibit B-1

Scale: N.T.S.

MORASCH TRANSPORTATION CONSULTANTS LTD.

xx - AM Peak Hour
 (xx) - PM Peak Hour

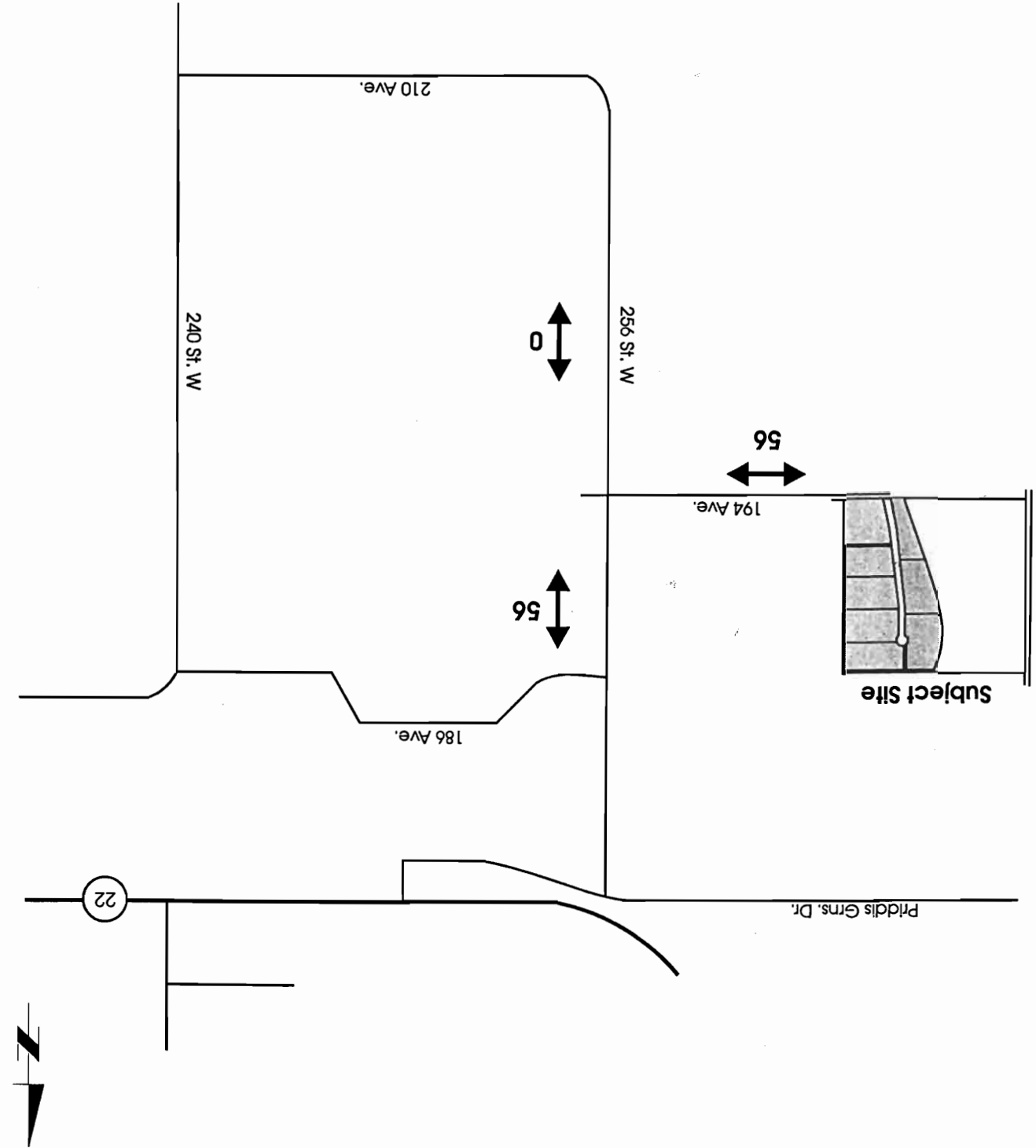
LEGEND:



Area Structure Plan SW ¼ 20-22-03-W5M - Transportation Study
 TOTAL GENERATED TRAFFIC - FULL SUBDIVISION BUILD-OUT
 24-HOUR PERIOD

Exhibit B-2

Scale: N.T.S.



APPENDIX G

GROUNDWATER STUDY

#99203

**Groundwater Supply Feasibility
Sood Property: Area Structure Plan
SW-20-22-03-W5M**

Submitted to:

Challenger Surveys & Services Ltd

Prepared by:

Groundwater Exploration & Research Ltd
February 2000



February 14, 2000
File No: 99203

Challenger Surveys & Services Ltd
#300, 6940 Fisher Road SE
Calgary, AB.
T2H 0W3

Attention: Brandy Clements

Dear Brandy:

RE: Sood Property: SW-20-22-03-W5M
Area Structure Plan-Groundwater Feasibility Assessment

Enclosed find our report which addresses the groundwater feasibility in the immediate area of the Sood property at SW-20-22-03-W5M in the Municipal District of Foothills.

Background Information

An 8 lot subdivision, including a Municipal Reserve lot, is being proposed for the 64.75 hectare [160 acres] Sood property located about 1 km south of the Priddis Greens Golf & Country Club and south of the Priddis Creek drainage basin. A small subdivision exists to the northeast in NE-20. At present, there is no extensive acreage subdivision development within the immediate area [see enclosed portion of the MD land ownership map]. It is proposed to create eight lots each varying in size from 2.83 to 4.05 hectares [7 to 10 acres] with a balance of 38.04 hectares [94 acres]. One of the lots is designated a Municipal Reserve lot.

In accordance with the Municipal District of Foothills regulations, there is a requirement to prepare an Area Structure Plan for subdivisions with 8 or more parcels. This report addresses the feasibility of finding sufficient volumes of groundwater to sustain an additional 7 lots [excluding the MR lot] at the SW-20-22-03-W5M location.

Geomorphic/Geologic Setting

Much of the land in the area of SW-20-22-03-W5M lies along the northeast flank of a northwest-southeast trending bedrock. Slopes are steep and grade northeast toward Priddis Creek [Priddis sheet 82 J/16; 1:50,000 scale]. Because of the steep slopes, the proposed subdivision is confined to the east half of the quarter section. The elevation change across the quarter section is approximately 122 meters. There are no existing residences with the SW-20 quarter section.

The bedrock in the area [Green, 1970: Geologic Map of Alberta; 1:267,000] is mapped as the Brazeau Formation. The Brazeau Formation consists of greenish grey, thick bedded, chloritic and feldspathic sandstone and blocky grey mudstone with minor tuff and coal beds. The Brazeau Formation is of non-marine origin.

Borneuf [1980: Hydrogeology of the Kananaskis Lake area, Alberta; Alberta Research Council, Report 79-4] maps the area as having a groundwater potential of less than 6.5 m³/day [<1 Cgpm]. The regional groundwater flow is northeastward toward the Priddis Creek valley.

Pertinent Regulations

Country residential subdivision and groundwater supply is regulated by Section 23(3) of the Water Act and stated as follows:

"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 that subdivision on 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 1250 cubic meters of water per year for household purposes under section 21 for each of the households within the subdivision will not interfere with any household users, licensees or traditional agriculture 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.

Water Regulation [AR 205/98]

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 6 or more parcels in a quarter section or in a river lot.

In essence, Section 23(3) of the Water Act asks two basic questions:

- [a] Is there sufficient water to satisfy the maximum requirement of 1250 m³/year for each lot in the proposed subdivision?
- [b] Will the allocated volume of water per lot result in a significant adverse effect on neighbouring wells and licensed users existing at the time of subdivision application?

Groundwater Well Data

A survey of groundwater well data in SW-20 and the surrounding 8 quarter sections of land was undertaken utilizing available information from Alberta Environmental Protection's groundwater database file. A total of 28 well records were available for review, including 4 well records for the SW-20 quarter section. A summary of available water well information is summarized in Table 1, appended to this report.

- [1] Well depths vary significantly from 16 to 320 feet depending on whether they are completed on a bedrock ridge or within the Priddis Creek valley bottom. The range in well depth does not exceed the elevation change of 400 feet.

- [2] The vast majority of wells are completed in shallow overburden wells along Priddis Creek (NE-20, all less than 20 feet in depth). Other wells are completed with extensive open areas [Val Halla Village: NW-20; 40-195 feet; also Val Halla Village 40-165 feet; Forbes: SE-20; 45-107 feet; and Maplesden SW-20: 20-150 feet].

- [3] Many of the wells are completed in black shale which traditionally has low yielding wells and problems with hydrogen sulphide odour.
- [4] The former owner of SW-20 [Maplesden] drilled two shallow holes 55 and 60 feet in depth, both of which were dry; and a deeper well at 150 feet with an unrecorded flow rate.
- [5] There are a number of dry holes drilled within the nine block quarter section.
- [6] Preliminary flow estimates vary from 1 to 37 Cgpm. The higher flow rates are generally associated with shallow wells completed within the Priddis Creek valley bottom. For wells completed at depths greater than 100 feet, the preliminary flow rates have a geometric mean of 5.5 Cgpm with a range of 1 to 24 Cgpm. The geometric mean preliminary flow rate of 5.5 Cgpm is capable of supporting up to 10 lots.
- [7] The proposed 7 lot subdivision has a groundwater requirement of 3.7 Cgpm [7 lots x 0.52 Cgpm per lot].

Licensed Users

There is one licensed users within an 800 meter radius of the proposed subdivision on the Sood property. There is a groundwater allocation licence for 11,100 m³/year under the applicant name of Brown. The production interval is from 2.1 to 6.0 meters which implies that the well is completed in shallow overburden sediments.

Existing Q₂₀ Tests

Groundwater Exploration & Research Ltd has not undertaken any Q₂₀ tests in the immediate vicinity of the SW-20 quarter section. A balanced flow test was undertaken on the Sood house well on May 18, 1999 by Aaron Drilling Inc. The balanced flow test commenced at a rate of 49.09 m³/day [7.5 Cgpm] producing 19.89 meters of drawdown. When the flow rate was reduced to 28.15 m³/day [4.3 Cgpm], the pumping water level stabilized at 20.88 meters indicating that outflow was in "balance" with well inflow. After 15 minutes of termination of pumping, the well recovered 98.3 percent. The Sood house well is capable of producing 28.15 m³/day [4.3 Cgpm].

Based on the 7 lot subdivision, the total water requirement would be 23.94 m³/day [3.7 Cgpm]. Based on wells completed at a depth greater than 30 meters, and the Sood balanced flow test, there is a likelihood that the 23.94 m³/day can be achieved. The number of dry holes drilled is, however, a negative factor.

Well Interference

With respect to the potential for well interference as indicated in Section 23(3) of the Water Act, a calculation for well interference, neglecting recharge, at any given distance from the pumping well can be determined from:

$$u = r^2 S / 4 T t \text{ and } s = Q W(u) / 4 \pi i T$$

where: u and $W(u)$ = well function parameters
 T = transmissive capacity in m^2/day calculated from actual pump test data
 S = coefficient of storage, dimensionless
 t = 20 years of continuous pumping, in days
 r = distance between pump well and neighbouring well
 s = projected drawdown at the neighbouring well and assumed to be 1 meter or less
 Q = maximum pumping rate of 1250 m^3/year or 3.42 m^3/day

The calculation for well interference is based on the general assumption that a maximum projected drawdown of 1 meter, after 20 years of continuous pumping and neglecting recharge, is an acceptable drawdown that would not unduly interfere with a neighbouring wells' performance.

With the above defined criteria, critical values for well separation distance and transmissive capacity [TC] value can be determined. Acceptable combinations of transmissive capacity and well separation distance are tabulated as follows:

Well Separation Distance (m)	Transmissivity (m ² /day)
25	3.5
50	3.0
75	2.5
100	2.5

For a maximum drawdown of one meter, the critical transmissive capacity is 3.5 m²/day and a well separation distance of 25 meters; This means, that if all of the proposed 8 wells are completed in the same water bearing zone, then as long as the well separation distance is greater than 25 meters and the transmissive capacity exceeds 3.5 m²/day, then any well interference can be deemed to be acceptable.

There is no existing flow test data in the area, to determine whether a transmissivity capacity in the order of 3.5 m²/day is probable. The transmissive capacity value can only be determined from a pump test conducted on site specific wells drilled on each proposed parcel. Given that the proposed lot sizes, a well separation distance greater than 100 meters should be achievable.

Summary of Findings

Based on a feasibility assessment of existing water well information, flow tests and geologic information, the following conclusions have been drawn:

[1] Existing well depths, completion intervals and preliminary flow estimates, indicate that there are multiple water bearing zones existing both laterally and vertically.

[2] The majority of water wells are completed in shallow overburden deposits within the Pridis Creek valley bottom.

[3] Wells completed at depths greater than 30 meters in bedrock indicate preliminary flow rates of at least 26.2 m³/day [4 Cgpm] which exceeds the proposed water requirement of 23.94 m³/day [3.7 Cgpm]. A balanced flow test on the Sood house well indicates a flow rate of 28.15 m³/day [4.3 Cgpm] which also exceeds the proposed water requirement for the 7 lot subdivision.

[4] The presence of black shale deposits yields a possibility that hydrogen sulphide odours may be present in the wells. In addition, the number of dry holes suggests that fracture controlled wells may be difficult to locate.

[5] To minimize a concern for well interference, the critical parameters are a minimum transmissive capacity of 3.5 m²/day and a well separation distance of at least 25 meter. The well separation distance parameter is generally feasible given the proposed lot sizes. There is no available data to suggest that the preferred minimum transmissive capacity of 3.5 m²/day is probable.

[6] The transmissive capacity will need to be calculated on an individual well basis. Because of the presence of fracture controlled porosity, a minimum well test duration of 24 hours pumping and 24 hours of recovery is preferred to generate the required data.

Closure

If you have any questions or comments regarding the conclusions drawn in this groundwater feasibility assessment, contact the undersigned at your convenience. Thanking you for the opportunity to have been of service, we remain,

Respectfully yours,

Groundwater Exploration & Research Ltd

Bob Nowak

Bob Nowak, Ph.D., P.Geol.
Groundwater Geologist

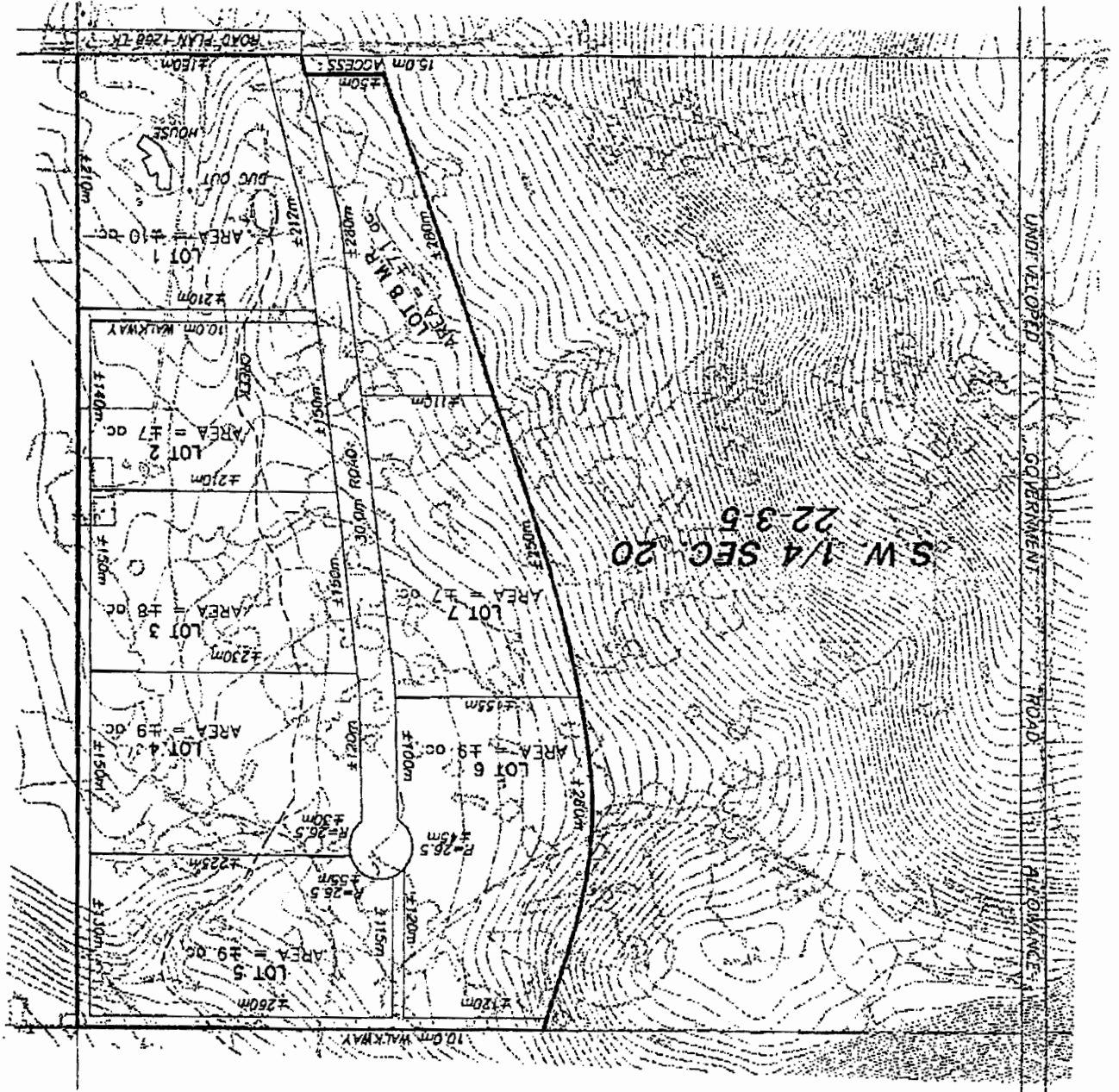


Appendix

Table 1
Summary of Groundwater Well Data

Location	Landowner	Date	Td/Npwl (ft)	Flow Estimate	Completion Interval (ft)
TP22, R03					
SW-20	Maplesden	Apr 85	150/40	na	20-150
SW-20	Maplesden	Apr 85	55	dry hole	
SW-20	Maplesden	Apr 85	60	dry hole	
SW-20	Govora	Jun 79	80/30	3 Cgpm/2 hrs	na
SW-20	Govora	Jun 79	21/9	4 Cgpm/2 hrs	na
SW-20	Govora	Jun 79	320/na	insufficient water	na
NE-20	Double E Farms	Nov 95	150/na	na	90 - 150
NE-20	Double E Farms	Aug 93	18/7.7	10 Cgpm/2 hrs	8 - 14
NE-20	Double E Farms	Aug 93	20/5.7	37 Cgpm/2.4 hrs	10 - 17
NE-20	Double E Farms	Aug 93	18/6.4	10 Cgpm/2.3 hrs	10 - 16
NE-20	Double E Farms	Aug 93	18/6.7	11 Cgpm/2 hrs	10 - 15
NE-20	Double E Farms	Aug 93	20/8.9	3 Cgpm/12 hrs	11 - 16
NE-20	Double E Farms	Aug 93	20/8	20 Cgpm/1.2 hrs	10 - 15
NE-20	Double E Farms	Aug 93	20/11.7	6 Cgpm/12 hrs	10 - 17
NE-20	Double E Farms	Aug 93	34/7.6	4 Cgpm/12 hrs	11 - 34
NE-20	Double E Farms	Aug 93	20/7	6 Cgpm/1.15 hrs	10 - 17
NE-20	Double E Farms	Aug 93	20/9	4 Cgpm/2 hrs	9 - 17
NE-20	Double E Farms	Nov 89	140	dry hole	
NW-20	Woodall	Jun 85	300/na	4 Cgpm/1.5 hrs	open hole
NW-20	Woodall	Jun 85	340	dry hole	
NW-20	Woodall	Jun 85	260	dry hole	
NW-20	Val Halla Village	Aug 90	200/1	5 Cgpm/2 hrs	40 - 195
NW-20	K.P. Manufac.	Mar 92	20/6.8	2.5 Cgpm/na	6 - 20
NW-20	Brown	Jul 88	175/78	7 Cgpm/1 hr	80 - 170
NW-20	K.P. Manufac.	Mar 92	16/8.1	7.8 Cgpm/52 hrs	10 - 16
NW-20	Val Halla Village	Aug 90	170/na	24 Cgpm/2 hrs	40 - 165
NW-20	Carpenter	Jul 73	107	dry hole	
NW-20	Carpenter	Jul 73	260	dry hole	
SE-20	Forbes	May 90	60	dry hole	
SE-20	Forbes	May 90	140	dry hole	
SE-20	Forbes	May 90	200	dry hole	
SE-20	Forbes	May 90	140/20	1 Cgpm/2 hrs	45 - 107
NE-17	Baker	Jan 85	90/13	10 Cgpm/1 hr	17 - 85
NW-17	Dunne	Jun 95	100/27	8 Cgpm/2 hrs	70 - 95
NW-17	Minns	Oct 73	63/38	12 Cgpm/1 hr	46 - 53
NE-19	Machum	Apr 65	43/30	7 Cgpm/0.3 hrs	na
SE-19	Rowley	Jun 87	90/32	11 Cgpm/1 hr	32 - 85
SE-19	Rowley	Oct 80	98/27	7 Cgpm/1.3 hrs	70 - 95
na = not available					

SKETCH PLAN
SHOWING
EIGHT LOTS TO BE SUBDIVIDED
FROM
S.W.1/4 Sec. 20, Twp. 22, Rge. 3, W5M
MUNICIPAL DISTRICT OF FOOTHILLS No. 31
SCALE: 1:5000



ALBERTA ENVIRONMENTAL PROTECTION

COMPUTER GENERATED WATER WELL DRILLER'S REPORT FORM WELL I.D. 377651
THIS DATA MAY NOT BE FULLY CHECKED; THE PROVINCE DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY: Page 1 of 1

CONTRACTOR:		WELL OWNER:	
NAME: AARON/INTERPROVINCIAL WATERWELL DRILLING		NAME: MAPLESDEN, JOHN	
ADDRESS: Box 28, Sse 9, R.R.1 DeWinton, Alberta T0L-0X0		ADDRESS: 940 6 AVE SW, CALGARY	
LICENCE NO: 0892 JOURNEYMAN NO. YA-4996		POSTAL CODE:	
FORMATION LOG DESCRIPTION:			
Depth (feet):	Ground to:	TYPE OF WORK: DEEPENED	
	Old Well	FLOWING WELL: No	
	Black Shale	GAS PRESENT: No	
		DATE OF ABANDONMENT:	
		MATERIAL USED:	
		PROPOSED USE: DOMESTIC	
WELL COMPLETION DATA:			
WELL FINISH: OPEN HOLE			
TOTAL HOLE DEPTH: 150 Feet			
CASING TYPE: STEEL			
SIZE OD: 6.63 inch WALL THICKNESS: 0.188 inch			
BOTTOM AT: 20 Feet			
PERFORATED CASING/LINER:			
TYPE:			
SIZE OD: inch ID: inch			
WALL THICKNESS: inch			
TOP AT: Feet BOTTOM AT: Feet			
PERFORATED FROM: Feet TO: Feet			
HOW PERFORATED: inch X inch			
SEAL TYPE:			
INTERVAL TOP: Feet TO: Feet			
GEOLOGICAL LOG TAKEN:			
RETAINED ON FILE:			
SCREEN:			
MATERIAL:			
SIZE ID (CLEAR): inch SLOT SIZE: inch			
INTERVAL TOP: Feet TO: Feet			
INSTALLATION METHOD:			
TOP FITTINGS:			
BOTTOM FITTINGS:			
PACK TYPE:			
GRAIN SIZE:			
AMOUNT:			
FITNESS ADAPTER TYPE:			
DROP PIPE TYPE:			
LENGTH: Feet DIAMETER: Feet			
ADDITIONAL PUMP INFORMATION:			
H.P.:			
RECOMMENDED PUMPING RATE: Gal/Min			
TOTAL DRAWDOWN: Feet			
NON-PUMPING (STATIC) WATER LEVEL: 40.0 Feet			
WATER LEVEL AT END OF TEST: Feet			
DEPTH OF PUMP/DRILL STEM: 149 Feet			
TESTING METHOD: BALLER			
TEST DURATION: 0 Hours 30 Minutes			
WATER REMOVAL RATE DURING TEST: Gal/Min			
COMMENTS: DRILLER REPORT FOR OLD WELL NOT HELD AT GIC. DRILLER NOTES THAT HOLE IS VERY CROOKED FROM ORIGINAL DRILLING. WATER (Maximum of 9 lines printed) ZONE @ 43'. LINER WAS NOT RE-INSTALLED.			
DATE WORK STARTED: April 16, 1985			
DATE WORK COMPLETED: April 18, 1985			
ADDITIONAL TEST AND/OR PUMP DATA:			
CHEMISTRIES TAKEN/ HELD:			
DOCUMENTS HELD: 1			
WELL OWNER'S ANTICIPATED WATER REQUIREMENTS PER DAY:			

WELL LOCATION:			
IC#:	05		
~ OR ISI	03	SEC	20
RGE	03	TWP	022
W. MER	W5		
LOCATION VERIFICATION METHOD: MAP			
LOCATION IN QUARTER:			
LOT:			
BLOCK:			
WELL ELEV: Feet			
PLAN: How obtain: NOT OBTAIN			
PRODUCTION TEST:			
TEST DATE: April 18, 1985			
START TIME: 1:00			
Elapsed Time in Level During Pumping			
Depth to Water Level During Recovery			

ALBERTA ENVIRONMENTAL PROTECTION

COMPUTER GENERATED WATER WELL DRILLER'S REPORT FORM WELL I.D. 377649

THIS DATA MAY NOT BE FULLY CHECKED; THE PROVINCE DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY: Page 1 of 1

CONTRACTOR:

NAME: NELSON, C.H. DRILLING LTD.

ADDRESS: R.R.5

Calgary, Alberta T2P-2G6

LICENCE NO.: 0846 JOURNEYMAN NO.:

WELL OWNER:

NAME: DEVORA, JOHN

ADDRESS: CALGARY

POSTAL CODE:

WELL LOCATION:

ICN: 03

~ OR L&B	SW	20	022	03	WS
SEC	TWP	RGE	W. MER		

LOCATION VERIFICATION METHOD NOT VERIFIED

LOCATION IN QUARTER:

LOT: BLOCK: PLAN: WELL ELEV: 4350. Feet How obtain: ESTIMATED

PRODUCTION TEST:

TEST DATE: June 15, 1979

START TIME: 1:00

DRILLING METHOD: ROTARY

TYPE OF WORK: NEW WELL

FLOWING WELL: No

GAS PRESENT: No

DATE OF ABANDONMENT:

MATERIAL USED:

PROPOSED USE: UNKNOWN

WELL FINISH: PERFORATED CASING/LINER

TOTAL HOLE DEPTH: 21 Feet

CASING TYPE:

SIZE OD: Inch WALL THICKNESS: Inch

BOTTOM AT: Feet

PERFORATED CASING/LINER:

TYPE: STEEL

SIZE OD: 4.50 Inch ID: Inch

WALL THICKNESS: 0.156 Inch

TOP AT: Feet

PERFORATED FROM: Feet TO: Feet

SIZE OF PERFORATIONS: Inch X Inch

HOW PERFORATED: UNKNOWN

SEAL TYPE:

INTERVAL TOP: Feet TO: Feet

SIZE ID (CLEAR): Inch SLOT SIZE: Inch

INTERVAL TOP: Feet TO: Feet

INSTALLATION METHOD:

TOP FITTINGS:

BOTTOM FITTINGS:

PACK TYPE:

GRAIN SIZE:

AMOUNT:

FITNESS ADAPTER TYPE:

DROPPED PIPE TYPE:

LENGTH: Feet

DIAMETER: Inch

ADDITIONAL PUMP INFORMATION:

COMMENTS:

DATE WORK STARTED: June 14, 1979

DATE WORK COMPLETED: June 15, 1979

ADDITIONAL TEST AND/OR PUMP DATA:

CHEMISTRIES TAKEN/ HELD:

DOCUMENTS HELD: 1

WELL OWNER'S ANTICIPATED WATER REQUIREMENTS PER DAY:

FO

GIC56

14:59:40 DATE DATA KEYED: May 31, 1994

DATE FORM PRINTED: February 2, 2000

ALBERTA ENVIRONMENTAL PROTECTION

COMPUTER GENERATED WATER WELL DRILLER'S REPORT FORM WELL I.D. 377648
THIS DATA MAY NOT BE FULLY CHECKED; THE PROVINCE DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY: Page 1 of 1

CONTRACTOR: NAME: NELSON, C.H. DRILLING LTD. ADDRESS: R.R.5 Calgary, Alberta T2P-2G6 LICENCE NO.: 0846 JOURNEYMAN NO.:

WELL OWNER: NAME: GOVORA, JOHN ADDRESS: CALGARY POSTAL CODE:

WELL LOCATION: I.C#: 02 - OR LSI SEC TWP RGE W. MEK LOCATION VERIFICATION METHOD NOT VERIFIED

LOT: BLOCK: PLAN: WELL ELEV: 4200. Feet How obtain: ESTIMATED

PRODUCTION TEST: TEST DATE: Elapsed Time in Level During Pumping Level During Recovery

DRILLING METHOD: ROTARY TYPE OF WORK: NEW WELL FLOWING WELL No RATE: OIL PRESENT: No

FORMATION LOG DESCRIPTION: Lithology: Ground to: 39 Yellow Sandy Clay & Rocks 45 Grey Sandstone 50 Blue Shale 55 Coal 103 Blue Shale 125 Brown Shale 127 Coal 135 Brown Shale 240 Blue Shale & Sandstone ledges 280 Brown Clay 320 Blue Shale

WELL COMPLETION DATA: WELL FINISH: UNKNOWN TOTAL HOLE DEPTH: 320 Feet

PERFORATED CASING/JUNK: TYPE: ID: Inch WALL THICKNESS: Inch

PERFORATED FROM: TOP AT: Feet BOTTOM AT: Feet

SIZE OF PERFORATIONS: Inch X Inch

HOW PERFORATED: SEAL TYPE: INTERVAL TOP: Feet TO: Feet

GEOTECHNICAL LOG TAKEN: RETAINED ON FILE: SCREEN: MATERIAL: SIZE ID (CLEAR): Inch SLOT SIZE: Inch

INSTALLATION METHOD: TOP FITTINGS: BOTTOM FITTINGS: PACK TYPE: GRAIN SIZE: AMOUNT: Length: Diameter: Inch

ADDITIONAL PUMP INFORMATION: MODEL: H.P.: RECOMMENDED PUMPING RATE: Gal/Min

WATER REMOVAL RATE DURING TEST: Hours Minutes

TEST DURATION: TESTING METHOD: DEPTH OF PUMP/DRILL STEM: Feet

NON-PUMPING (STATIC) WATER LEVEL: Feet

TOTAL DRAWDOWN: Feet

COMMENTS: DRILLER NOTES THAT THERE IS INSUFFICIENT WATER TO MAKE A WELL, BUT HOLE IS NOT LISTED AS DRY OR ABANDONED.

DATE WORK STARTED: June 4, 1979 DATE WORK COMPLETED: June 8, 1979

ADDITIONAL TEST AND/OR PUMP DATA: CHEMISTRIES TAKEN: HELD: DOCUMENTS HELD: 1

WELL OWNER'S ANTICIPATED WATER REQUIREMENTS PER DAY:

APPENDIX H

PERCOLATION STUDY



ALMOR TESTING SERVICES LTD.

7505 - 40 ST. S.E., CALGARY, ALBERTA T2C 2H5
TELEPHONE (403) 236-8880

2000 01 24

00-088-02-5

Soodco Development Ltd.
c/o: Challenger Surveys and Services Ltd.
300, 6940 Fisher Rd SE
Calgary, Alberta T2H 0W3

Attention: Ms. Brandy Clements

Gentlemen:

Re: Shallow Subsurface Conditions
K. Mapleden Acreage
SW ¼, Sec 20, Twp 22, Rge 3, W5M

Almor Testing Services Ltd. was retained to evaluate the percolation rate of the shallow subsurface soils and groundwater conditions, in accordance with the MD of Foothills and Alberta Environmental Protection guidelines, at the above referenced project. No consideration has been given to specific foundation subsoil conditions, within the building envelopes. The proposed subdivision, to be subdivided into 8 Lots, is identified by the attached Site Plan.

The field investigation for the water table and percolation rate testing was performed on January 6, 2000. The percolation test holes and groundwater monitoring test holes, located by our personnel, were advanced by a mobile auger drill. Frost was present in the test holes to a depth of 0.5m below grade.

1.0 SOIL CONDITIONS

The soil conditions at the septic tile field locations (excluding the surficial topsoil and lesser "browns" horizon), consist predominately of light olive silt, with some sand, some clay and a trace of gravel. The soils ranged from a moist to wet condition and were of a stiff to very stiff consistency. Natural moisture contents ranged from 9.9% to 32.6% at the 0.9m depth. Soil saturation tests performed on the shallow subsoils yielded a range from 41.4% to 54.9%.

2.0 SEPTIC FIELD - PERCOLATION RATE TESTS

The percolation test holes were advanced at alternate septic field locations in each lot, to a depth of approximately 0.9m below the depth of native topsoil and the "browns" horizon. Loose materials from the bottom and sides of the test holes were cleaned, prior to filling with water for a minimum depth of 0.45m (18 inches). The water was allowed to soak for a minimum 12 to 24 hour period. The holes were recharged with water and the percolation rates were observed and recorded on January 7, 2000. The results are presented in the attached Table 1.

3.0 GROUNDWATER CONDITIONS

Free water or saturated soil conditions were observed in some of the test holes during test hole drilling. Hand-slotted, 30mm PVC standpipe were installed in each test hole, for review of near surface water table. The standpipe were installed to depths ranging from 3.1m to 3.4m below the existing ground surface. Wetted bentonite granules were placed from the ground surface to a depth of 0.3m, to limit surface water infiltration. The standpipes were monitored the next day and one week subsequent to installation and groundwater was present, as noted in Table 2.

**TABLE 2
GROUNDWATER CONDITIONS**

----- Depth Below Existing Ground Surface (m) -----				
Test Hole	Depth of	At Completion	Jan 7	Jan 13
No.	Standpipe			
2	3.3	2.20	2.35	2.34
3	3.2	dry	2.21	1.91
4	3.1	dry	2.12	1.67
5	3.1	dry	dry	dry
6	3.4	1.40	1.07	1.09
7	3.25	dry	dry	dry

Typically, highest groundwater conditions are experienced during the months of June to August, as they are periods of groundwater table recharge and therefore seasonal fluctuation is then into consideration. It is apparent that the near surface water table in some of the locations will not be below a vertical distance of 1.5m from the weeping lateral trench bottom, as specified by Alberta Environmental Protection guidelines for location of disposal fields in this time period. In review of this test hole data, shallow water table conditions are a consideration in Lots 3, 4 and 6.

4.0 CLOSING

In review of the percolation rates recorded to be between 2.0 min/cm and 23.6 min/cm, with the exception of Percolation Hole #6A, the percolation is as designed. However, the shallow groundwater table is not below a minimum 1.5m distance from the weeping lateral trench bottom (2.4m below grade) in Lots 3, 4 and 6, therefore we recommend that raised septic fields or mounds of some 1.0m to 1.5m will be suitable for disposal.

We trust this meets with your present requirements.

Respectfully submitted,
ALMOR TESTING SERVICES LTD.



J.B. Montgomery, P.Eng.

SD:ms:A99345

Attachments

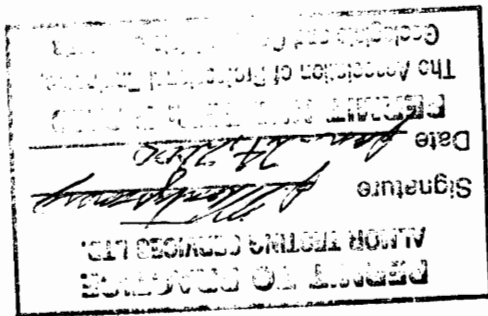


TABLE 1
PERCOLATION TEST RESULTS

Percolation Hole #2A		
Location:	Refer to Site Plan	
Soil Type:	SILT, some sand, trace clay	
Time of Reading	20 min.	1.7
	40 min.	2.4
	Hour 1	2.3
	80 min.	2.5
	100 min.	2.2
	Hour 2	2.3
Percolation Hole #2B		
Location:	Refer to Site Plan	
Soil Type:	SILT, some sand, trace to some clay	
Time of Reading	20 min.	2.3
	40 min.	2.7
	Hour 1	2.6
	80 min.	2.7
	100 min.	2.3
	Hour 2	2.5
Percolation Hole #3A		
Location:	Refer to Site Plan	
Soil Type:	Clayey SILT, trace sand, trace pebbles	
Time of Reading	20 min.	14.3
	40 min.	20.0
	Hour 1	20.0
	80 min.	18.2
	100 min.	18.8
		min./cm

TABLE 1
PERCOLATION TEST RESULTS

Percolation Hole #3B		
Location:	Refer to Site Plan	
Soil Type:	SILT, some clay to clayey, trace sand, trace to some gravel	
Time of Reading	20 min.	10.0
	40 min.	9.5
Hour 1	80 min.	8.7
	100 min.	7.1
Hour 2	20 min.	7.1
	40 min.	7.1
Percolation Hole #4A		
Location:	Refer to Site Plan	
Soil Type:	SILT, some clay, trace sand, trace gravel	
Time of Reading	20 min.	22.2
	40 min.	22.2
Hour 1	80 min.	15.4
	100 min.	11.7
Hour 2	20 min.	11.1
	40 min.	11.1
Percolation Hole #4B		
Location:	Refer to Site Plan	
Soil Type:	SILT, some sand to sandy, some gravel, trace clay	
Time of Reading	20 min.	4.4
	40 min.	4.2
Hour 1	80 min.	3.8
	100 min.	3.7
Hour 2	20 min.	3.3
	40 min.	3.2

TABLE 1
PERCOLATION TEST RESULTS

Percolation Hole #6B		
Location:	Refer to Site Plan	
Soil Type:	Clayey SILT, trace sand, trace gravel	
Time of Reading		
min./cm		
20 min.	7.4	7.4
40 min.	7.7	7.7
Hour 1	7.4	7.4
80 min.	7.4	7.4
100 min.	7.7	7.7
Hour 2	7.4	7.4
Percolation Hole #7A		
Location:	Refer to Site Plan	
Soil Type:	Silty SAND	
Time of Reading		
min./cm		
20 min.	2.7	2.7
40 min.	2.6	2.6
Hour 1	2.6	2.6
80 min.	2.7	2.7
100 min.	2.8	2.8
Percolation Hole #7B		
Location:	Refer to Site Plan	
Soil Type:	SILT, some sand to sandy, some clay	
Time of Reading		
min./cm		
20 min.	4.3	4.3
40 min.	4.0	4.0
Hour 1	4.3	4.3
80 min.	3.8	3.8
100 min.	3.9	3.9
Hour 2	4.1	4.1

TABLE 1
PERCOLATION TEST RESULTS

Percolation Hole #5A
Location: Refer to Site Plan
Soil Type: SILT, some sand to sandy, trace to some clay, trace gravel

Time of Reading	
20 min.	22.2
40 min.	20.5
Hour 1	18.7
80 min.	18.2
100 min.	18.3
Hour 2	18.7

Percolation Hole #5B
Location: Refer to Site Plan
Soil Type: Sandy SILT, trace to some gravel, trace to some clay

Time of Reading	
20 min.	8.9
40 min.	9.5
Hour 1	9.1
80 min.	9.1
100 min.	7.4
Hour 2	6.6

Percolation Hole #6A
Location: Refer to Site Plan
Soil Type: SILT, some sand, some clay

Time of Reading	
20 min.	30.0
40 min.	33.3
Hour 1	33.3
80 min.	33.3
100 min.	40.0
Hour 2	50.0

