BYLAW 2345/D&P/08

BEING A BYLAW OF THE TOWN OF STONY PLAIN IN THE PROVINCE OF ALBERTA FOR THE PURPOSE OF AMENDING THE SOUTHEAST AREA STRUCTURE PLAN BYLAW 865 AND AMENDMENTS

The Council of the Town of Stony Plain in the Province of Alberta, enacts that the Southeast Area Structure Plan Bylaw 865 and amendments be amended as follows:

1. That this Bylaw 2345/D&P/08 is to be cited as the "Southeast Area Structure Plan Amendment".

2. That "Schedule A" attached hereto is hereby adopted as part of this bylaw.

3. If any portion of this bylaw is declared invalid by a court of competent jurisdiction, then the invalid portion must be severed and the remainder of the bylaw is deemed valid.

4. That this bylaw shall come into force and take effect upon the date of third reading and signing in accordance with Section 213, Municipal Government Act, Revised Statutes of Alberta, 2000.

Read a first time this 14th day of October, A.D. 2008.

Original Signed
_____
Mayor Ken Lemke

Original Signed
_____
Louise Frostad, CMA, CLGM
Director, Finance and Administration

Public Hearing held on the 10th day of November, A.D. 2008.
Read a second time this 10th day of November, A.D. 2008.

Original Signed
_____
Mayor Ken Lemke

Original Signed
_____
Louise Frostad, CMA, CLGM
Director, Finance and Administration

Read a third time this 13th day of October, A.D. 2009.

Original Signed
_____
Mayor Ken Lemke

Original Signed
_____
Louise Frostad, CMA, CLGM
Director, Finance and Administration

Schedule A

Town of Stony Plain
Southeast
Area Structure Plan Amendment

Prepared for:
Elegant Development Inc.

Prepared by:
Stantec Consulting Ltd.

File: 1161 87300

TABLE OF CONTENTS

FIGURES

TABLES

1.0 Introduction

1.1 Purpose

This proposal to amend the Southeast Stony Plain Area Structure Plan (ASP) has been prepared by Stantec Consulting Ltd. on behalf of Elegant Development Inc. The purpose of the amendment is to update the ASP to reflect a new land use concept for the northwest portion of the plan area. Due to changing housing market and economic conditions, lands previously assumed to be be poorly suited for development can now be developed.

The purpose of an Area Structure Plan (ASP) is to establish a development and servicing framework for the neighbourhood and specifies the following:

- The location, configuration, and area of residential, commercial, institutional, parks and open spaces and public utility land uses;
- The density of development and overall population statistics;
- The pattern and alignment of vehicular and pedestrian circulation systems;
- A concept to provide required utility infrastructure; and,
- The implementation and phasing of development.

1.2 Location

The amendment area is located adjacent to existing development within the town's southeast quadrant, within the lands legally described as part of NE ¼ Sec. 25-52-28-W4. The area is located immediately south of the Southridge neighbourhood, east of 45 Street and west of Golf Course Road. The location of the ASP is shown in **Figure 1 – Location** and **Figure 2 – Context**.

The amendment area is approximately 32.29 hectares (ha).

1.3 Orientation

This document contains four sections and one appendix:

- Section 1 provides administrative information and an orientation to the plan;
- Section 2 describes background information and provides an outline of the amendments;
- Section 3 provides information about the amendment area;
- Section 4 provides a description of changes to the land use, transportation and servicing concepts;
- Section 5 describes the amendments to the ASP;
- Appendices I & II contain the amended Figures and Tables for the Southeast ASP.

2.0 Background & Outline of Amendments

2.1 Background

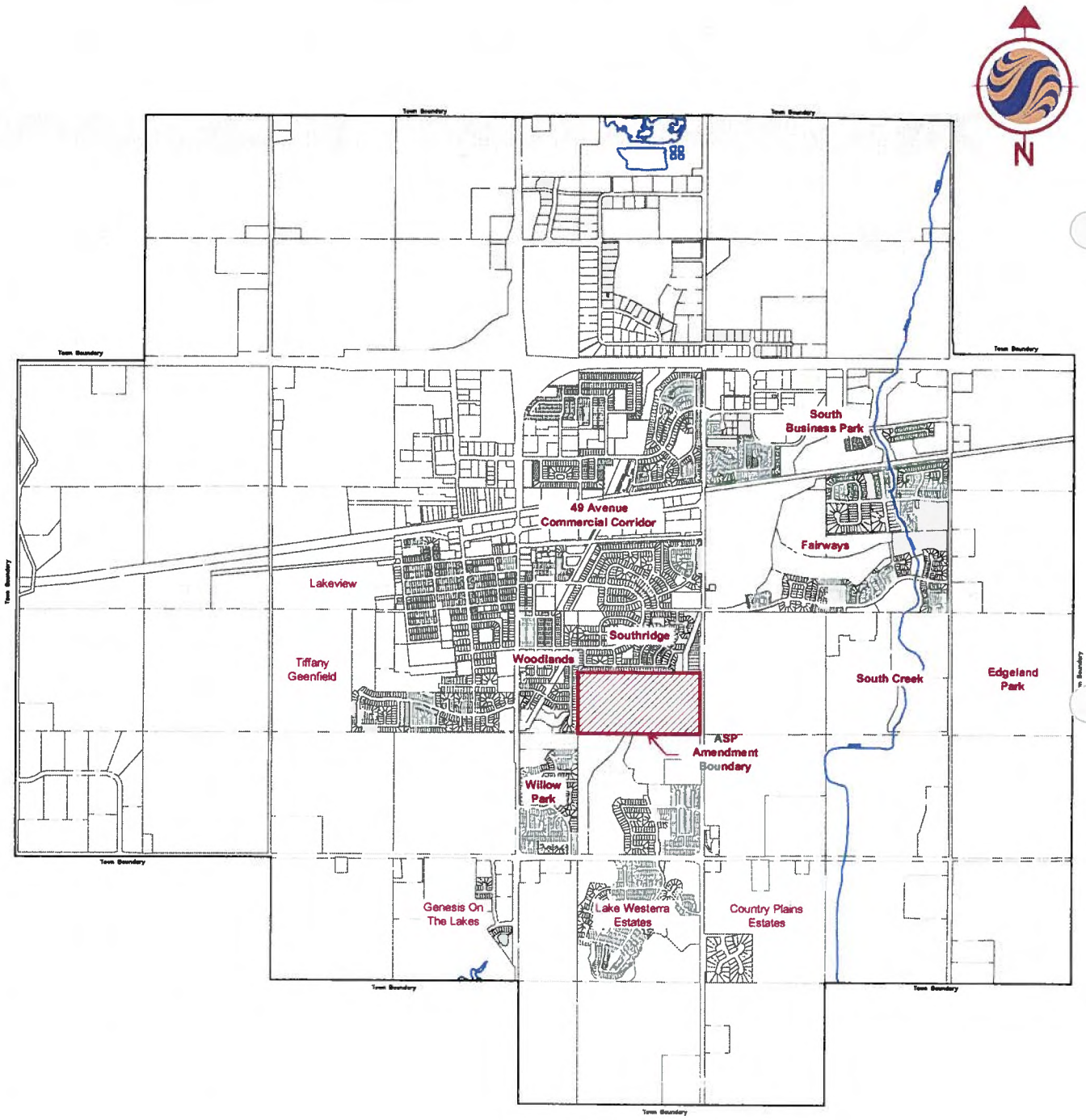
The Southeast Stony Plain Area Structure Plan was adopted by Council under Bylaw 865 in 1983. Subsequent amendments have been made through the adoption of the following Bylaws:

- 991 in 1989;
- 998 in 1989;
- 1023/D&P/90;
- 1031/D&P/90;
- 1095/D&P/90;
- 1178/D&P/94; and,
- 2937/D&P/97.

2.2 Outline of Amendments

The amendment proposes the following revisions:

- Increasing the area dedicated to Low-Density Residential;
- Adding Medium- and High-Density Residential;
- Deleting the areas designated as Private Institution and Sr. High School;
- Reconfiguring the stormwater management facilities; and,
- Reconfiguring parks and adding greenways/walkways.



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Legend

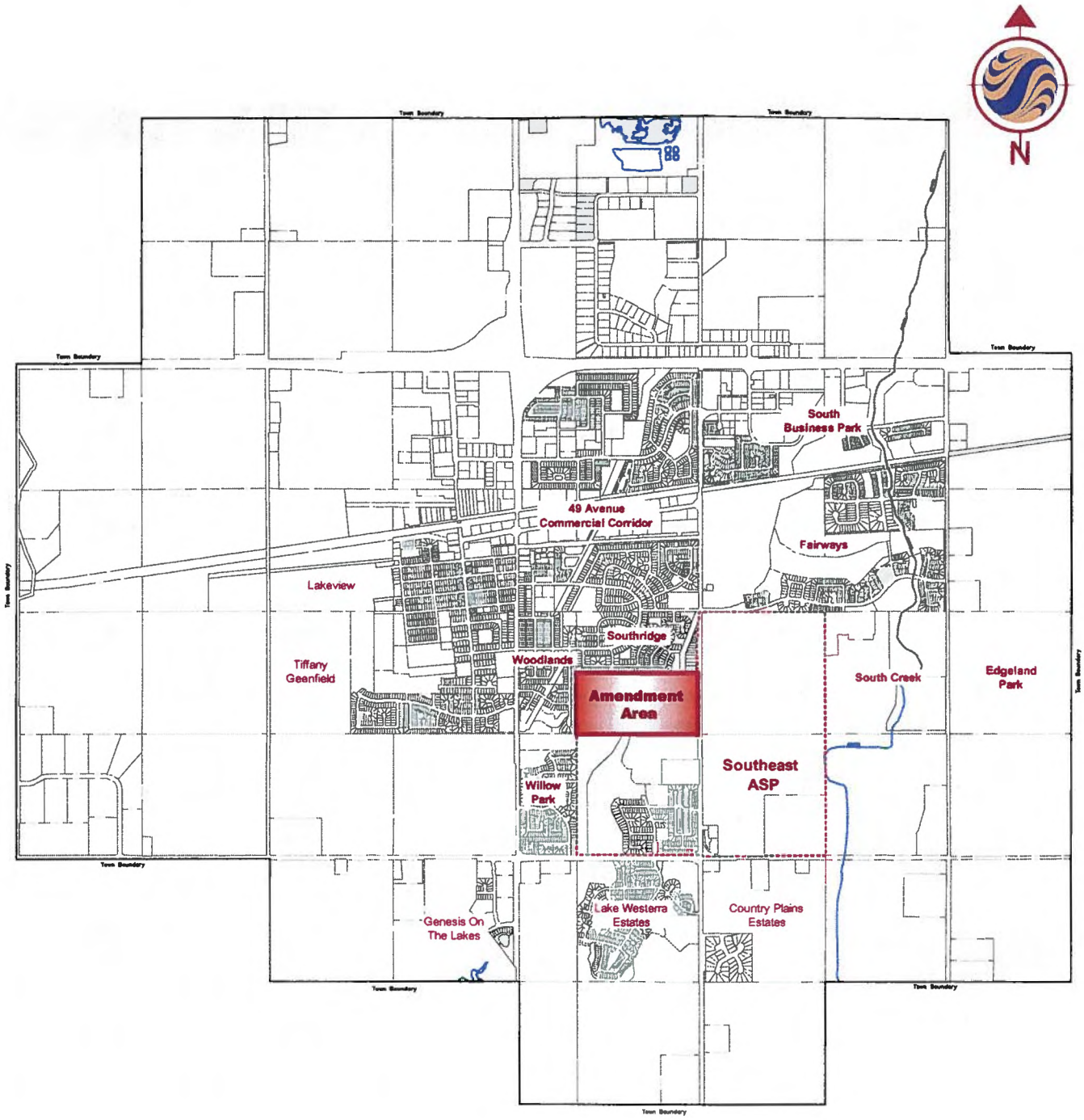
ASP Amendment Area

Stantec

Client/Project
ELEGANT DEVELOPMENT INC.
SOUTHEAST
ASP AMENDMENT

Figure No.
1.0

Title
LOCATION PLAN



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Stantec

Legend

Southeast ASP Boundary

ASP Amendment Area

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ELEGANT DEVELOPMENT INC.
SOUTHEAST
ASP AMENDMENT

Figure No.
2.0

Title
CONTEXT PLAN

3.0 Site Characteristics

3.1 Existing Land Uses

The majority of the lands within the amendment area are presently used for agricultural purposes or are in a semi-natural state. Several wooded areas are present in the north-west, south-west and south-east corners of the site, as well as long portions of the utility right-of-way (drainage ditch). The utility right-of-way runs through the centre of the site from the south-west to the north-east.

3.2 Surrounding Land Uses

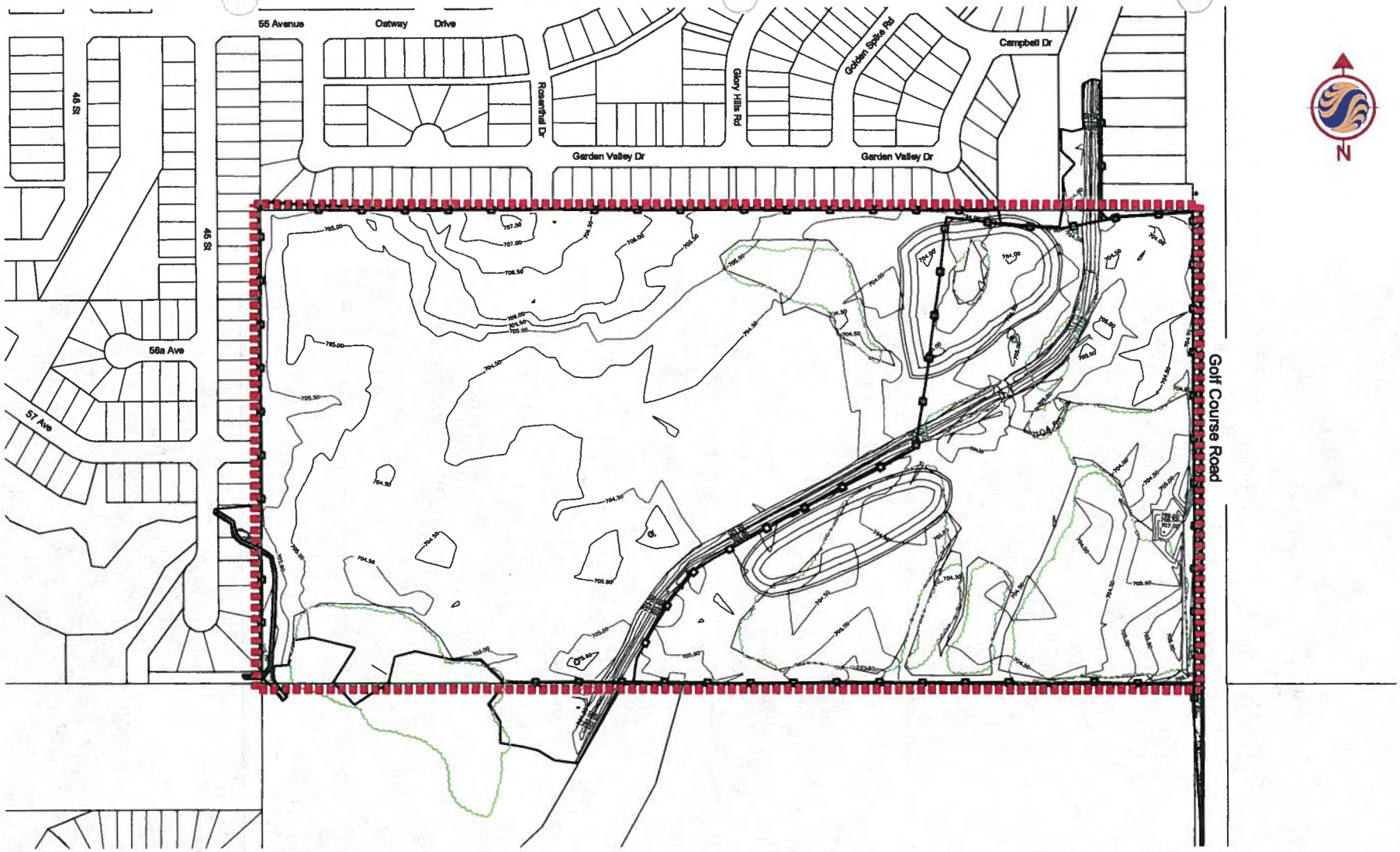
North and west of the amendment area are the existing residential neighbourhoods of Southridge and Woodlands. To the south-west is the Willow Park neighbourhood. To the south are lands currently used for agricultural purposes as well as the High Park and Westerra residential neighbourhoods. Lands to the east are currently used for agricultural purposes but are designated for future Urban Residential development.

3.3 Topography

The topography for the amendment area is generally flat (see **Figure 3 - Site Topography)**. Lands in the north-western and eastern portions of the site are slightly more elevated. Elevations range from 707.5 m in the northwest and 706 m in the east to 704.5 m at low points and 703.5 m at the utility right-of-way. Construction of a ditch has improved drainage and has clearly defined the stream course. Surface drainage from the area enters the stream course and eventually enters Atim Creek (see **Figure 4 - Site Features**).

3.4 Sub-Surface Conditions

Subsurface soils generally consist of peat, organic clay and clay. Soil conditions are generally favourable for residential construction provided that specific geotechnical considerations are addressed. Issues relating to development and roadway, drainage and utilities designs should be taken into account and follow recommendations from the geotechnical report.



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LEGEND

ASP Amendment Boundary

Existing Fence

Trees

704.50 Elevation

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SOUTHEAST
ASP AMENDMENT

Figure No.
3.0

Title
SITE TOPOGRAPHY

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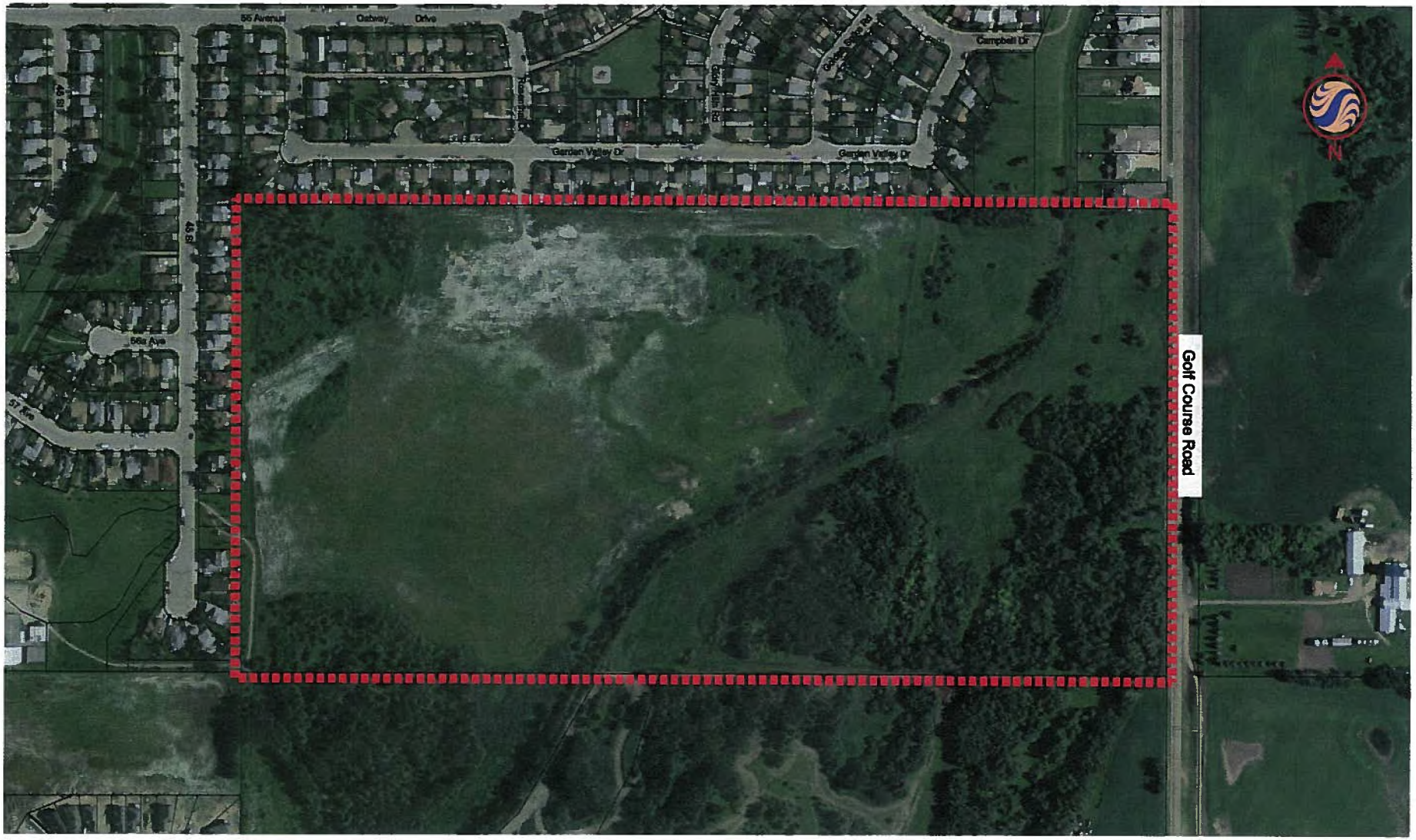

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LEGEND

ASP Amendment Boundary

Stantec

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Client/Project
ELEGANT DEVELOPMENT INC.
SOUTHEAST
ASP AMENDMENT

Figure No.
4.0

Title
SITE FEATURE

OCTOBER 2008
1161 83700 RH

4.0 Description of Amendment

4.1 RESIDENTIAL

Approximately 17.67 hectares (ha) of the plan area is designated for residential land uses.

Approximately 14.04 ha of the lands within the plan area are designated for Low Density Residential (LDR) uses. LDR allows for the development of single detached and semi-detached residential.

Approximately 2.94 ha of the lands within the plan area are designated for Medium Density Residential (MDR) uses. MDR will typically be developed as Row Housing.

Approximately 0.69 ha of the lands within the plan area are designated for High Density Residential (HDR). HDR will typically be developed as Low-Rise Apartments, up to a maximum height of four storeys, and at a maximum density of 125 units/ha. HDR may also be developed as stacked row housing.

4.1.1 Amendment Rationale

Low Density Residential is located throughout the northern and western portions of the plan area, establishing appropriate land use transitioning and compatibility with existing residences to the north and west. This designation will allow for the development of a variety of housing sizes and designs, ranging from larger lots for single detached residences to smaller, more affordable semi-detached lots. Land use zones such as (R-1B) Single Detached Residential District, (R-1C) Residential Single Detached Small Lot Residential District, and (R-2) Semi-Detached Residential District may be applied to LDR designated parcels within the plan area.

Medium and High Density Residential is located in the southeast, adjacent to the Neighbourhood Commercial site and minor collector and arterial roadways. The location of MDR and HDR uses along minor collector and arterial roadways ensures an increased level of access to these sites. A graduated scale of residential densities is used to provide appropriate land use transitioning between residential areas. Land use zones such as (R-2M) Medium Density Multiple Family Residential District may be used for MDR. Land use zones such as (R-3) High Density Multiple Family Residential District may be used for HDR.

4.1.2 Conformance to Policies

Objectives	**Rationale**
Southeast ASP	
3-D - Land Uses and Densities Satisfy Market Requirements, Resident Needs and are Compatible with Adjacent Areas.	Medium- and High-Density residential is located adjacent to institutional uses, recreation areas and arterial roadways.
3-E – Encourage Liveable Residential Environments and	Potential roadway patterns discourage shortcutting through the area. A variety of housing types and lot sizes are provided to satisfy market

Promote High Standards.	demand. Service costs will be minimized through orderly and economic staging. Major concentrations of residents will be located near commercial facilities, institutional uses, recreation and natural areas, and transportation routes.
MDP	
7.1 – Location of Residential Development	Per *Map 2 – Future Land Use Concept*, lands in this area have generally been designated as being suitable for future residential development.
7.2 – Orderly and Contiguous Development	Development has been planned to proceed in a logical, phased and economical manner. The ASP area is immediately adjacent to existing urban development and infrastructure can easily be extended.
7.3 – Providing a Range of Housing Choice	The ASP designates a range residential land uses, offering a variety of housing types. Housing types may include single detached, semi-detached, row housing, stacked row housing, and low rise apartments.
7.8 – Urban Residential Development	The ASP designates the majority of lands for residential uses. Additional complementary uses include parks, neighbourhood commercial and institutional.
7.13 – Neighbourhood Design Principles	Applicable principles employed include: retention of natural areas and watercourses; provision of neighbourhood focal points; a range of housing types; multiple units housing clustered near amenities and near points of access; integrated multi-use trail system. Policy **7.14** also allows for the development of innovative neighbourhood design concepts.

4.2 COMMERCIAL

The amendment introduces a convenience commercial site (approximately 1.18 ha), located in the southeast corner of the amendment area, at the intersection of Golf Course Road and a future collector roadway. The intent is to provide neighbourhood convenience commercial for residents and surrounding neighbourhoods.

4.2.1 Amendment Rationale

The commercial site is of sufficient size to accommodate a single use or a variety of uses. The addition of a convenience commercial site will ensure that neighbourhood residents are able to access a limited range of goods and services within a short distance of their homes.

Impacts associated with commercial development should be minimized and carefully integrated with surrounding residential development. Attention to site design will minimize potential land use conflicts.

4.2.2 Conformance to Policies

Objectives	**Rationale**
Southeast ASP	

3-B – Provide Non-Residential Land Uses	Neighbourhood convenience commercial will be located to support the principle of self-sufficiency and meet the day-to-day needs of residents.
MDP	
8.3 – Location of Neighbourhood Commercial	Neighbourhood Commercial is appropriately located at the junction of minor collector and arterial roadways. The location ensures convenient access for neighbourhood patrons, and minimizes land use conflicts.

4.3 School Facilities

There are no designated school sites within the amended ASP area.

4.3.1 Amendment Rationale

School authorities have indicated that no schools will be required in the area.

4.3.2 Conformance to Policies

Objectives	**Rationale**
MDP	
Map 3 – Parks, Recreation, Trails and Schools	*Map 3 – Parks, Recreation, Trails and Schools* of the MDP does not indicate any future school sites within the amendment area. No changes to the Stony Plain MDP (*Map 3*) shall be necessary.

4.4 Parks & Open Space

The ASP amendment ensures that residents have access to convenient, safe, and attractive parks and open spaces. Two pocket parks are located in the west-central portion of the plan area. An extensive greenway system follows the western, south-western and north-western perimeter of the amendment area. In addition, the existing drainage right of way, and the stormwater management facilities have been incorporated into the park and open space network. A treed natural area has been preserved in the south-western portion of the amendment area.

4.4.1 Amendment Rationale

A comprehensive park, open space, and greenway network has been developed for the amendment area. This network attempts to balance the need for accessible park space, a fully-connected trail system and the preservation of natural areas. Park locations and walkway connections have been placed throughout the plan area to ensure that residents have superior access to local and regional recreation and amenity facilities.

4.4.2 Conformance to Policies

Objectives	Rationale
Southeast ASP	
3-E – Encourage Liveable Residential Environments and Promote High Standards.	The potential amenity benefits of natural topographic features are maximized by incorporating them into the parks & open space network and pedestrian circulation network.
3-F – Unify Adjacent Neighbourhoods with Continuous Pedestrian System	The pedestrian circulation network ensures connectivity between adjacent neighbourhoods (see **Figure 6 –Pedestrian & Open Space System**).
MDP	
6.1 – Protection of Natural Areas	The protection of the natural area is achieved through the use of MR dedication (see **Figure 4 – Development Concept**).
12.1 – Park Development Standards	The ASP conforms to the guideline of providing 4 ha of parks and open space per person (see **Proposed Land Use & Population Statistics** and **Figure 4 – Development Concept**).
12.7 – Municipal Reserve Dedication	As required, 10% of the land to be subdivided shall be dedicated as MR.

4.5 TRANSPORTATION

4.5.1 Roadway Network

The amendment area is well served by an existing arterial roadway (Gold Course Road), and is the only planned arterial roadway in the area. This roadway is intended to facilitate traffic to and from the amendment area.

One collector roadway has been planned in the southern portion of the amendment area. This roadway should provide convenient access to nearby arterial roadways and to future residential development to the north and south. A number of potential minor collector roadways have been identified within the amendment area (see **Figure 7 – Transportation Network**). These roadways are intended to allow for the efficient movement of internal residential traffic and to discourage shortcutting through the area and promote a 'walkable' neighbourhood. Internal roadways provide access to adjacent land uses and occupy a limited role in the overall movement of traffic. Parking will generally be provided off-street in conjunction with residential development applications.

A Traffic Impact Assessment has been submitted under separate cover, and will address proposed roadway requirements. Other access and roadway requirements will be determined at the rezoning and subdivision stages to the satisfaction of the Public Works Department.

4.5.2 Pedestrian Network

The pedestrian network (shown in **Figure 6 – Pedestrian and Open Space System**) is intended to accommodate pedestrian movement and other modes on non-motorized transport. In addition to sidewalks, a series of greenways, and walkways link the area. Important connections to regional trail networks are maintained.

4.5.3 Amendment Rationale

The proposed roadway network is meant to accommodate residential, institutional and commercial traffic generated within the amendment area. The proposed vehicular and pedestrian circulation schemes provide a balanced transportation network that should minimize potential use conflicts and roadway congestion.

To promote increased pedestrian mobility, connectivity has been ensured through the use of roadway, greenway and walkway connections where necessary. The parkland system, area focal points and regional connections are all connected by the pedestrian network.

4.5.4 Conformance to Policies

Objectives	**Rationale**
Southeast ASP	
3-E – Encourage Liveable Residential Environments and Promote High Standards.	Potential roadway patterns are designed to accommodate neighbourhood traffic and to discourage external traffic movement through the area.
MDP	
13.1 – Transportation Network	The development of a transportation network for this ASP has been guided by *Map 4 – Transportation Network*.
13.7 – Multi-purpose Linkages	Walking and cycling are promoted though the provision of greenways, walkways, and overall pedestrian connectivity. This is illustrated in **Figure 6 –Pedestrian & Open Space System**

4.6 Stormwater Management

A total of three stormwater management facilities (SWMF) are planned for the area. One is located on the south side of the utility right-of-way, and two others are located on the north side. Detailed engineering analysis will determine the appropriate design components and function of these facilities. The stormwater management facilities will discharge at a pre-development flow rate of 2.5 L/s/ha defined for the area.

4.6.1 Amendment Rationale

The existing topography and soil conditions were key factors in the selection of the location of the SWMFs. The relocation of the SWMFs ensures better use of existing contours and areas with poorer soil conditions. The stormwater management system will be designed in general accordance with Town standards.

SWMFs will be integrated with the surrounding parkland and trail systems. These will provide additional open space and will act as neighbourhood focal points / amenity areas.

4.6.2 Conformance to Policies

Objectives	Rationale
MDP	
6.3 – Linking and Integrating Open Space to Create Greenways	Parks, natural area, greenways and SWMFs form a connected parkland system that runs through the neighbourhood, connecting residents to neighbourhood focal points, parks and walkways along existing roadways.
13.14 – Stormwater Management Concept	Detailed stormwater management concepts shall be provided to the Town prior to subdivision, and will meet Town and Provincial standards.

4.7 INFRASTRUCTURE & SERVICING

4.7.1 Sanitary Servicing

The flow of the sanitary system design for amendment area moves from south-west to north-east. Sewage will be directed to the existing 750 mm diameter east trunk sewer running along the utility right-of-way towards the north-east. The sanitary servicing system is illustrated in **Figure 9 - Sanitary Servicing**. Further details regarding the sanitary drainage schemes for the amendment area are provided in the associated Drainage Design Report to be submitted under separate cover.

4.7.2 Water Servicing

The conceptual design of the water distribution network for the amendment area is shown in **Figure 10 - Water Distribution System**. Water services for the neighbourhood will be extended west to connect to the existing 200 mm diameter pipe and to the north to connect to the existing 150 mm diameter pipe. Water main will be extended to connect to the proposed ultimate 300 mm diameter water main to the south. Preliminary analysis has also identified the potential requirement for a 300 mm watermain extending along Golf Course Road to connect to the existing 300 mm watermain. Water servicing within the neighbourhood will be designed to provide peak hour flows and fire flows. Water looping will be provided in accordance with Town requirements along with submission of a Water Network Analysis for review and approval.

4.7.3 Shallow Utilities

Power, gas and telecommunications services are all located within close proximity to the ASP area and will be extended into the plan area as required.

4.7.4 Development Staging

Figure 11 - Development Staging shows the anticipated direction of development for the amendment area.

The anticipated sequence of development for the amendment area is expected to proceed from the east and southeast of the plan area.

In general, development will proceed in a manner that is contiguous, logical and economical with regards to municipal servicing. Development of individual phases may vary from actual zoning and subdivision applications depending on contemporary market demands and aspirations of the respective landowners. Should sufficient demand warrant or engineering design be made more efficient, portions of separate phases may be developed concurrently.

4.7.5 Amendment Rationale

The ASP amendment will be designed in accordance with Town of Stony Plain servicing standards. Development staging and extension of infrastructure will be contiguous, efficient, and economical while having regard for potential environmental and ecological impacts.

Details regarding stormwater drainage and sanitary service schemes are provided in the associated engineering studies and have been submitted under separate cover. Water looping will be provided in accordance with the requirements of the Town.

4.7.6 Conformance to Policies

Objectives	**Rationale**
Southeast ASP	
3-C – Support an Economical and Efficient Urban Development Pattern	The servicing and staging schemes proposed for the amendment area are based on economy, logic, and continuity. **Figures 9, 10 & 11** illustrate the proposed servicing and staging schemes.
MDP	
13.10, 13.11, 13.12 – Infrastructure	The ASP shall be developed to a full urban standard. A Water Servicing Concept, Sanitary Collection Concept, and a Stormwater Management Concept will be provided prior to subdivision.

5.0 Amendment to the Southeast ASP

The Southeast Stony Plain Area Structure Plan should be amended by:

1) Modifying the following figures in the ASP, by using the figures provided in **Appendix I**:

   - Fig. 8 – Design Concept
   - Fig. 7 – Development Concept
   - Fig. 9 – Pedestrian & Open Space System
   - Fig. 10 – Vehicular Transportation System
   - Fig. 11 – Storm Water Management System
   - Fig. 12 – Sanitary Sewerage System
   - Fig 13. – Water Supply & Distribution System
   - Fig. 14 – Development Staging

2) Updating the land use and population statistics, based on the table in **Appendix II**:

   - Table 4 – Land Use Distribution
   - Table 5 – Population and Residential Unit Generation
   - Table 6 – Population and Residential Unit Density

3) Amending the text of the ASP document wherever necessary.

6.0 Appendix I

This section contains the following figures:

- Figure 5 – Development Concept
- Figure 6 – Pedestrian & Open Space System
- Figure 7 – Transportation Network
- Figure 8 – Stormwater Management System
- Figure 9 – Sanitary System
- Figure 10 – Water Distribution System
- Figure 11 – Conceptual Development Staging

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LEGEND

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Institutional (Church)
- Stormwater Management Facility
- Parks / Greenway (MR)
- Utility R/W
- ASP Amendment Boundary

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Client/Project
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SOUTHEAST
ASP AMENDMENT

Figure No.
5.0

Title
DEVELOPMENT CONCEPT

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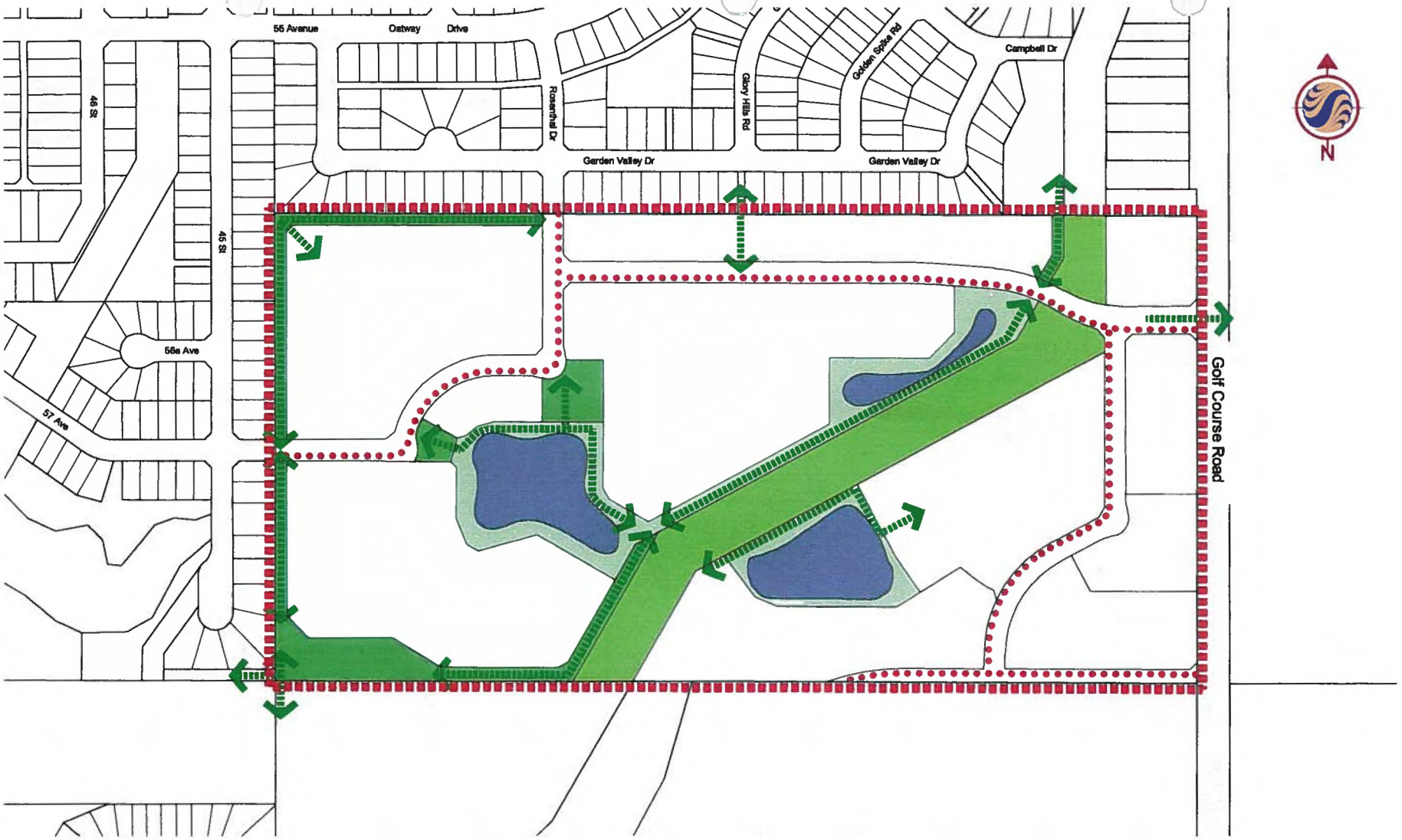

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LEGEND

- Stormwater Management Facility
- Open Space
- Parks / Greenway (MR)
- Walkway / Trail
- Sidewalk Connection
- ASP Amendment Boundary

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SOUTHEAST
ASP AMENDMENT

Figure No.
6.0

Title
PEDESTRIAN & OPEN SPACE SYSTEM

OCTOBER 2008
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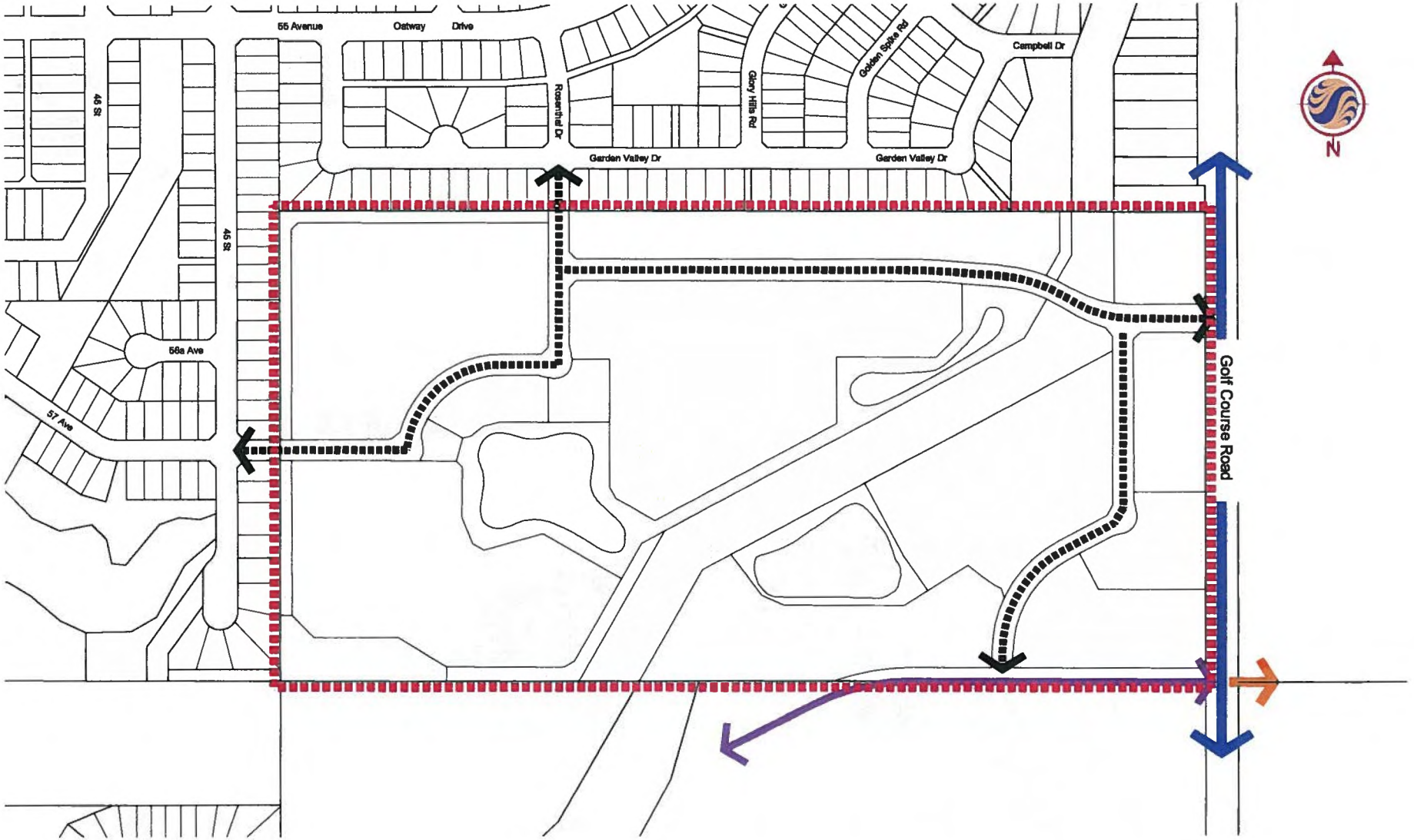

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LEGEND

- Potential Minor Collector Roadway
- Collector Roadway
- Arterial Roadway
- Future Arterial Roadway
- ASP Amendment Boundary

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SOUTHEAST
ASP AMENDMENT

Figure No.
7.0

Title
TRANSPORTATION NETWOR

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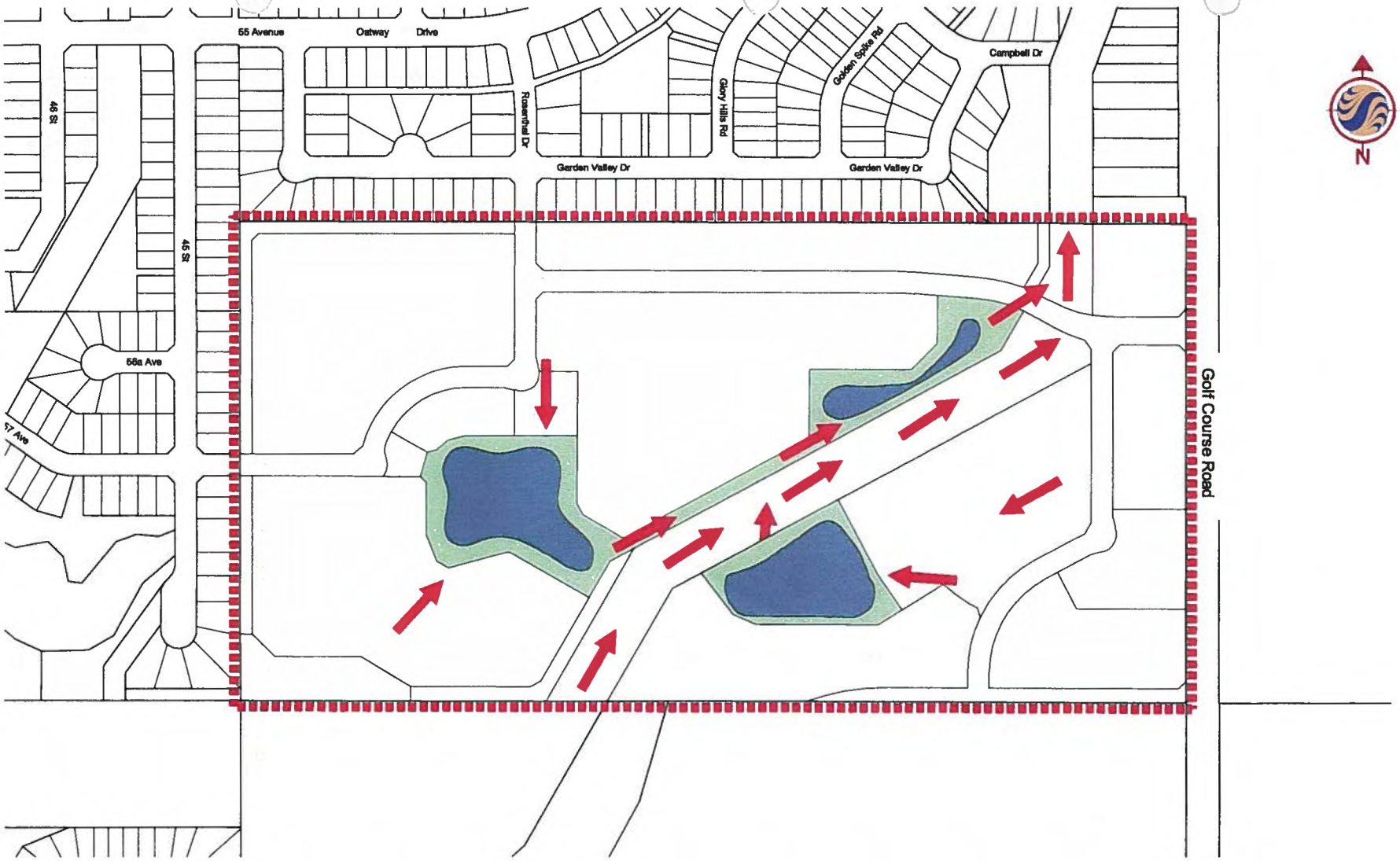

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LEGEND

Direction of Flow

Stormwater Management Facility

ASP Amendment Boundary

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ELEGANT DEVELOPMENT INC.
SOUTHEAST
ASP AMENDMENT

Figure No.
8.0

Title
STORMWATER MANAGEMENT SYSTEM

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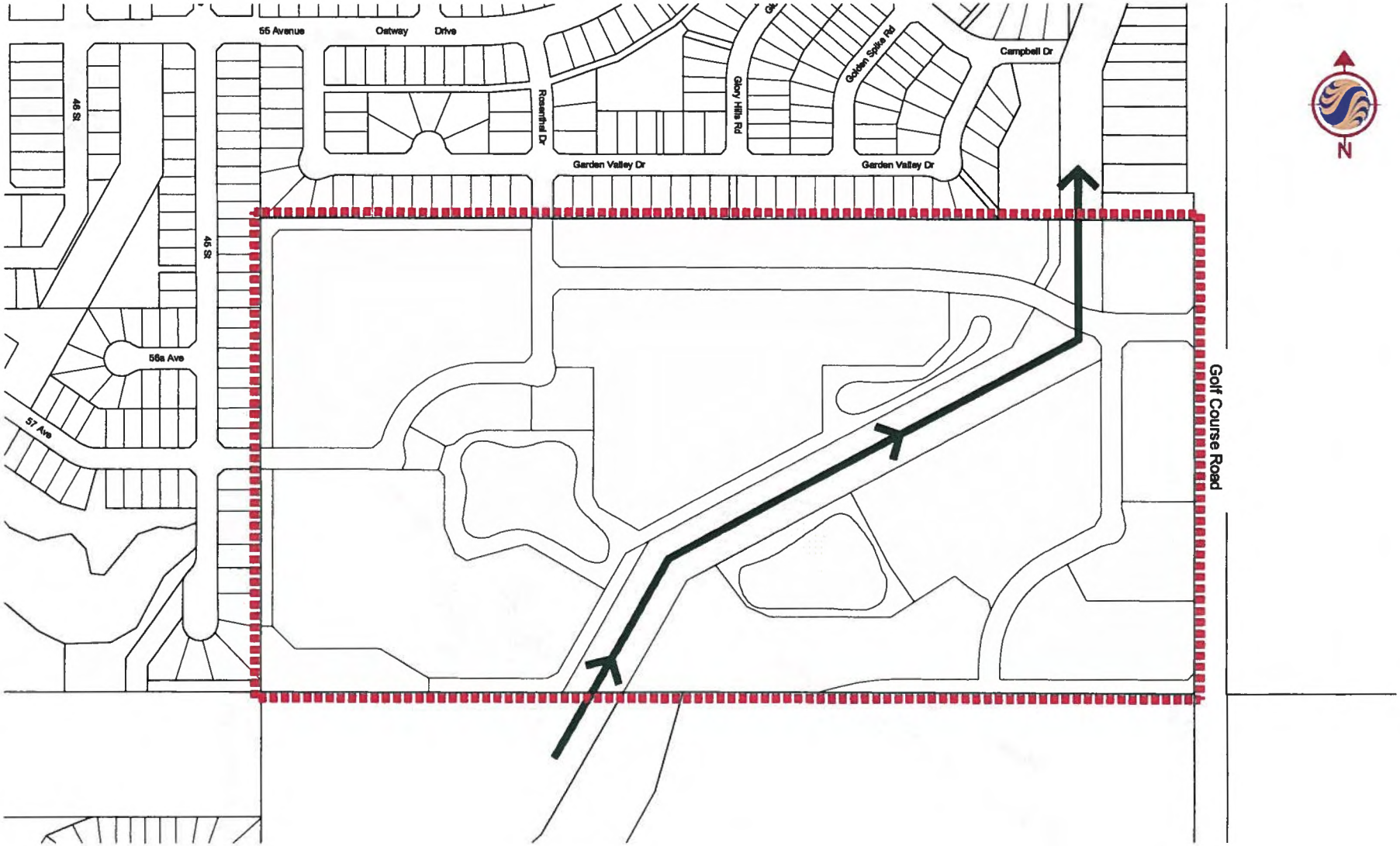

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LEGEND

Existing Sanitary Sewer

Direction Of Flow

ASP Amendment Boundary

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Client/Project
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SOUTHEAST
ASP AMENDMENT

Figure No.
9.0

Title
SANITARY SYSTEM

OCTOBER 2008
1161 83700 RH

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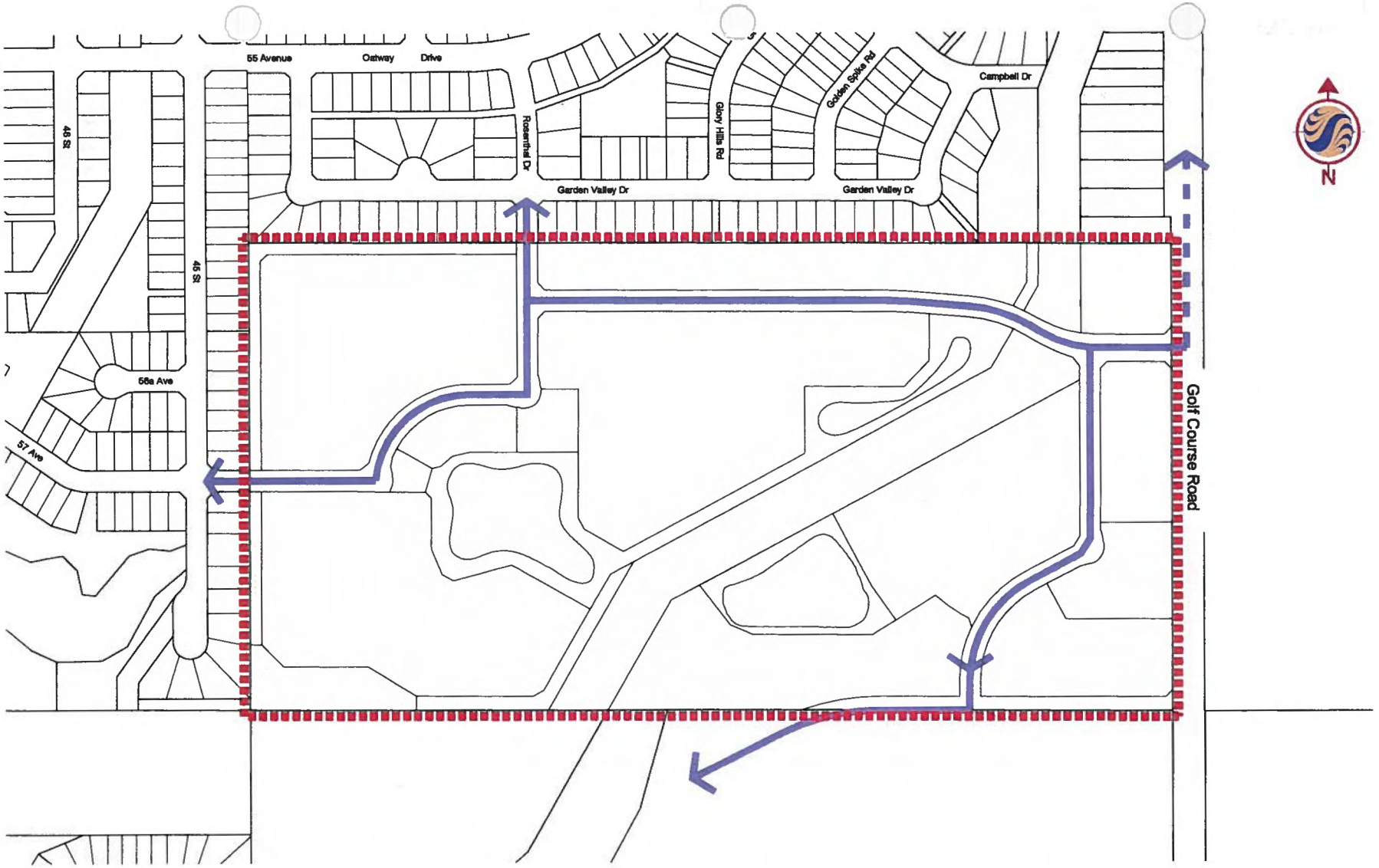

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LEGEND

Potential Water Main

Proposed Water Main

ASP Amendment Boundary

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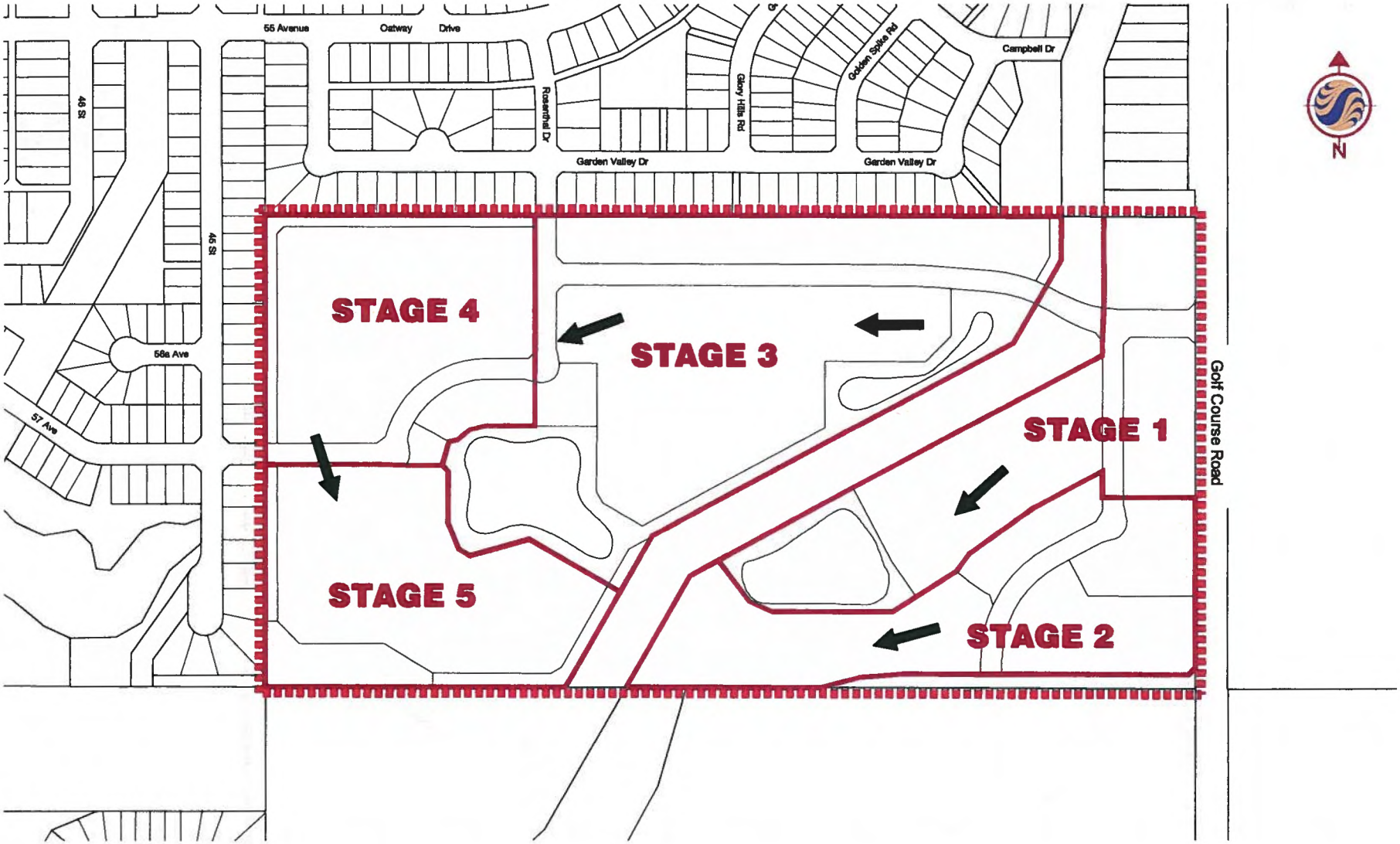
Client/Project
ELEGANT DEVELOPMENT INC.
SOUTHEAST
ASP AMENDMENT

Figure No.
10.0

Title
WATER DISTRIBUTION SYSTEM

OCTOBER 2008
1161 83700 RH



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LEGEND

General Direction of Development

ASP Amendment Boundary

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Client/Project
ELEGANT DEVELOPMENT INC.
SOUTHEAST
ASP AMENDMENT

Figure No.
11.0

Title
CONCEPTUAL DEVELOPMENT STAGING

OCTOBER 2008
1161 83700 RH

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7.0 Appendix II

Table 1 - Southeast Area Structure Plan – Amendment Area – Proposed Land Use & Population Statistics

Southeast Area Structure Plan - Amendment Area
PROPOSED LAND USE & POPULATION STATISTICS
Town of Stony Plain

LAND USE	Area (ha)		% of GA	
Gross Area	**32.29**			
Road ROW	0.32			
Drainage ROW	2.85			
	Area (ha)		**% of GDA**	
Gross Developable Area	**29.12**		**100.0%**	
Municipal Reserve*	3.53		12.1%	% of MR
Parks / Natural Area		0.87		25%
Greenways		0.78		22%
Stormwater Management (Useable)		1.88		53%
Stormwater Management	1.76		6.0%	
Institutional (Church)	0.61		2.1%	
Commercial	1.18		4.1%	
Circulation @ 15%	4.37		15.0%	
Total Non-Residential Area	**11.45**		**39.32%**	
Net Residential Area (NRA)	**17.67**		**60.68%**	

RESIDENTIAL LAND USE, UNIT COUNT AND POPULATION

Land Use**	Area (ha)	Units/ha	Units	% of NRA	Persons/Unit	Population
Low Density Residential	14.04	18.00	253	61%	2.80	708
Medium Density Residential	2.94	38.00	112	27%	1.85	207
High Density Residential	0.69	75.00	52	12%	1.50	78
Total	**17.67**		**416**	**100.00%**		**992**

Population Density (GDA):	**34**	**ppha**
Population Density (NRA):	**56**	**ppnrha**
Unit Density (GDA):	**14**	**upha**
Unit Density (NRA):	**24**	**nrupha**
LDR / MDR / HDR Ratio* **	**61% / 27% / 12%**	

STUDENT GENERATION STATISTICS

Level	Public
Public Elementary	58
Public Junior High School	29
Public Senior High School	29
Total	**116**

Excerpt from Council Meeting Minutes November 10, 2008
Public Hearing 3.3 - Bylaw 2345/D&P/08 to Amend the Southeast Park Area Structure Plan

Mayor Ken Lemke called the Council meeting back to order at 9: 18 p.m.

3.3 Bylaw 2345/D&P/08 to Amend the Southeast Park Area Structure Plan – Stantec Consulting Ltd.

Mayor Ken Lemke opened the Public Hearing for Bylaw 2345/D&P/08 at 9:18 p.m.

Ross Sharp, Director of Planning and Infrastructure, outlined the background of the Bylaw amendment:

- Southeast Park Area Structure Plan was adopted by Council in August 1983
- Has received 7 amendments from 1989-1997 primarily for the High Park subdivision area.
- Amendment shows an increase in density by using more land.
- Collector road east through west ties to the development.
- Development includes low density, medium density, commercial purpose and church site.
- Area Structure Plan is consistent with the Town's Municipal Development Plan.
- Advertisement in the Stony Plain Reporter was on October 17 and 24, 2008. Letters received are included as reference material.

Mr. Chris Dulaba representing Stantec Consulting Ltd. on behalf of Elegant Development Inc. and 1330823 Alberta Ltd. made a presentation to Council. Highlights of the presentation included:

- Area Structure Plan has been in place for twenty-five years.
- Land has very challenging soil conditions.
- Geotechnical Study and report has been completed.
- North West portion of the Area Structure Plan has had the name "Somerville" approved.
- Creating a development that merges with existing development areas.
- Creating a sense of place by utilizing strong public places, focal points and urban form.
- Have addressed traffic concerns
- The Area Structure Plan offers a variety of housing options.
- Met with residents early October for feedback and input.
- Addressed the need for a church site on the Area Structure Plan at the NE corner.
- Storm water management facilities placed within the most challenging areas for development.
- Transportation analysis has been completed and road development is a result of the assessment.
- 25% of the gross area will be developed as open space.

There was no one else present to speak in favor of the proposed bylaw amendment.

Ms. Sharon McGonigal was present to speak in opposition. Comments raised:

- Long time resident on Garden Valley Drive.

- Attended the information session in October.
- Increased population and transportation will be of concern for emergency services.
- Ecological concerns. Peat moss is a non renewable resource. Frogs indicate this is a viable area.
- Parking on the street is an issue, people do not use garage for parking.
- Speed limit of Golf Course Road is an issue for merging traffic.
- Concerned there will be more accidents at the intersections with increased traffic.

Mr. Chris Smithson was present to speak in opposition. Comments raised:

- Resident on Garden Valley Drive.
- Proposes extending the greenbelt on the north west corner full way around to incorporate existing park.
- Laneway without extension will have people connect with back alley.

Mr. Blaire Johnson was present to speak in opposition. Comments raised:

- Concerned with the greenbelt.
- They purchased their home due to original zoning.
- Stony Plain has unique land issues with peat bogs.
- South corner with willows and rose bushes are a hazard.
- Concerned church area zoning will change.
- Commercial district in SE corner access issues.
- Golf Course Road is becoming a high traffic area.
- Overall infrastructure is of concern.

Mr. Darwin Lines was present to speak in opposition. Comments raised:

- Applauds some green space area.
- SE corner of the land is shrubbery.
- NW corner is having a lot of animal activity that he does not want to see removed.
- The bog is a natural place that should be kept.
- Increase in traffic will make it dangerous for kids walking to school.
- Concerned with the number of units proposed for the area.
- Fully supports an environmental study for the bog area.

Ms. Vivian Peterson was present to speak in opposition. Comments raised:

- Coming from British Columbia she cautions the use of geotechnical studies.
- Dealing with bog is dealing with bog.

Mr. Dave and Mrs. Maria Turner were present to speak in opposition. Comments raised:

- Commended the residents for addressing the environmental issues.
- Traffic on 57 Avenue will turn this road into a primary road and a short cut to the Fifth Meridian.
- Have seen tonight that there is much development in Stony Plain.
- Schools are bursting at the seams now and we are considering increasing population.
- Concerned with how fast development in town is occurring.
- Questions plan for virus control in the stagnant water areas.
- Concerned with the timeline of the development.
- Questions how much muskeg will be removed, and what it will be replaced with.

Mr. Chris Dulaba representing Stantec Consulting Ltd. on behalf of Elegant Development Inc. and 1330823 Alberta Ltd. and Mr. Ryan Olson representing the MMM Group provided final comments:

- Concerns expressed are quite typical for an area that has not been developed for quite some time.

- Creation of road design is to minimize speed through the area.
- Primary analysis identifies that internal roadways will be connector roads.
- Following Dr. Avi Freedman report to create higher density housing to maximize land use.
- Servicing issues of the proposed development were addressed.
- Storm water management will have circulation from runoff times, and drain to the creek in accordance with general design principals in Alberta.
- Phase 1 of development includes Church site, homes and collector road off Golf Course Road.

Mayor Ken Lemke closed the Public Hearing for Bylaw 2345 D&P/08 at 10:35 p.m.

Excerpt from Council Meeting Minutes November 10, 2008

Business Item 7.3 – Southeast Area Structure Plan Amendment

7.3 Bylaw 2345/D&P/08 to Amend the Southeast Park Area Structure Plan – Stantec Consulting Ltd.

Bylaw 2345/D&P/08 2nd Reading 434/11/08/SP

Moved by Councillor Judy Bennett that Town Council give second reading to Bylaw 2345/D&P/08 to amend the Southeast Area Structure Plan as presented.

CARRIED UNANIMOUSLY

Bylaw 2345/D&P/08 3rd Reading 435/11/08/SP

Moved by Deputy Mayor William Choy that Town Council give third reading to Bylaw 2345/D&P/08 as presented.

DEFERRED

Stantec

Sommerville Neighbourhood Bryophyte Assessment: NE-25-52-28-4, Stony Plain, Alberta

Prepared for:

1330823 Alberta Ltd.

Prepared by:

Stantec Consulting Ltd.
10160 - 112 Street
Edmonton, Alberta
T5K 2L6
ph: 780-917-7000
fx: 780-917-7249

August 2009
1102-18048

Table of Contents

APPENDICES

Table of Contents

1.0 Introduction

Stantec Consulting Ltd. (Stantec) was retained by 1330823 Alberta Ltd. to perform a Bryophyte Assessment, within the Sommerville Neighbourhood (the Subject Property) that focused on locating and identifying rare peat moss species, if present. The Subject Property is located within the NE¼ of Section 25, Township 52, Range 28, West of the 4th Meridian in Stony Plain, Alberta and is bounded by Garden Valley Drive to the north, 45 Street to the west and Golf Course Road to the east (see Figure 1, Appendix A). The Subject Property consists of a mosaic of agricultural land and some treed and wet areas. A vegetated drainage channel is located through the east portion of the Subject Property. The surrounding properties are primarily residential development.

1.1 OBJECTIVE

The purpose of this assessment was to determine:

- If peat forming habitat is present within the Subject Property; and
- The identification, location, and extent of any rare peat moss species observed.

2.0 Background

During a public meeting/hearing to discuss the proposed residential development for the Subject Property, a City Council member indicated that he/she had been informed by the public that rare peat moss species exist on the Subject Property. Therefore, it was requested that this claim be investigated prior to development approval.

2.1 PEAT FORMING MOSSES

Peat forming mosses are generally found in relation to bogs and fens, which are wetlands that are characterized by waterlogged soils where the production of plant materials exceeds the rate of decomposition due to low temperatures and oxygen levels (Cronk and Fennessy 2001). The result is accumulation of decaying organics, or peat. Peat can be composed of any decayed vegetation; however it is often dominted by mosses, in particular *Sphagnum* sp. (Cronk and Fennessy 2001). In Canada, a thickness of 40 cm of peat is the minimum requirement for wetlands to be classified as peatlands (Natural Resource Canada 2007a).

The defining difference between the two peatland types, bogs and fens, are water and nutrient inputs. Bogs for example, receive all or most of their water from precipitation rather than from runoff, groundwater or streams. The unique physical and chemical characteristics of bogs result in the presence of plant and animal communities that have evolved many special adaptations to low nutrient levels, waterlogged conditions, and acidic waters (Natural Resource Canada 2007b).

Fens on the other hand, are peatlands characterized by a high water table, but with very slow internal drainage. The oxygen content is relatively low, but higher than in bogs. Nutrient enrichment usually occurs from inputs from upslope material, and thus fens are more minerotrophic than bogs. The vegetation in fens usually reflects the water quality and quantity available (Natural Resource Canada 2007b).

In either case, the dominant peat forming species are sphagnum mosses (*Sphagnum* sp.), due to their relatively rapid growth rate and inhibitory effect on decompositional processes (Cronk and Fennessy 2001). Members of this genus produce relatively short horizontally spreading branches and form mats or colonies (Johnson *et al.* 1995). Unique hyaline cells allow individual plants to absorb large quantities of water (Foster 1984). The shoots wick moisture up the exterior of each individual stem in spaces between the stem and leaves, and between adjacent shoots (Gimingham and Birse, 1957; Birse, 1958). Because of their particular morphological and physiological qualities, and their ability to produce significant organic accumulations, *Sphagnum* sp. exert a pronounced influence on local soil environment (Foster 1984). *Sphagnum* sp. have been shown to alter local conditions such as: pH (Clymo 1964), aeration (Andrus 1974), water content (Heinselman 1970; 1972), nutrient status (Heilman 1966; Moizuk and Livingstone, 1966) and microfloral and microfaunal populations (Waksman 1930; Rosswell *et al.* 1975).

2.2 CONSERVATION STATUS

Currently, there are approximately 20 *Sphagnum* species in the boreal and aspen parkland region (Johnson *et al.* 1995). Eight species of *Sphagnum* are listed in the Alberta Natural Heritage Information Centre Tracking and Watch List (Gould 2006). Two species of *Sphagnum* (*S. balticum* and *S. platyphyllum*) are ranked as S1, or critically imperiled in Alberta (Gould 2006) (see Table 2.1). This means that there are five or fewer records of this species in the province (Gould 2006). Five *Sphagnum* species are ranked S2, or imperiled in Alberta, indicating that there are 6-20 occurrences or many individuals in a limited number of populations (Gould 2006). The remaining species (*Sphagnum subsecundum*) is listed as S3, or vulnerable in Alberta, indicating that there are 21-100 occurrences although populations may be localized or restricted in range (Gould 2006). Globally, seven of the eight species are ranked secure (G5) and *S. balticum* is ranked G2G4 (see Table 2.1). A ranking of G2G4 means that the conservation status of *S. balticum* ranges between a G2 (imperiled) and a G4 (apparently secure). This can be averaged to give a rounded global status of G3 (vulnerable) (NatureServe 2009).

Table 2.1
Summary of ANHIC Peat Moss Rankings

Scientific Name	Common Name	S Rank*	G Rank **	Code
Sphagnum balticum	peat moss	S1	G2G4	NBMUS6Z040
Sphagnum compactum	neat bog moss	S2	G5	NBMUS6Z070
Sphagnum contortum	twisted bog moss	S2	G5	NBMUS6Z1T0
Sphagnum fallax	peat moss	S2	G5	NBMUS6Z230
Sphagnum fimbriatum	fringed bog moss	S2	G5	NBMUS6Z0A0
Sphagnum lindbergii	Lindberg's bog moss	S2	G5?	NBMUS6Z0K0
Sphagnum platyphyllum	peat moss	S1	G5	NBMUS6Z0X0
Sphagnum subsecundum	twisted bog moss	S3	G5	NBMUS6Z1A0

*G – Global
**S – Alberta

While *Sphagnum* sp. are the primary component of peatlands (Vitt *et al.* 1995; Cronk and Fennessy 2001), numerous other species of vascular and non-vascular plants are adapted to peatlands (Cronk and Fennessy 2001). Some common bryophytes, excluding *Spagnum* sp., associated with peatlands may include slender hair-cap (*Polytrichum strictum*), marsh magnificent moss (*Plagiomnium elliptícum*) and Blandow's feather moss (*Helodium blandowii*) among others (Johnson *et al.* 1995). In addition to these common species, there is potential for other rare bryophytes, not just *Sphagnum* sp., to be present in peatlands. A full list of rare

bryophytes on the Alberta Natural Heritage Information Centre (ANHIC) Tracking and Watch List for Alberta is included in Appendix B.

2.3 APPLICABLE REGULATIONS

No current acts require the identification or relocation of rare species on private land although it is a generally accepted practice among both public and private agencies, and is strongly encouraged by the Alberta Natural Heritage Information Centre (ANHIC). In the case of this assessment, the study was triggered by a City Council requirement as part of the development approval.

2.4 PREVIOUS ENVIRONMENTAL REPORTS

Environmental Opinion for the Subject Site Located in Stony Plain Alberta, Part of 25-52-28-W4M. EBA Engineering Consultants Ltd. Report Number: C31201004. July 10, 2007.

As part of their assessment, EBA Engineering Consultants Ltd. (EBA) contacted the Town of Stony Plain, Parkland County, Alberta Environment and Alberta Natural Heritage Information Center (ANHIC) and consulted aerial photographs for information pertaining to soil conditions, drainage, wetlands, rare plants and the potential for fish or wildlife issues.

The EBA report identified a small wetland on the Subject Property along with some treed areas dominated by shrubby vegetation. The EBA aerial photograph review indicated that the Subject Property was used for agricultural purposes from 1962 until approximately 2002. In 2002, the land was being recolonized by graminoid, herbaceous, and shrubby species (EBA 2007).

The vegetation noted throughout the Subject Property was predominantly grasses, forbs, and shrubs (EBA 2007). The wetland area primarily consisted of shrubs while the treed areas were dominated by aspen (*Populus* tremuloides), balsam poplar (*Populus balsamifera*), red osier dogwood (*Cornus stolonifera*), prickly rose (*Rosa acicularis*), wild red raspberry (*Rubus idaeus*) and willow (*Salix spp.*) in the wetter areas (EBA 2007). The EBA report (2007) noted that ANHIC contained no records of rare plant occurrences for the Subject Property or immediate area.

A copy of this report has been included in Appendix C.

3.0 Methods

This assessment followed a modified version of the Jacques Whitford AXYS Statement of Procedure (SOP) for Bryophyte Surveys (JWA 2008). As part of the assessment, both mesohabitats (e.g. forest stands or grassland) and microhabitats (e.g. rocks or tree trunks) were identified. This SOP uses community based unbounded plots with mesohabitats and microhabitats as the basic units of sampling in an attempt to capture the maximum number of species at a site (JWA 2008).

3.1 PRE-FIELD MAPPING

Prior to the field component, habitat polygons were established using aerial photograph interpretation. The location of the polygons were determined by apparent change in vegetative cover. These polygons were considered the general mesohabitats for the Subject Property.

Once the polygons were mapped, a priority ranking was assigned to each area. The priority ranking identified sites as most likely to contain *Sphagnum spp.* to least likely. Priorities were assigned according to air photo interpretation. For example, higher priorities were assigned to areas which appeared to contain black spruce (*Picea mariana)*, an overstory species commonly associated with peat forming mosses. Because the central portion of the property was historically tilled (EBA 2007) it was assigned the lowest priority ranking. Figure 2 (Appendix A) outlines the locations of the polygons and the assigned priorities.

3.2 FIELD WORK

Meandering transects were planned for each polygon at approximately 25 m intervals in order to cover a representative area. An additional transect was also planned for the length of the drainage course. *Sphagnum* sp. were used as the indicator species for peatlands. In the event that *Sphagnum* sp. were observed, samples of all bryophyte species would be collected for each microhabitat and submitted for laboratory identification. In areas without *Sphagnum* sp., all bryophytes observed along the transects would be noted and a representative sample of the bryophytes observed would be submitted for laboratory analysis to confirm that species identity.

Information collected at each sample location included collector's name, date, slope, moisture regime, notes on the surrounding vegetation, GPS coordinates, and any other additional comments. Microhabitat type was also classified at the time of sample collection using the codes outlined in the Bryophyte Survey SOP (JWA 2008). A summary of the codes used in the bryophyte survey is included in Appendix D. All samples collected in the field were placed in #2 sized paper bags.

Upon completion of the sample collection, sample bags were spread out to assist with sample drying and stored in a cardboard box. All collected samples were submitted to Dr. Rene J. Belland, Curator, Plant Herbarium/DataSystems Manager of the Devonian Botanic Garden/Renewable Resources with the University of Alberta for microscopy and confirmation of species ranking as per the Alberta Natural Heritage Information Centre Tracking and Watch List.

4.0 Results

4.1 SITE VISIT

Stantec personnel conducted a site visit on June 23, 2009, to observe, identify and to collect any moss species present on the Subject Property. However, search efforts focused on peat forming mosses, in particular *Sphagnum* sp. as an indicator of peatlands. Upon reaching the site, it was determined that the polygon's identified in the initial aerial photograph review were not distinct mesohabitats and were in fact patches of contiguous habitat. As such, the initial methodology was revised and transects were walked through the length of each priority area rather than through each polygon (see Figure 3, Appendix A).

A total of twenty-six transects were undertaken to confirm the presence of peat forming mosses. Twelve transects were walked through Priority 1, four transects were walked thorough each of Priority 2, 3 and 4, one transect was walked perpendicular to the north edge of the drainage course, and a final transect was walked along the length of the drainage course (see Figure 3, Appendix A). Selected site photographs are included in Appendix E.

4.1.1 Site Description

At the time of the site visit, the Subject Property contained three tree stands, a potential wetland and a vegetated drainage course. The remainder of the property was agronomic fields colonized by grasses (see Photo 1, Appendix E). The topography ranged from flat to undulatory and a dried up hummocky area was observed in the south portion of Priority 4 (see Photo 2, Appendix E).

Soil moisture regime ranged from subxeric to mesic. The driest conditions were noted in the northeast corner where pockets of sandy soils were observed. The wettest conditions were noted in the potential wetland located within Priority 4.

4.1.2 Vegetation Description

Priorities 1 through 3 were observed to be upland sites. The tree canopy in these areas was a mix of paper birch (*Betula papyrifera*), black spruce (*Picea mariana*), white spruce (*Picea glauca*), balsam poplar (*Populus balsamifera*) and aspen (*Populus tremuloides*). The understory consisted of willow (*Salix spp.*), red osier dogwood (*Cornus stolonifera*), raspberry (*Rubus idaeus*), northern gooseberry (*Ribes oxyacanthoides*), prickly rose (*Rosa acicularis*), stinging nettle (*Urtica dioica*), creamy peavine (*Lathyrus ochroleucus*), wild vetch (*Vicia americana*), sweet scented bedstraw (*Galium triflorum*), fireweed (*Epilobium angustifolium*), Kentucky bluegrass (*Poa pratense*), fowl bluegrass (*Poa palustris*), arrow leafed coltsfoot (*Petasites sagittatus*), star flowered false Solomon's seal (*Smilacina stellata*) and mint (*Mentha arvensis*). Photographs 3 and 4 (Appendix E) provide an example of the vegetation found in this area.

The moisture content of Priority 4 was higher than Priorities 1 through 3. This area may be a wetland community. The vegetation observed in Priority 4 included reed canary grass (*Phalaris arundinacea*), willow (*Salix spp.*), balsam poplar (*Populus balsamifera*), stinging nettle (*Urtica dioica*) and ragweed (*Ambrosia spp.*). The central portion of Priority 4 contained several trees while the outer portion was dominated by grasses. The southern border of Priority 4 consisted of a dried up hummocky area. Photographs 5 and 6 (Appendix E) provide an example of the vegetation found in Priority 4.

Priority 5 was a vegetated drainage channel. No standing water was observed at the time of the site visit. The vegetation observed here included cattail (*Typha latifolia*), dandelion (*Taraxacum officinale*), horsetail (*Equisetum arvense*), balsam poplar (*Populus balsamifera*), willow (*Salix spp.*), goldenrod (*Solidago canadensis*), clover (*Melilotus spp.*), wild vetch (*Vicia americana*) and reed canary grass (*Phalaris arundinacea*). Photograph 7 (Appendix E) provides an example of the vegetation found in this area.

4.1.3 Bryophyte Observations

Several bryophyte species were observed throughout the Subject Property. The species were observed growing on leaf litter or decaying logs on the ground (see photograph 7, Appendix E). None of the bryophytes observed were viable peat forming mosses. However, dry peat was noted in the subsurface soils of the forested upland areas of Priority 1 and 2 (see photograph 9, Appendix E).

Samples were collected from four locations to confirm that they were not *Sphagnum* species or other rare mosses. The locations of the sample collection points are identified on Figure 3 and a summary of the survey data is presented in Table 4.1. Completed Bryophyte Survey Forms for the site are included in Appendix F.

Table 4.1
Summary of Bryophyte Survey Data

Sample Number	Moisture Regime	Slope (°)	Aspect	Slope Position	Terrain	Microhabitat Code
GP01	submesic	0	-	-	Level	LD
GP02	submesic	40	East	Mid	Hummocky	LD
GP03	submesic	0	-	-	Level	SO
GP04	submesic	0	-	-	Level	LD and DHL

Sample GP01 was located within Priority 2. The moisture regime was submesic and the microhabitat at this sample point was classified as soil and litter, specifically deciduous litter. The dominant vegetation surrounding GP01 included leaf litter, raspberry and stinging nettle.

Sample GP02 was located within Priority 2. The moisture regime was submesic and the microhabitat at this sample point was classified as soil and litter, specifically deciduous litter. The dominant vegetation surrounding GP02 was weedy and included raspberry and stinging nettle.

Sample GP03 was located within Priority 1. The moisture regime was submesic and the microhabitat at this sample point was classified as soil and litter, specifically organic soil/humus. GP03 was located within an aspen stand.

Sample GP04 was located within Priority 1. The moisture regime was submesic and the microhabitat at this sample point was classified as soil and litter, specifically deciduous litter and dead wood, specifically hard logs and other down woody material. Photo 8 (Appendix E) shows the sample location of GP04.

4.2 LABORATORY ANALYSIS

Although no peat forming mosses were observed at the time of the site visit, bryophytes were collected from four locations for species identification (see Figure 3, Appendix A). The results of the laboratory identification are summarized in Table 4.2.

Table 4.2
Summary of Moss Identification

Sample Number	Scientific Name	Common Name	S Rank	G Rank†
GP01	*Brachythecium curtum* (*B. starkei*)	-	S3S4	G5
GP02	*Brachythecium curtum* (*B. starkei*)	-	S3S4	G5
	Brachythecium curtum (*B. starkei*)	-	S3S4	G5
GP03	*Pohlia nutans*	Pohlia Moss	S5	G5
	Campylium hispidulum	-	S3	G4G5
GP04	*Ptilium crista-castrensis*	Knight's Plume	S5	G5

*G – Global
**S – Alberta
† NatureServe 2009

None of the species collected and identified are considered rare or peat forming.

5.0 Summary and Conclusions

Stantec Consulting Ltd. (Stantec) was retained by 1330823 Alberta Ltd. to perform a Bryophyte Assessment, within the Sommerville Neighbourhood (the Subject Property) and focused on locating and identifying rare peat moss species, if present. The Subject Property consists of a mosaic of agricultural land and some treed and wet areas. A vegetated drainage channel is located through the east portion of the Subject Property. The topography ranged from flat to undulatory and moisture regime ranged from subxeric to submesic.

Dry peat was observed in the subsurface soils of Priority 1 and 2. However, no viable peat forming moss colonies were observed. The bryophytes observed during the site reconnaissance were primarily located on downed woody material, deciduous leaf litter and organic soils. As no *Sphagnum* sp. were observed, it was determined that peatlands were not present on the Subject Property at the time of the site visit. As such, an intensive sampling program for rare *Sphagnum* sp. and other potentially rare species associated with peatlands was not completed.

Four samples representing the diversity of other mosses observed during the assessment were submitted for laboratory identification. The results of the analysis indicated that the species observed are common and widespread throughout the boreal region (pers. comm., Dr. Rene Belland, University of Alberta, 2009). It is not known if the dry peat observed is remnant of rare or common peat forming mosses.

The presence of dry peat in the subsurface soil suggests that the environmental conditions on the Subject Property may have supported colonies of peat forming moss in the past. It is possible that the surrounding residential development has altered the natural drainage patterns and removed moisture input from the area thus making the area unfavourable for *Sphagnum sp.*

Based on the data collected during the site visit, the presence of rare peat forming mosses was not confirmed.

6.0 Limitations and Qualifications

In conducting the assessment, Stantec confirms that it had access to the experience and capability necessary to perform and did perform in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this assessment has uncovered all potential liabilities or limitations associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the project at the time the assessments and/or investigations were conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Conclusions made within this report are a professional opinion at the time of the writing of this report. This report is not a legal opinion regarding compliance with applicable laws.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

The limitations of this report include the following:

- Stantec spent only a limited amount of time on the property, and thus is not aware of any activities conducted on the property prior to or following the site visit.
- *Sphagnum* sp. were used as the indicator for peatlands during the site visit.

7.0 Stantec Quality Management Program

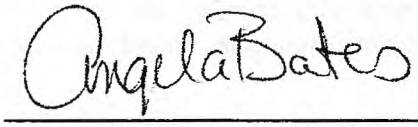
This report, entitled **"Sommerville Bryophyte Assessment; Prepared for: 1330823 Alberta Ltd.; Prepared by: Stantec Consulting Ltd.; August 2009** was produced by the following individual(s):

Meghan Chisholm, B.Sc.
Environmental Scientist

This report has been reviewed by:

Marc Obert, B.Sc., P.Biol, A.Ag
Environmental Scientist

This report has been reviewed and approved for transmittal by:



Angela Bates, Dipl., BAEM
Associate

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APPENDIX A
FIGURES

V:\1102\active\110218048\gis\Fig1_SiteLocationPlan_28July2009.mxd
2009-07-28 By: rcassells

July, 2009
1102-18048

Stantec

Site Description
NE 1/4 25-52-28 W4M
Stony Plain, AB

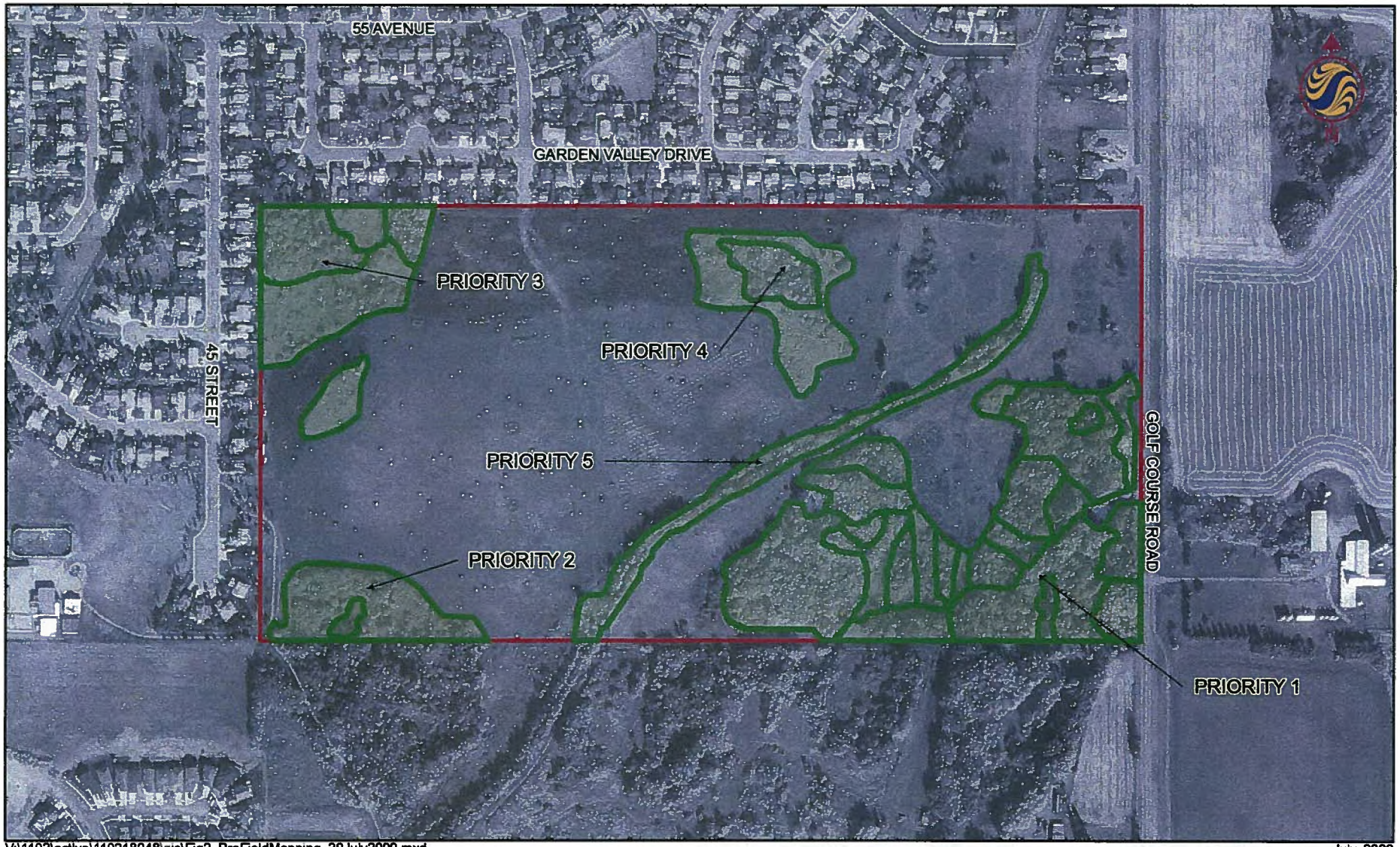
Legend
SUBJECT PROPERTY

Scale
0 50 100 150 200 250
Meters
1:5,000

Client/Project
1330823 ALBERTA LTD.
BRYOPHYTE ASSESSMENT
SOMMERVILLE NEIGHBOURHOOD

Figure No.
1

Title
SITE LOCATION PLAN



V:\1102\active\110218048\gis\Fig2_PreFieldMapping_29July2009.mxd
2009-07-29 By: rcassells

July, 2009
1102-18048

Stantec

Legend

- MESOHABITAT
- SUBJECT PROPERTY

Scale

0 50 100 150 200 250 Metres

1:5,000

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Figure No.

2

Title

PRE-FI[illegible] MAPPING

V:\1102\active\110218048\gis\Fig2_PreFieldMapping_29July2009.mxd
2009-07-29 By: rcassells

July, 2009
1102-18048

Stantec

Legend

- SAMPLING LOCATION
- APPROXIMATE TRANSECT LOCATION
- MESOHABITAT
- SUBJECT PROPERTY

Scale

0 50 100 150 200 250 Metres

1:5,000

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SOMMERVILLE NEIGHBOURHOOD

Figure No.
3

Title
FIELD SAMPLING PROGRAM

APPENDIX B
ANHIC TRACKING AND WATCH LISTS FOR MOSSES LIVERWORTS AND HORNWORTS

ALBERTA NATURAL HERITAGE INFORMATION CENTRE
TRACKING AND WATCH LISTS
VASCULAR PLANTS, MOSSES, LIVERWORTS AND HORNWORTS

Compiled by Joyce Gould
July, 2006

Alberta
COMMUNITY DEVELOPMENT

NATURAL HERITAGE INFORMATION CENTRE
ALBERTA
A Member of NatureServe a Network of Conservation Data Centres.

Front page: Haller's apple moss
Photo Credit: René Belland

Haller's apple moss (*Bartramia halleriana* Hedw.) is considered a nationally and provincially rare species of Moss (ranked S1 by the Alberta Natural Heritage Information Centre). The species is known from Europe, Asia, South America, Australia, New Zealand and Hawaii and in Canada is known from few sites in British Columbia and Alberta. Haller's apple moss is associated with acidic (siliceous) rock of forested cliffs and ledges in the Rocky Mountains. This species is currently protected under the federal *Species at Risk Act* (SARA).

For copies of this report, contact:
Alberta Natural Heritage Information Centre
Parks and Protected Areas Division
Alberta Community Development
2nd Floor, 9820 – 106 Street
Edmonton, AB T5K 2J6
780-427-7702

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Web Site: http://www.cd.gov.ab.ca/preserving/parks/anhic/index.asp

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ALBERTA NATURAL HERITAGE INFORMATION CENTRE
TRACKING AND WATCH LISTS -VASCULAR PLANTS, MOSSES, LIVERWORTS AND HORNWORTS

Compiled by Joyce Gould
July, 2006

This list contains the tracking and watch lists for vascular plants, mosses, liverworts and hornworts as developed by the AlbertaNatural Heritage Information Centre (ANHIC), Alberta Community Development. The addition of liverworts and hornworts to the list is relatively new and the ranks for these groups should be viewed as preliminary in nature. We encourage submission of locational information for any of the taxa on either the tracking or watch lists. A Rare Plant and Lichen Survey Form is attached for your convenience.

Background

The ANHIC was initiated as a joint project of The Nature Conservancy, Canadian Heritage, Alberta Region and Alberta Environmental Protection. It is housed within the Parks and Protected Areas Division of Alberta Community Development. The ANHIC has established both formal and informal links with organizations and individuals with expertise and information about plants in Alberta. The Devonian Botanic Garden of the University of Alberta is an affiliate.

The purpose of the Centre is to collect, evaluate and make available information on the elements of native biodiversity of Alberta-plants, lichens, fungi, animals, natural communities and landscapes. This is done in part through the production of tracking and watch lists.

Tracking and Watch Lists

Tracking lists include elements of high priority because they are rare or of conservation concern in some other way. They are most commonly ranked S1, S2 and occasionally S3 (see below for an explanation of ranking). Data for those species on the tracking lists are entered into a series of data files and linked to a geographic information system. Watch lists include elements for which we want to collect more information but for which data is compiled rather than proces sed to the fullest extent. The tracking and watch lists are under constant review and revision based on available data and will be updated and published on a periodic basis.

Information contained within previous publications on the rare vascular flora of the province (Argus and White 1978, Argus and Pryer 1990, Packer and Bradley 1984) has been incorporated into the ANHIC and updated. This was done using various sources of information including published and unpublished literature, field surveys, herbarium specimens, rare plant files and discussions with knowledgeable individuals. The same types of information were used to develop the tracking list for nonvasculars. The tracking and watch lists are organized by taxonomic group and then alphabetically by sci entific name.

Ranks are reviewed periodically based on data contained within the ANHIC and therefore, information submitted to us by individuals is of great help. Several individuals have assisted in the production of various versions of the list through review of ranks and/or taxonomy and their assistance is gratefully acknowledged: Dr. Peter Achuff (vasculars and non-vasculars), Dr. Susan Aiken (Festuca), Lorna Allen (vasculars), Dr. George Argus (Salix), Dr. John Bain (Erigeron, Packera, Senecio), Dr. Peter Ball, (Carex), Dr. Randy Bayer (Antennaria), Dr. René Belland (non-vasculars), Cheryl Bradley (vasculars), Dr. Donald Britton (ferns), Dan Brunton, (Isoetes, ferns), Dana Bush (vasculars), Richard Caners (non-vasculars), Dr. Adolf Ceska (vasculars), Donna Cherniawsky (vasculars), Beth Cornish (vasculars), Patsy Cotterill (vasculars), Dr. Bill Crins (Carex), Stephen Darbyshire (Poaceae), Jennifer Doubt (non-vasculars), Dorothy Fabijan (vasculars), Dr. Bruce Ford (Carex), Gina Fryer (vasculars), Joanne Golden, (Packera, Senecio), Dr. Graham Griffiths (vasculars), Roxanne Hastings (non-vasculars), Julie Hrapko (vasculars), Derek Johnson (vasculars and non-vasculars), Dr. John Kartesz (vasculars), Linda Kershaw (vasculars), Jane Lancaster (vasculars), Ian

Macdonald (vasculars), Dr. Robert Naczi, (Carex), Dr. John Packer (vasculars), Ross Priddle (non-vasculars), Dr. Kathleen Pryer (Gymnocarpium), Dale Soppet (vasculars), Dr. Robert Soreng (Poaeceae), Dr. Lisa Standley (Acutae Group of Carex), Dr. Dale Vitt (non-vasculars), Ksenija Vujnovic (vasculars), the late Dr. W. H. Wagner (Botrychium), Cliff Wallis (vasculars), Kathleen Wilkinson (vasculars), Joan Williams (vasculars), Patrick Williston (Botrychium) and Roberta Yakimchuk (vasculars).

Species that are on the watch lists are typically taxa that have restricted distributions within Alberta but are common within their range. Information is collected to ascertain trends in populations. We may decide to move a species from the watch list to the tracking list if information suggests that the species may be in decline. If a population of a taxon on the watch list is encountered, please fill out and submit a Rare Plant and Lichen Survey Form.

Plants Requiring Further Information

In addition to the plants listed on the watch and tracking lists, we will be compiling information on the following species:
Calypso bulbosa Venus'-slipper (white form only)
Corallorhiza maculata f. flavida spotted coral-root (yellow form only)
Erigeron scotteri fleabane
Geranium viscosissimum f. album sticky purple geranium
Lilium philadelphicum var andinum f. immaculatum yellow wood lily
Wolffia columbiana watermeal (large celled and small celled forms)
Myriophyllum verticillatum water-milfoil (semi-terrestrial form only)

Comments and additional information on any of these species as well as those on the tracking and watch lists are welcomed.

Rank

Elements are evaluated and ranked on their status (globally and state/provincially) using a system developed by The Nature Conservancy which is in use throughout North America. Ranking is usually based primarily on the number of occurrences, since that is frequently the only information available. Information, such as population size and trend, life history and reproductive strategies, range and current threats is used when available. The ranks in Alberta are defined as:

RANK (G=global; S=Alberta)
G1 S1: < 5 occurrences or only a few remaining individuals.
G2 S2: 6-20 occurrences or with many individuals in fewer occurrences.
G3 S3: 21-100 occurrences may be rare and local throughout its range, or in a restricted range (may be abundant in some locations or may be vulnerable to extirpation because of some factor of its biology).
G4 S4: apparently secure under present conditions, typically >100 occurrences but may be fewer with many large populations; may be rare in parts of its range, especially peripherally.
G5 S5: demonstrably secure under present conditions, > 100 occurrences, may be rare in parts of its range, especially peripherally.
GNR SNR: unranked or under review
GH SH: historically known, may be relocated in the future.
GNA SNA: conservation status not applicable (includes exotic species)

T_: rank for a subspecific taxon
X: believed to be extirpated
G? or S?: not yet ranked
_?: rank questionable

Nomenclatural Changes and Taxonomic Revisions

Changes in nomenclature or taxonomy may result in some confusion regarding the status of species. Ongoing work, particularly the Flora of North America project, is resulting in taxonomic revision and nomenclatural changes to many of the vascular taxa occurring in Alberta. We are incorporating these changes into the database, and subsequently the tracking list, as information becomes available. The scientific name (SName) reflects these changes where possible.

Updates and Additional Information

We are asking for your help in keeping our databases as accurate and up-to-date as possible. If you discover any new occurrences of species on this list, please submit a Rare Plant and Lichen Survey Form. Feel free to notify us of any inaccuracies or discrepancies you may notice in our data, or if you have comments on the rank, and give us your suggestions on how our services could be more useful to you.

Information on the ANHIC is available through the Internet at http://www.cd.gov.ab.ca/preserving/parks/anhic/infosite.asp or by

contacting:

John Rintoul
Coordinator, Alberta Natural Heritage Information Centre
Alberta Community Development
2nd Floor, 9820 106 Street
Edmonton, AB T5K 2J6
(780) 427-6639; (780) 427-5980 (fax); john.rintoul@gov.ab.ca (e-mail)

Comments on this list, or requests to be put on the mailing list for updates, should be directed to:

Joyce Gould
Senior Botanist, Alberta Natural Heritage Information Centre
Alberta Community Development
2nd Floor, 9820 106 Street
Edmonton, AB T5K 2J6
(780) 427-7702; (780) 427-5980 (fax); joyce.gould@gov.ab.ca (e-mail)

Data requests should be directed to:

John Rintoul
Data Manager, Alberta Natural Heritage Information Centre
Alberta Community Development
2nd Floor, 9820 106 Street
Edmonton, AB T5K 2J6
(780) 427-6639; (780) 427-5980 (fax); john.rintoul@gov.ab.ca (e-mail)

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Tracking List: Mosses, Liverworts and Hornworts

2006-07-08

Scientific Name	Common Name	S Rank	G Rank	Code
Aloina brevirostris	short-beaked rigid screw moss	S2	G3G5	NBMUS03020
Aloina rigida	aloe-like rigid screw moss	S2	G3G5	NBMUS03040
Amblyodon dealbatus		S2	G3G5	NBMUS05010
Amphidium mougeotii		S1	G5	NBMUS07030
Anastrophyllum assimile	liverwort	S1S2	G3?	NBHEP04010
Anastrophyllum helleranum	liverwort	S2	G5	NBHEP04030
Anastrophyllum michauxii	liverwort	S1	G4	NBHEP04040
Anastrophyllum saxicola	liverwort	S1?	G3G4	NBHEP04060
Andreaea alpestris		S1	G5?	NBMUS0A090
Andreaea blyttii		S1	G5	NBMUS0A010
Andreaea nivalis	red rock moss	S2	G5	NBMUS0A040
Anoectangium aestivum		S1	G3G5	NBMUS0B010
Anomobryum filiforme		S1	G4	NBMUS80010
Anomodon minor		S1	G5	NBMUS0C020
Aongstroemia longipes		S2	G3G5	NBMUS0E010
Arctoa fulvella		S1	G3G5	NBMUS0H010
Arnellia fennica	liverwort	S2	G5	NBHEP0A010
Asterella lindenbergiana	liverwort	S1	G3G5	NBHEP0C050
Asterella saccata	liverwort	S1	G4G5	NBHEP0C070
Athalamia hyalina	liverwort	S2	G5	NBHEP0D010
Atrichum selwynii		S2	G4	NBMUS0M060
Atrichum undulatum	undulated crane's bill moss	S1S2	G5	NBMUS0M080
Aulacomnium acuminatum		S1	G3?	NBMUS0N010
Aulacomnium androgynum		S2	G5	NBMUS0N020
Barbilophozia attenuata	liverwort	S1	G5	NBHEP0E020
Barbilophozia binsteadii	liverwort	S1	G4	NBHEP0E040
Barbilophozia kunzeana	liverwort	S2	G5	NBHEP0E090
Barbilophozia quadriloba	liverwort	S2	G5	NBHEP0E0B0
Barbula coreensis		S1	G3G5	NBMUS0Q100
Bartramia halleriana	Haller's apple moss	S1	G4G5	NBMUS0R020
Bartramia pomiformis		S2	G5	NBMUS0R050
Blasia pusilla	liverwort	S1	G5	NBHEP0G010
Blindia acuta	sharp-pointed weissia	S2	G5	NBMUS0V010
Brachythecium acuminatum		SNR	G5	NBMUS0Z010
Brachythecium acutum		SU	GNRQ	NBMUS0Z020
Brachythecium calcareum		S1	G3G4	NBMUS0Z060
Brachythecium frigidum		SU	G4	NBMUS0Z0D0
Brachythecium hylotapetum		S3	GU	NBMUS0Z0G0
Brachythecium plumosum		S2	G5	NBMUS0Z0L0
Brachythecium reflexum		S2	G4G5	NBMUS0Z0N0
Brachythecium rutabulum		S2?	G5	NBMUS0Z0R0
Bryobrittonia longipes		S2	G3	NBMUS8F010
Bryoerythrophyllum ferruginascens	red leaf moss	S1	G3G4	NBMUS18040
Bryohaplocladium virginianum		S1	G5	NBMUS9A020
Bryum algovicum		S2	G4G5	NBMUS1A030
Bryum amblyodon		S1	G5?	NBMUS1A1S0
Bryum arcticum		S1	G5?	NBMUS1A060
Bryum calobryoides		S1	G3	NBMUS1A1W0
Bryum calophyllum		S1	G5?	NBMUS1A0E0
Bryum cyclophyllum		S2	G4G5	NBMUS1A1G0
Bryum dichotomum		S1	GNR	NBMUS1A1N0
Bryum flaccidum		SU	G5	NBMUS1A1Q0
Bryum knowltonii		S1	G3G4	NBMUS1A0P0
Bryum lonchocaulon		SU	G5?	NBMUS1A0Q0

Scientific Name	Common Name	S Rank	G Rank	Code
Bryum marratii		S1	G3G4	NBMUS1A0S0
Bryum muehlenbeckii		S1S2	G4G5	NBMUS1A0V0
Bryum pallens		S2	G4G5	NBMUS1A0X0
Bryum porsildii		S1	G2	NBMUS4Q010
Bryum purpurascens		S1	G3G4	NBMUS1A100
Bryum schleicheri		S1	G5?	NBMUS1A150
Bryum stirtonii		S1S2	G5?	NBMUS1A310
Bryum turbinatum		S2	G5	NBMUS1A1A0
Bryum uliginosum		S2	G3G5	NBMUS1A1B0
Buxbaumia aphylla	bug on a stick	S2	G4G5	NBMUS1B010
Buxbaumia piperi		S1	G4	NBMUS1B030
Buxbaumia viridis	green shield moss	S1	G3G4	NBMUS1B040
Callicladium haldanianum		S1	G5	NBMUS1C010
Calypogeia integristipula	liverwort	S1	G4G5	NBHEP0M020
Calypogeia muelleriana	liverwort	SNR	G5	NBHEP0M030
Calypogeia suecica	liverwort	S1	G5	NBHEP0M070
Campylium radicale		S2	G3G5	NBMUS1J070
Cephalozia bicuspidata	liverwort	S1	G5	NBHEP0P020
Cephalozia catenulata	liverwort	SNR	G5	NBHEP0P030
Cephalozia loitlesbergeri		SNR	G5	NBHEP0P070
Cephaloziella arctica	liverwort	S1	G5	NBHEP0Q010
Cephaloziella divaricata	liverwort	SNR	G5	NBHEP0Q050
Cephaloziella elachista	liverwort	SNR	G4	NBHEP0Q060
Cephaloziella hampeana	liverwort	S1	G5	NBHEP0Q090
Cephaloziella rubella	liverwort	SNR	G5	NBHEP0Q0H0
Cephaloziella subdentata	liverwort	SNR	G4G5	NBHEP0Q0K0
Chandonanthus setiformis	liverwort	S1	G5	NBHEP0S030
Chiloscyphus pallescens	liverwort	S1	G5	NBHEP0U020
Chiloscyphus polyanthos	liverwort	S1	G5	NBHEP0U030
Cirriphyllum cirrosum		S2	G5?	NBMUS1Q020
Claopodium bolanderi		S1S2	G4	NBMUS1R010
Conardia compacta		S2	G3G5	NBMUS1U010
Conocephalum conicum	liverwort	S2	G5	NBHEP0Y010
Coscinodon cribrosus	sieve-toothed moss	S1	G3G4	NBMUS96020
Cryptocolea imbricata	liverwort	S1	G3	NBHEP10010
Cynodontium alpestre		S1	G3G5	NBMUS22010
Cynodontium glaucescens	glaucous shield moss	S1	G3G4	NBMUS22060
Cynodontium schisti		S1S2	G3G5	NBMUS22030
Cyrtomnium hymenophylloides		S1S2	G5?	NBMUS9R010
Desmatodon cernuus	narrow-leafed chain-teeth moss	S1	G3G5	NBMUS25010
Desmatodon heimii	long-stalked beardless moss	S2	G5	NBMUS25060
Desmatodon laureri		S1	G5?	NBMUS25080
Desmatodon leucostoma		S2	G2G4	NBMUS25090
Desmatodon randii		S1	G3?	NBMUS250D0
Desmatodon systylius		S2	G4G5	NBMUS250E0
Dichelyma falcatum		S2	G4G5	NBMUS26020
Dichodontium olympicum		S1	G3G5	NBMUS27010
Dicranella cerviculata	red-necked fork moss	S1	G5?	NBMUS28010
Dicranella crispa	curl-leaved fork moss	S2	G3G5	NBMUS28020
Dicranella heteromalla	silky fork moss	S1	G5?	NBMUS28040
Dicranella palustris	drooping-leaved fork moss	S1	G5?	NBMUS28080
Dicranella subulata	awl-leaved fork moss	S2	G5?	NBMUS280D0
Dicranum angustum	cushion moss	S1S2	G5?	NBMUS2B020
Dicranum brevifolium	cushion moss	SU	GU	NBMUS2B0U0
Dicranum majus	greater fork moss	SH	G4G5	NBMUS2B0C0

Scientific Name	Common Name	S Rank	G Rank	Code
Dicranum ontariense	cushion moss	S1	G4G5	NBMUS2B0R0
Dicranum pallidisetum	alpine curly heron's bill moss	S1S2	GU	NBMUS2B0F0
Dicranum spadiceum	cushion moss	S2	G5?	NBMUS2B0L0
Dicranum tauricum	broken-leaf moss	S1S2	G4	NBMUS2B0N0
Didymodon asperifolius		S1	G3G5	NBMUS2C010
Didymodon fallax	fallacious screw moss	S2	G5	NBMUS2C0B0
Didymodon johansenii		S2	G5?	NBMUS2C030
Didymodon nigrescens		S1	G3G5	NBMUS2C0F0
Didymodon rigidulus	rigid screw moss	S2	G5	NBMUS2C060
Didymodon subandreaeoides		S2	GU	NBMUS2C090
Didymodon tophaceus	blunt-leaved hair moss	S1S2	G5	NBMUS2C070
Didymodon vinealis		S1	G5	NBMUS2C0A0
Diplophyllum albicans	liverwort	S1	G5	NBHEP15010
Diplophyllum taxifolium	liverwort	S1	G5	NBHEP15090
Discelium nudum	naked weissia	S1	G3G4	NBMUS2E010
Ditrichum montanum		S1	GU	NBMUS2G050
Drepanocladus brevifolius	brown moss	SU	GNRQ	NBMUS2J0E0
Drepanocladus capillifollus	brown moss	SU	GU	NBMUS2J0H0
Drepanocladus crassicostatus	brown moss	S2	G3G5	NBMUS2J020
Drepanocladus sendtneri	brown moss	S1	G5?	NBMUS2J0A0
Dryptodon patens	spreading fringe moss	S2	G4G5	NBMUS2L010
Encalypta brevicolla	candle-snuffer moss	S2	G4	NBMUS2M030
Encalypta brevipes	candle-snuffer moss	S1	G3	NBMUS2M040
Encalypta intermedia	candle-snuffer moss	S1	G4	NBMUS2M100
Encalypta longicolla	candle-snuffer moss	S1	G3	NBMUS2M060
Encalypta spathulata	candle-snuffer moss	S1	G3	NBMUS2M120
Encalypta vulgaris	common extinguisher moss	S1S2	G5	NBMUS2M090
Entodon concinnus		S2	G4G5	NBMUS2N040
Entodon schleicheri		S1	G3G5	NBMUS2N100
Fissidens adianthoides	maidenhair moss	S2	G5	NBMUS2W010
Fissidens grandifrons	narrow-leaved Chinese phoenix moss	S2	G4	NBMUS2W0F0
Fissidens limbatus		S1	G3G5	NBMUS2W0M0
Fontinalis antipyretica		S1	G5	NBMUS2X020
Fontinalis dalecarlica		S1	G3G5	NBMUS2X040
Fontinalis missourica		S1	G4G5	NBMUS2X0B0
Fontinalis neomexicana		S1S2	G3G5	NBMUS2X0C0
Frullania inflata	liverwort	S1	G5	NBHEP1A0D0
Funaria americana	cord moss	S1	G3?	NBMUS2Z010
Funaria muhlenbergii	Muhlenberg's cord moss	S1	G4	NBMUS2Z070
Grimmia alpestris	alpine grimmia	S2	G3G5	NBMUS32150
Grimmia anomala	mountain forest grimmia	S2	G5	NBMUS321D0
Grimmia caespiticia		S1	GNR	NBMUS32250
Grimmia donniana	Donian grimmia	S2	G4G5	NBMUS320F0
Grimmia elatior	large grimmia	S1S2	G3G5	NBMUS320G0
Grimmia incurva	black grimmia	S1	G4G5	NBMUS320M0
Grimmia mollis		S2	G3G5	NBMUS320R0
Grimmia montana	sun grimmia	S2	G5?	NBMUS320S0
Grimmia ovalis		S1	G5?	NBMUS320Y0
Grimmia reflexidens		SNR	GNR	NBMUS32240
Grimmia teretinervis		S1	G3G5	NBMUS32160
Grimmia torquata	twisted-leaved grimmia	S2	G3G5	NBMUS32170
Grimmia trichophylla	hair-pointed grimmia	S1	G5?	NBMUS32180
Gymnocolea inflata	liverwort	S1	G5	NBHEP1D020
Gymnomitrion concinnatum	liverwort	S1	G5	NBHEP1E020
Gymnomitrion corallioides	liverwort	S1	G4G5	NBHEP1E030

Scientific Name	Common Name	S Rank	G Rank	Code
Harpanthus flotovianus	liverwort	S1	G5	NBHEP1J020
Herzogiella seligeri		S1	G3G4	NBMUS3E010
Heterocladium dimorphum		S1	G4G5	NBMUS3F010
Homalothecium nevadense		S2	G4	NBMUS3L050
Homalothecium pinnatifidum		S2	G4	NBMUS3L070
Hygroamblystegium noterophilum		SU	G4	NBMUS3R020
Hygroamblystegium tenax		S2	G5	NBMUS3R030
Hygrohypnum alpestre		S1	G3G5	NBMUS3S010
Hygrohypnum cochlearifolium		S1	G4	NBMUS3S040
Hygrohypnum duriusculum		S1	G3G5	NBMUS3S0H0
Hygrohypnum molle		S1S2	G4G5	NBMUS3S080
Hygrohypnum ochraceum		S2	G5	NBMUS3S0A0
Hygrohypnum smithii		S1	G3G5	NBMUS3S0C0
Hygrohypnum styriacum		S2	GU	NBMUS3S0K0
Hylocomiastrum pyrenaicum		S1	G4G5	NBMUS9G010
Hypnum callichroum		S1	G5?	NBMUS3V030
Hypnum pallescens		S2	G5	NBMUS3V0D0
Hypnum procerrimum		S2	G3G4	NBMUS3V0G0
Hypnum recurvatum		S2	G3G5	NBMUS3V0N0
Jaffueliobryum raui		S1	G4?	NBMUS97010
Jaffueliobryum wrightii		S2	G4G5	NBMUS97020
Jungermannia atrovirens	liverwort	S2	G4G5	NBHEP1P010
Jungermannia exsertifolia	liverwort	S1	G5?	NBHEP1P060
Jungermannia leiantha	liverwort	SNR	G5	NBHEP1P0B0
Jungermannia obovata	liverwort	S1	G4G5	NBHEP1P0C0
Jungermannia polaris	liverwort	S1	G4	NBHEP1P0D0
Jungermannia pumila	liverwort	S1	G5	NBHEP1P0E0
Jungermannia rubra	liverwort	SNR	G2G4	NBHEP1P0G0
Jungermannia sphaerocarpa	liverwort	S1	G5	NBHEP1P0H0
Kiaeria blyttii	Blytt's fork moss	S2	G5	NBMUS41010
Kiaeria falcata	sickle-leaved fork moss	S1	G5	NBMUS41020
Kiaeria starkei	alpine broom moss	S2	G5	NBMUS41040
Leptodictyum humile		S1	G5	NBMUS44080
Lescuraea saxicola		S1	G4G5	NBMUS47010
Leskea gracilescens		S1	G5	NBMUS48020
Leskea obscura		S1	G5	NBMUS48030
Leskea polycarpa		S1	G4G5	NBMUS48040
Leskeella nervosa		S2	G5	NBMUS49010
Limprichtia cossonii		SU	GU	NBMUS93020
Loeskypnum badium		S1	G4G5	NBMUS86020
Lophocolea bidentata	liverwort	SNR	G5	NBHEP1W010
Lophozia alpestris	liverwort	S1	G5	NBHEP1Y020
Lophozia ascendens	liverwort	S1	G4	NBHEP1Y030
Lophozia badensis	liverwort	S1	G5?	NBHEP1Y040
Lophozia bantriensis	liverwort	S1	G4?	NBHEP1Y050
Lophozia capitata	liverwort	S1	G4	NBHEP1Y070
Lophozia collaris	liverwort	S1	G5	NBHEP1Y080
Lophozia excisa	liverwort	S1	G5	NBHEP1Y0A0
Lophozia gillmanii	liverwort	S1	G5	NBHEP1Y0B0
Lophozia grandiretis	liverwort	S2	G3?	NBHEP1Y0C0
Lophozia guttulata	liverwort	S2	G4G5	NBHEP1Y0E0
Lophozia heterocolpos	liverwort	S2	G5	NBHEP1Y0F0
Lophozia incisa	liverwort	S2	G5	NBHEP1Y0J0
Lophozia laxa	liverwort	S1	G4	NBHEP1Y0L0
Lophozia longidens	liverwort	S1	G5	NBHEP1Y0M0

Scientific Name	Common Name	S Rank	G Rank	Code
Lophozia obtusa	liverwort	S1	G4G5	NBHEP1Y0N0
Lophozia opacifolia	liverwort	S1	G4	NBHEP1Y0P0
Lophozia pellucida	liverwort	S1	G3?	NBHEP1Y0Q0
Lophozia rutheana	liverwort	S1	G4?	NBHEP1Y0U0
Lophozia wenzelii	liverwort	S1	G4G5	NBHEP1Y0Y0
Mannia fragrans	liverwort	S1	G5	NBHEP20020
Mannia pilosa	liverwort	S1	G4?	NBHEP20030
Mannia triandra	liverwort	S1	G3G4	NBHEP20050
Marchantia alpestris	liverwort	S1	G3G5	NBHEP21010
Marsupella alpina	liverwort	S1	G3G5	NBHEP22010
Marsupella brevissima	liverwort	S1	G4?	NBHEP22050
Marsupella commutata	liverwort	S1	G2G4	NBHEP22060
Marsupella emarginata	liverwort	SNR	G5	NBHEP22080
Marsupella revoluta	liverwort	S1S2	G3G5	NBHEP220B0
Marsupella sparsifolia	liverwort	S1	G3G4	NBHEP220C0
Marsupella sphacelata	liverwort	S1	G5	NBHEP220D0
Marsupella ustulata	liverwort	S1	G5	NBHEP220E0
Meesia longiseta		S1	G4?	NBMUS4L010
Mnium ambiguum		S2	G5	NBMUS4S0Y0
Moerckia blyttii	liverwort	S1	G4	NBHEP28010
Moerckia hibernica	liverwort	S1S2	G4?	NBHEP28020
Myurella sibirica		S1	G4?	NBMUS4U020
Myurella tenerrima		S2	G3G4	NBMUS4U030
Nardia breidleri	liverwort	S1	G4G5	NBHEP2A010
Nardia geoscyphus	liverwort	S1	G5	NBHEP2A030
Neckera pennata		S2S3	G5	NBMUS4W030
Odontoschisma denudatum	liverwort	S1	G5	NBHEP2D010
Odontoschisma elongatum	liverwort	S1	G3G4	NBHEP2D020
Oligotrichum aligerum		S1S2	G5	NBMUS51010
Oligotrichum hercynicum	Hercynian hair moss	S2	G5	NBMUS51030
Oligotrichum parallelum		S1S2	G5	NBMUS51040
Oreas martiana		S1	G5?	NBMUS53010
Orthothecium intricatum		S1	G4G5	NBMUS55040
Orthothecium strictum		S1S2	G5?	NBMUS55060
Orthotrichum affine		SU	G3G5	NBMUS56010
Orthotrichum cupulatum		SNR	G4G5	NBMUS56070
Orthotrichum hallii		SNR	G4	NBMUS560D0
Orthotrichum pallens		S2	G5	NBMUS560M0
Orthotrichum pumilum		S1S2	G5	NBMUS560Q0
Orthotrichum pylaisii		S1S2	G4G5	NBMUS560T0
Orthotrichum rivulare		S1	G4	NBMUS560U0
Oxystegus tenuirostris	acid-soil moss	S1	G4	NBMUS8D020
Pellia endiviifolia	liverwort	S2	G5	NBHEP2H010
Pellia epiphylla	liverwort	S1	G5	NBHEP2H020
Pellia neesiana	liverwort	S2	G5	NBHEP2H030
Phascum cuspidatum	cuspidate earth moss	S2	G5	NBMUS5B010
Phascum vlassovii		SNA	G2?	NBMUS5B040
Philonotis marchica		S1	G5	NBMUS5C060
Philonotis yezoana		S1	G2G3	NBMUS5C0C0
Physcomitrium hookeri	bladder-cap moss	S1	G2G4	NBMUS5E030
Physcomitrium pyriforme	urn moss	S1	G5	NBMUS5E070
Plagiobryum demissum		S1	G3G5	NBMUS5G010
Plagiobryum zieri		S2	G4G5	NBMUS5G020
Plagiomnium ciliare		S2	G5	NBMUS81030
Plagiomnium rostratum		S1	G5	NBMUS81080

2006-07-08

Scientific Name	Common Name	S Rank	G Rank	Code
Platydictya minutissima		SU	G3	NBMUS5K030
Pleuroclada albescens	liverwort	S2	G4G5	NBHEP2N010
Pogonatum dentatum	hair-like pogonatum	S2	G3G5	NBMUS5R040
Pogonatum urnigerum	urn-like pogonatum	S2S3	G5	NBMUS5R060
Pohlia andalusica		S1	G3G5	NBMUS5S0X0
Pohlia annotina		S1	G4G5	NBMUS5S010
Pohlia atropurpurea		S1	G4G5	NBMUS5S020
Pohlia brevinervis		S1	G1G2	NBMUS5S110
Pohlia bulbifera		S1	G4G5	NBMUS5S030
Pohlia camptotrachela		S1	G3G5	NBMUS5S0Z0
Pohlia crudoides		S1	G2G4	NBMUS5S080
Pohlia drummondii		S2	G3G4	NBMUS5S0A0
Pohlia elongata		S1	G4G5	NBMUS5S0B0
Pohlia filum		S1	G4G5	NBMUS5S0W0
Pohlia longicolla		S1	G4G5	NBMUS5S0G0
Pohlia obtusifolia		S1	G2G4	NBMUS5S0K0
Pohlia vexans		S1	G3G5	NBMUS5S0R0
Polytrichum longisetum	slender hairy-cap	S1	G5	NBMUS5T040
Porella cordaeana	liverwort	S1	G4	NBHEP2Q020
Porella platyphylla	liverwort	S1	G5	NBHEP2Q050
Pottia intermedia		SU	G3G5	NBMUS5V0A0
Pseudobryum cinclidioides		S2	G5	NBMUS9N010
Pseudoleskea atricha		SU	G5	NBMUS5Z010
Pseudoleskea patens		S2	G5	NBMUS5Z050
Pseudoleskea stenophylla		S2	G5?	NBMUS5Z070
Pseudoleskeella sibirica		S2	G5?	NBMUS60060
Pterygoneurum ovatum	hairy-leaved beardless moss	S1	G5	NBMUS65040
Pterygoneurum subsessile		S2	G4?	NBMUS65050
Racomitrium aciculare		S1	G5	NBMUS6B010
Racomitrium elongatum		S1	GU	NBMUS6B110
Racomitrium fasciculare		S2	G5	NBMUS6B060
Racomitrium heterostichum		S2?	G5	NBMUS6B070
Racomitrium macounii		S1	GU	NBMUS6B0C0
Racomitrium microcarpon		S1?	GNRQ	NBMUS6B0D0
Racomitrium sudeticum		S1S2	G5?	NBMUS6B150
Radula complanata	liverwort	S1	G4	NBHEP2V040
Reboulia hemisphaerica	liverwort	S1	G5	NBHEP2W010
Rhizomnium andrewsianum		S1	G3G5	NBMUS9Q030
Rhizomnium magnifolium		S2	G4G5	NBMUS9Q080
Rhizomnium nudum		S2	G4	NBMUS9Q040
Rhodobryum ontariense		S2	G5	NBMUS6F020
Rhytidiadelphus squarrosus	pipecleaner moss	S1	G4G5	NBMUS6J020
Riccardia chamedryfolia	liverwort	SNR	G5	NBHEP2Y010
Riccardia latifrons	liverwort	S2	G4G5	NBHEP2Y030
Riccardia multifida	liverwort	S2S3	G5	NBHEP2Y040
Riccardia palmata	liverwort	S1	G5	NBHEP2Y050
Riccia beyrichiana	liverwort	S1	G5	NBHEP2Z030
Riccia cavernosa	liverwort	S1	G5	NBHEP2Z080
Riccia fluitans	liverwort	S2	G5	NBHEP2Z0D0
Ricciocarpos natans	liverwort	S2	G5	NBHEP30010
Sarmenthypnum sarmentosum		S2	G4G5	NBMUS85010
Sauteria alpina	liverwort	S1	G4?	NBHEP32010
Scapania apiculata	liverwort	S1	G5?	NBHEP33030
Scapania brevicaulis	liverwort	S1	G2G3	NBHEP33050
Scapania carinthiaca	liverwort	SNR	G3?	NBHEP33070

Scientific Name	Common Name	S Rank	G Rank	Code
Scapania curta	liverwort	S2	G5	NBHEP330A0
Scapania cuspiduligera	liverwort	S2	G5	NBHEP330B0
Scapania glaucocephala	liverwort	S2	G4G5	NBHEP330D0
Scapania mucronata	liverwort	S1	G5	NBHEP330N0
Scapania nemorosa	liverwort	SNR	G5	NBHEP330P0
Scapania paludicola	liverwort	S2	G5	NBHEP330S0
Scapania paludosa	liverwort	S2	G5	NBHEP330T0
Scapania subalpina	liverwort	S1	G4G5	NBHEP33130
Scapania undulata	liverwort	S1	G5	NBHEP33170
Schistidium agassizii	elf bloom moss	S1	G3G5	NBMUS95010
Schistidium heterophyllum		SH	G3	NBMUS95060
Schistidium pulvinatum		S1	G5	NBMUS95040
Schistidium tenerum	thread bloom moss	S2	G5?	NBMUS95090
Schistidium trichodon		S1	G2G4	NBMUS95110
Schistostega pennata	luminous moss	S1S2	G3G4	NBMUS6P010
Scleropodium obtusifolium		SH	G4	NBMUS6T040
Scouleria aquatica		S2	G4	NBMUS6W010
Seligeria calcarea	chalk brittle moss	S1	G4?	NBMUS6X010
Seligeria campylopoda		S2	G3G5	NBMUS6X020
Seligeria donniana	Donian beardless moss	S2	G4G5	NBMUS6X030
Seligeria subimmersa		S1	G5?	NBMUS6X070
Seligeria tristichoides		SU	G4	NBMUS6X080
Sphagnum balticum	peat moss	S1	G2G4	NBMUS6Z040
Sphagnum compactum	neat bog moss	S2	G5	NBMUS6Z070
Sphagnum contortum	twisted bog moss	S2	G5	NBMUS6Z1T0
Sphagnum fallax	peat moss	S2	G5	NBMUS6Z230
Sphagnum fimbriatum	fringed bog moss	S2	G5	NBMUS6Z0A0
Sphagnum lindbergii	Lindberg's bog moss	S2	G5?	NBMUS6Z0K0
Sphagnum platyphyllum		S1	G5	NBMUS6Z0X0
Splachnum ampullaceum	flagon-fruited splachnum	S2	G5	NBMUS71010
Splachnum luteum	yellow collar moss	S3	G3	NBMUS71020
Splachnum rubrum	red collar moss	S3	G3	NBMUS71040
Splachnum sphaericum	globe-fruited splachnum	S2	G3G5	NBMUS71050
Splachnum vasculosum	large-fruited splachnum	S2	G3G5	NBMUS71060
Tayloria acuminata	point-leaf small-kettle moss	SU	G3G4	NBMUS79010
Tayloria froelichiana	Froelichian splachnum	S1	G3G5	NBMUS79020
Tayloria hornschuchii	small-kettle moss	S1	G3G5	NBMUS79030
Tayloria lingulata	tongue-leaf small-kettle moss	S2	G3G5	NBMUS79040
Tayloria serrata	slender splachnum	S2	G4	NBMUS79050
Tayloria splachnoides	splanchnoid cyrtodon	S1	G2G3	NBMUS79060
Tetraplodon urceolatus	alpine lemming moss	S2	G3G5	NBMUS7C040
Thamnobryum neckeroides		S1	G4	NBMUS7D020
Thuidium philibertii		S1S2	G5	NBMUS7F0A0
Timmia norvegica		S2	G4?	NBMUS7G030
Timmia sibirica		S1	G5?	NBMUS7G040
Tortella inclinata	bent screw moss	S2	G4G5	NBMUS7K050
Tortula bartramii		S1	G2G4	NBMUS7L040
Tortula caninervis		S1	G5?	NBMUS7L0U0
Tortula subulata		S1	G5?	NBMUS7L0T0
Trichodon cylindricus	narrow-fruited fork moss	S1	G4G5	NBMUS7N020
Tritomaria exsecta	liverwort	S1	G5	NBHEP3C010
Tritomaria polita	liverwort	S2	G4	NBHEP3C040
Tritomaria scitula	liverwort	S2S3	G4	NBHEP3C060
Ulota curvifolia		S2S3	G3G5	NBMUS7T030
Voitia nivalis	hidden kettle moss	S1	G4	NBMUS7W020

2006-07-08

Scientific Name	Common Name	S Rank	G Rank	Code
Warnstorfia pseudostraminea	brown moss	S1	G3	NBMUS88080
Warnstorfia tundrae	brown moss	S2	GU	NBMUS88070
Weissia controversa	green-cushioned weissia	S2	G5	NBMUS7X020
Zygodon viridissimus		S1	G5	NBMUS7Z050

Number of Records in this Report: 388

Watch List: Mosses, Liverworts and Hornworts

2006-07-08

Scientific Name	Common Name	S Rank	G Rank	Code
Andreaea rupestris	black rock moss	S3	G5	NBMUS0A060
Anthelia julacea	liverwort	SNR	G3G4	NBHEP07010
Calypogeia neesiana	liverwort	S3	G5	NBHEP0M040
Calypogeia sphagnicola	liverwort	SNR	G4	NBHEP0M060
Calypogeia trichomanis	liverwort	SNR	G5	NBHEP0M090
Campylium polygamum		S3	G5	NBMUS1J060
Cephalozia macounii	liverwort	SNR	G3	NBHEP0P090
Coscinodon calyptratus	sieve-toothed big calyptra moss	S3	G3G5	NBMUS96010
Cynodontium strumiferum		S3	G3G5	NBMUS22040
Cynodontium tenellum		S2S3	G3G5Q	NBMUS22050
Gymnostomum aeruginosum	tufted rock beardless moss	S3	G5	NBMUS35010
Herzogiella turfacea		S3	G4G5	NBMUS3E030
Hygrohypnum bestii		S3	G4	NBMUS3S020
Jungermannia hyalina	liverwort	SNR	G5	NBHEP1P090
Oncophorus virens	green spur-fruited fork moss	S3	G5	NBMUS52020
Polytrichum lyallii	hair cap moss	S3	GU	NBMUS5T050
Rhytidiopsis robusta	pipecleaner moss	S3	G4	NBMUS6K010
Roellia roellii		S3	G4	NBMUS6M010
Sphagnum subsecundum	twisted bog moss	S3	G5	NBMUS6Z1A0
Stegonia pilifera		S3	G5?	NBMUS72020

Number of Records in this Report: 20

ALBERTA NATURAL HERITAGE INFORMATION CENTRE

RARE NATIVE PLANT AND LICHEN SURVEY FORM

Please enter all information available to you and attach a detailed sketch or map showing the location of the population and/or area search. Submit the form even if the targeted species is not found. Electronic submissions are preferred.

SPECIES: _____

OBSERVER NAME, ADDRESS, TELEPHONE NUMBER AND E-MAIL: _____

_____

_____

_____

SURVEY DETAILS:

SURVEY DATE(S): _____

1st VISIT OR REPEAT VISIT TO SITE:_____ EO NUMBER IF REPEAT VISIT:_____

TYPE OF SURVEY (check one): ____targeted survey for this species _____general rare plant survey

_____targeted survey for another species. If so, name other species_____

SURVEY EFFORT: time spent_____ and/or size of area searched (please attach map or provide utm coordinates of area searched)_____

_____

_____

_____

DOCUMENTATION:

PHOTOGRAPH TAKEN (please attach to form if possible): Y / N

SPECIMEN COLLECTED: Y / N COLLECTION NUMBER: _____

NAME OF HERBARIUM WHERE DEPOSITED (and accession number): _____

DETERMINATION (check where appropriate and fill in blanks): determined by _____

__keyed (reference used)_____ compared with specimen at _____

__compared with illustration/photo in _____ verified by _____

__ key characteristic(s) used for determination_____

_____

LOCATION INFORMATION (please attach map):

SITE NAME: _____

_____

TOPOGRAPHIC MAP NUMBER: _____ Was the location determined using a GPS? Y / N

DIRECTIONS TO POPULATION (*include descriptions of landmarks and distances if possible*):

_____

_____

_____

_____

_____

ELEVATION:_____ m SOURCE OF CO-ORDINATES (GPS, TOPO MAP): _____

UTM EASTING: _____ UTM NORTHING: _____ Precision (+/-m) _____

GRID ZONE: _____ NORTH AMERICAN DATUM: __ 27 __ 83

LEGAL: TWP: _____ RGE: _____ W:_____ M SECTION: _____ LSD: _____

LATITUDE: _____ LONGITUDE: _____

POPULATION INFORMATION: ___ count or ___estimate (check one)
Number of individuals (for vascular plants) or number and size of clumps (for bryophytes and lichens):
_____vegetative _____in bud _____in flower
_____immature seed/spore producing structure _____mature seed/spore producing structure
_____dispersing seed/spores _____seedlings _____fruit/sporophyte from previous years
Extent of population: length_____ width_____ (map as polygon if possible)

Shape of area (attach sketch if possible and/or include polygon information from gps unit or shape file):
_____
_____
_____

FULL EXTENT OF POPULATION KNOWN: _____YES _____NO _____UNKNOWN

SITE/HABITAT DESCRIPTION *(include information on habitat [alpine, aquatic, cliff, forest, grassland, peatland for vasculars, plant communities / dominant species / associated species. Attach extra sheet if necessary.) Information on plant community can be provided using existing forms such as ANHIC ecological community form*:
_____
_____
_____
_____
_____
_____
_____
_____

SUBSTRATE (for non-vasculars and lichens) (check appropriate category for all that apply and list type):
___wood _____ ____bark_____ ___rock _____
___ soil _____ ____other (name)_____
ASPECT: _____SLOPE: _____
MOISTURE:
___inundated ___saturated (wet-mesic) ___ moist (mesic) ___ dry-mesic ___ dry (xeric)
LIGHT LEVELS:
___open ___partial ___filtered ___shade
SOIL pH (if known):_____ SOIL TEXTURE (if known):_____ SOIL TYPE (if known): _____
WATER pH (if known) _____

CURRENT LAND USE: _____
_____
_____
_____
OWNERSHIP (*if known. Include name/address/phone number*): _____
_____
DOES THE LANDOWNER WANT THE EXACT LOCATION WITHHELD FROM THE PUBLIC: _____

THREATS TO HABITAT OR POPULATION (include information on whether population will be impacted by development): _____
_____
_____
_____
_____

CONSERVATION/MANAGEMENT NEEDS (include information on proposed mitigation): _____
_____
_____
_____
_____

IS THIS SURVEY PART OF AN ENVIRONMENTAL ASSESSMENT OR FIELD REPORT? YES/NO

IF YES, WHAT IS THE NAME OF REPORT OF WHERE INFORMATION WILL BE PUBLISHED/DEPOSITED (if known):_____

Additional comments and/map of area surveyed and location of populations:

Return to:

Alberta Natural Heritage Information Centre
2nd Floor, 9820 106 Street,
Edmonton, AB T5K 2J6 (780) 427-5209.

Electronic submissions preferred:
John.rintoul@gov.ab.ca or joyce.gould@gov.ab.ca

For ANHIC use only

Source code: _____
Element code:_____
EO ID Number: _____ ID:_____

APPENDIX C
PREVIOUS ENVIRONMENTAL REPORTS

11687300
#2

elegant DEVELOPMENT INC.

Suite 200, 12235 No. 1 Road
Richmond, B.C. V7E 1T6 Canada
info@elegantdevelopment.com
Telephone: 604-277-3338 Fax: 604-277-3033

Fax Cover

- ☐ JAY MINHAS
- ☐ Gordon Tang
- ☐ Sammy Bhattl
- ☐ Ranjit Singh
- ☐ Jennifer Nuce
- ☐ Nina Minhas
- ☐ Leah Manaras

Date: November 13, 2008

To: Stantec

Total Pages (Including cover page): 5

Fax No.: 780-917-7179

Message/Comment

Attention: Chris Dulaba

Please see attached

July 10, 2007

EBA File: C31201004

Elegant Development Inc.
#200 - 12235 No. 1 Road
Richmond, BC V7E 1T6

Attention: Mr. Gordon Tang

Subject: Environmental Opinion for the Subject Site Located in Stony Plain Alberta, Part 25-52-28-W4M

1.0 INTRODUCTION

The intent of this letter is to provide Elegant Development (Elegant) of Richmond, British Columbia, with sufficient information on the biophysical character, vegetation, soils, fish and wildlife issues, of the subject site to assist with their planning of a residential community subdivision for an Area Structure Plan Amendment. The site is located in Stony Plain, Alberta.

2.0 METHODS

EBA has conducted a desktop study as a preliminary method to provide information that facilitates Elegant's planning process. During the winter, we could not conduct fieldwork and so this approach satisfies some immediate planning needs and addresses the question whether or not additional study may be required once the vegetation greens-up. To accomplish this goal, EBA has contacted the Town of Stony Plain, Parkland County, Alberta Environment and Alberta Natural Heritage Information Centre requesting relevant information on soil conditions, drainage and wetlands, rare plants, and the potential for fish or wildlife issues. In addition, we examined a number of map sources to extract useful information; maps including the National Topographic System 1:50,000 scale, provincial hydrogeological maps, provincial soil maps and river classification maps for fish. We began with a chronosequence analysis of stereo air photographs which range in dates from 1962 through to 2002, a 40-year period.

3.0 STEREO AIR PHOTOGRAPH ANALYSIS

Black and white stereo air photographs were interpreted for the periods indicated below to provide a dynamic understanding of the patterns of land use and land use change that has occurred over the 40-year period. They were used along with the selected map products and provincial databases mentioned above to develop the synthesis that follows in the next section; Existing Conditions (preliminary analysis).

EBA Engineering Consultants Ltd.
p. 780.451.2121 • f. 780.454.6686
14940 - 123 Avenue • Edmonton, Alberta T5V 1B4 • CANADA

Year	Photo Scale	Line/ Photo #	Comment
1962	1:31,680	G9/69 H12/70	Approximately 75% of the land is in agriculture; approx 15% is shrub land some of which maybe a small wetland in the southeast corner and 10% of the land is mixed woodlots of aspen and spruce. It appears as though a north-south channel is being excavated approx 150 m west of the eastern border. There appears to also be a natural drainage channel west of subject site on the adjacent lot.
1967	1:31,680	979/49 979/50	The area under agriculture appears to have grown in size to approx 80% with a corresponding loss of woodlot and shrubby areas remaining relatively constant. The creek in the adjacent lot to the west is no longer visible as it may have been lost when the land was converted from field and forest to agriculture. The ditch that was being excavated in the 1962 photograph has now disappeared and appears to have been moved to the east property boundary along the road right-of-way.
1987	1:30,000	48/159 48/160	In the period leading up to 1987, the agriculture use of land has been abandoned. The drainage ditch along the east property boundary is not as apparent and the drainage ditch that is evident today first appears. The woodlots seem to have remained relatively constant in size since 1967. They may have even increased a percent or two and the shrubby areas appear to have grown to about 20% since agriculture has been abandoned. It also appears that approx 40 to 50% or more of the subject site has been excavated for aggregate material or stripped of topsoil. This land use activity appears to have occurred mostly on the property directly to the south. Finally, the small wetland that appears in earlier photos in the southeast corner now appears much larger, possibly double in size. This could be due to the excavation and lower ground surface elevation, derangement of the site's natural drainage pattern or a combination of the two factors.
2002	1:10,000	2/152 2/153 2/154	By 2002, the land is being recolonized by grass, herb and shrub species that probably include a number of weed species. This land cover makes up close to 90% of the land use. The woodlots cover has decreased since 1987 but it is still close to 10% and the channel and its riparian vegetation probably account for not more than 5% of the land cover. This channel appears to drain the new subdivisions that appear to the south on the photograph.

4.0 EXISTING CONDITIONS (PRELIMINARY ANALYSIS)

The surficial geology is dominated by a thick till of unconsolidated rubble and gravely material with a good portion of fines. Some of this material may have been excavated between 1967 and 1987 for use in construction or as the result of topsoil stripping. Numerous kettle ponds, shallow wetlands and knob and kettle topography in the region are the result of the continental glaciations in the area. Groundwater wells generally extend to

60 metres or more in the area with good potable groundwater closer to 60 metres as one travels southward toward the North Saskatchewan River and as deep as 120 metres closer to the vicinity of Stony Plain and northward.

The soil material prior to excavation supported farming with a moderate agricultural capability. The most common soil in the region is classified as an Orthic Dark Grey Chernozem and is likely the soil that would have been excavated during the period between 1967 and 1987. Surrounding land pressures within the municipality of Stony Plain likely increased the development value over that of agriculture. The organic peaty soils found in the area are the result of peat and other plant material accumulating over the last 10,000 years post-glaciation in shallow pockets typically underlain by a veneer of clay. These organic and clay soils form the Organic and Gleysolic soil orders and are generally offer low unimproved agricultural capability.

Drainage is to the northeast toward Atim Creek but may be impeded by the golf course located northeast of the subject site. Also found are some shallow depressions that may act as flash ponds but these may be artefacts of the above mentioned period of land excavation. The channel that drains the property is an artefact of an earlier drainage for reasons still unknown. When this report was prepared, we were not able to confirm whether this channel was connected to Atim Creek because of the snow depth. It is clearly man-made; it is channelized and straight with very few bends. Some drainage appears to be perched on an impermeable clay layer as there may be a small wetland or slough in the southeast corner. This wetland may be an artefact of the above-mentioned land excavation or soil stripping.

Vegetation is predominantly grasses, forbs and shrubs common of abandoned farm land. Three woodlots remain, one in the northwest corner, one in the southwest corner and one in the southeast corner where a small wetland may be present. The wetland is dominated more by shrubs than by trees. The trees on the subject site are primarily aspen with some balsam poplar and shrubs consisting of red osier dogwood, prickly rose, wild red raspberry and willow species in the wetter pockets. Due to the conditions of abandoned farm land plus the conditions of land that may have been disturbed by excavation it is quite likely that there are a number of noxious weed species that have invaded and become established on the site. These will require attention to prevent their spreading to neighbouring land, especially agricultural land. No occurrences of rare plants have been recorded on the subject site or in the immediate area (pers comm., John Rintoul, ANHIC, 2007).

Generally, the only wildlife found in the periphery of rural towns in this region is white-tailed deer and these animals are more often considered a pest by local residents than an attribute. Other common animals found in these areas include coyote, red fox, badger, striped skunk, northern pocket gopher, snowshoe hare, some fur-bearing mammals such as beaver, weasels and mink, the latter found only in the larger undisturbed wetland complexes (not found on the subject site) and a variety of song birds, owls, waterfowl and raptors. Included in the list of birds that may use this area are the short-eared owl, logger-head shrike and Sprague's pipit which are listed as endangered species under the federal Species

At Risk Act. It is highly unlikely that fish are located in any wetlands on the subject site but the water channel could be legally defined as fish habitat. The important question would be to assess the quality of the habitat and whether it is fish bearing during the open season. Our preliminary analysis suggests that the channel is of very low quality in terms of fish habitat but there are a few fish species found in other tributaries of Atim Creek that could be found here if there is no permanent barrier to fish passage. Some of the fish found in Atim Creek include northern pike, brook stickleback, lake chub, white sucker, burbot and fathead minnow. It is important to note that many of the channels in the area may be isolated from the main body of a larger downstream channel for much of the year but is connected for a short period, long enough for fish to move upstream and become trapped. EBA has found this to be the case at a number of locations north and south of the subject site along Secondary Highway 779. No occurrences of rare wildlife have been recorded on the subject site or in the immediate area (personal communication, John Rintoul, ANHIC, 2007; Alberta Fish and Wildlife, 2007).

5.0 SUMMARY

In summary, our preliminary assessment suggests that the subject site has good merit for land development. The subject site likely has few environmental issues and these appear to be easily managed within a subdivision planning framework. The three potential issues are the question of:

1. Fish habitat and fish presence and how this would influence set-back.
2. Whether the wetland would be categorized as crown land and therefore require protection and/or compensation.
3. The few remaining woodlots and how they fit into viewscape or a landscape plan.

If it can be shown that no fish are present and there is a permanent downstream barrier that prevents fish from migrating upstream then a minimum set-back congruent with the Town's park reserve requirements is likely satisfactory. If fish cannot be shown to be absent then a larger undetermined set-back may be required. We suspect that it could be difficult to prove fish absence from this channel due to our past experience with similar drainage channels in the region that feed Atim Creek.

Under the provincial wetland policy, the crown may select to review data supplied by the proponent and may also review their own data to determine if the wetland is provincially significant and therefore under jurisdiction of the crown. We presently do not think this would occur because of the wetlands location (in an urban setting) and because it may well be an artefact of past land use activity. If the province determines that the wetland is crown then avoidance or compensation mitigation may be required.

The value of existing tree stands in the Parkland Ecoregion cannot be understated. Tree loss is occurring at a high rate due to population and agricultural pressures and any

voluntary efforts to incorporate trees into a landscape plan are a positive step to safeguarding a number of environmental values and ecological functions.

6.0 RECOMMENDATIONS

EBA makes the following recommendations with the aim of optimizing the development envelope. There are three basic recommendations that parallel the three potential issues outline above. These recommendations are as follows and should be conducted in summer months:

1. That a fish presence / absence study is done and a determination of a permanent downstream barrier to fish passage be made.
2. That a wetland assessment be conducted.
3. That a danger tree assessment be conducted to determine which trees can be safely incorporated into a landscape plan.

EBA feels that these studies will improve the planning process for the proposed development, facilitate in obtaining environmental approvals and reduce the risk that these environmental issues may cause project delays.

7.0 CLOSURE

We trust that this report satisfies your present requirements. Should you have any questions or comments, please contact the undersigned.

EBA Engineering Consultants Ltd.

Sheldon Helbert, M.Sc.
Senior Environmental Scientist
Environmental Practice
Direct Line: 780.451.2130 x255
shelbert@eba.ca

Brian C. Adeney, P.Eng.
Senior Project Director
Environmental Practice
Prairies & Arctic Region
Direct Line: 780.451.2130 x258
badeney@eba.ca

/dlm

APPENDIX D
BRYOPHYTE SURVEY FIELD CODES

Table B-1 Microhabitat Codes and Descriptions

Microhabitat Category	Microhabitat Code	Microhabitat Description
Peat	PHT	Hummock tops
	PHS	Hummock sides
	PHL	Hollows
Green Wood	GDB	Bases of live deciduous trees and associated roots
	GDT	Trunks and branches of live deciduous trees
	GDS	Live deciduous shrubs and saplings (bases, trunks or branches)
	GCB	Bases of live coniferous trees and associated roots
	GCT	Trunks and branches of live coniferous trees
	GCS	Live coniferous shrubs and saplings
	GR	Exposed roots not attached aboveground to trunk
Dead Wood	HSB	Bases of hard snags (standing dead trees and shrubs) and stumps
	HST	Trunks and branches of hard snags and stumps
	SS	Soft Stumps
	DHL	Hard logs and other down woody material
	DSL	Soft logs and other down woody material
Soil and Litter	SM	Mineral soil
	SO	Organic soil / Humus
	LD	Deciduous litter
	LC	Coniferous litter
	ST	Tip-ups
	SE	Entrances to animal holes
	SP	Paths (human and game)
	SH	Hollows
	SB	Banks of streams, ponds, lakes
Animal Material	AD	Animal dung
	AB	Animal bones
Rock	RBS	Boulder sides (boulders are at least 25 cm in diameter)
	RBT	Boulder tops
	RBB	Boulder bases
	RBC	Crevices in boulders
	RS	Smaller rocks (tops, sides, bases, crevices)
	RCF	Cliff faces
	RCS	Small crevices in cliffs
	RCL	Large crevices in cliffs
	RCH	Cliff ledges

Table B-1 Microhabitat Codes and Descriptions (cont'd)

Microhabitat Category	Microhabitat Code	Microhabitat Description
Rock (cont'd)	RCO	Under-surfaces of rock overhangs
	RCT	Cliff tops
	RCB	Cliff bases
Human Structures	HB	Buildings and structures
	HR	Roads and ditches
	HC	Cut lines
Other	To be created	For unique microhabitat types. Surveyors can create their own codes, but should supply an adequate description.

Table B-2 Decay Regime Codes and Descriptions

Class	Hardwood (DHL)			Softwood (DHS)	
	1	2	3	4	5
Wood Texture	Intact, hard	Intact, hard to partly decaying	Hard, Large pieces, partly decaying	Small, blocky pieces	Many small pieces, soft portions
Portion on Ground	Elevated on support points	Elevated but slightly sagging	Sagging, near ground, or broken	All of long on ground, sinking	All of log on ground, partly sunken
Twigs < 3 cm (if originally present)	Present	Absent	Absent	Absent	Absent
Bark	Intact	Intact or partly missing	Trace	Absent	Absent
Shape	Round	Round	Round	Round to Oval	Oval
Invading Roots	None	None	In sapwood	In heartwood	In heartwood

Table B-3 Moisture Regime Codes and Descriptions

Code	Description
D	Dry – Microhabitat is not the least bit moist (usually unshaded)
M	Mesic – Microhabitat is damp or moist but not saturated
WS	Wet - Stagnant water: Microhabitat is saturated by water, or partially- or fully-submerged in stagnant (not flowing) water (e.g., ponds, pools, puddles, depressions near the water table).
WF	Wet - Flowing water: Moss is saturated by moving water, or partially- or fully-submerged in moving water (e.g., streams, waterfalls, vertical seeps). This includes moss wet from spray.

APPENDIX E
SITE PHOTOGRAPHS

Photo 1: Looking north at the former agricultural field

Photo 2: The dried up hummocky area in the south portion of Priority 4.

Photo 3: Priority 1 vegetation

Photo 4: Priority 2 vegetation

Photo 5: Vegetation located in the central portion of Priority 4.

Photo 6: Vegetation located in the outer portion of Priority 4.

Photo 7: Vegetation within the drainage channel (Priority 5).

Photo 8: Moss growing on decaying leaf litter fallen between woody debris in Priority 1. A sample was collected for confirmatory identification (sample ID GP04).

Photo 9: Dry peat observed in the subsurface soils of the forested upland stands.

APPENDIX F
BRYOPHYTE SURVEY FORMS

QA/QC Initials:								
Project No:	**Bryophyte Survey Form**						Page:	Of
Date: June 25/09	Site: GP 1	Prov: AB	NTS:		UTM Zone: 12		NAD:	
Location: Stony Plain		Easting: 301448			Northing: 5934259			
Slope: 0	Aspect: -	Slope Position:		Soils / Terrain: level				
Vegetation Type:		Pretyped As:			Structural Stage:			pH:
					Health / Disease:			
					Depth to Permafrost:			
Moisture Regime:	very xeric (0)	xeric (1)	subxeric (2)	submesic (3)	mesic (4)	subhygric (5)	hygric (6)	subhydric (7)	hydric (8)
Observers:		Photo Nos.:						

Bryophytes

Microhabitat Code: LD	Moisture: dry	Tree	# of Sample Bags: 1	Comments: located w/ Priority 2 (SW quadrant)
Code	Species			

Diagram / Notes:

leaf litter, raspberry & stinging nettle dominant

QA/QC Initials:							
Project No:	**Bryophyte Survey Form**					Page:	Of
Date: June 25/09	Site: GP2	Prov: AB	NTS:	UTM Zone: 12	NAD:		
Location: Stony Plain		Easting: 301478		Northing: 593 4245			
Slope: 40°	Aspect: East	Slope Position: mid		Soils / Terrain: hummocky			
Vegetation Type: weedy nettle dominant raspberry		Pretyped As:		Structural Stage:		pH:	
				Health / Disease:			
				Depth to Permafrost:			
Moisture Regime:	very xeric (0)	xeric (1)	subxeric (2)	submesic (3)	mesic (4)	subhygric (5)	hygric (6)	subhydric (7)	hydric (8)
Observers: GP, RC		Photo Nos.: 101 0006 + 0007							

Bryophytes

Microhabitat Code LD	Moisture	Tree	# of Sample Bags	Comments:
Code	Species			

Diagram / Notes:

2m from base of salix sp.

LD

QA/QC Initials:

Project No:	**Bryophyte Survey Form**				Page: 1	Of 1
Date: June 25/07	Site: GP3	Prov: AB	NTS:	UTM Zone: 12	NAD:	
Location:		Easting: 301889		Northing: 5934287		
Slope: 0	Aspect: –	Slope Position:		Soils / Terrain:		
Vegetation Type:		Pretyped As:		Structural Stage:		pH:
				Health / Disease:		
				Depth to Permafrost:		

Moisture Regime:	very xeric (0)	xeric (1)	subxeric (2)	submesic (3)	mesic (4)	subhygric (5)	hygric (6)	subhydric (7)	hydric (8)
Observers: GP, RC		Photo Nos.:							

Bryophytes

Microhabitat Code: 50	Moisture: Dry	Tree: –	# of Sample Bags: 1	Comments:
Code	Species			

Diagram / Notes:

aspen stand

sample located on organic soil

QA/QC Initials:								
Project No:	**Bryophyte Survey Form**						Page: 1	Of 1
Date: June 25	Site: GP 4	Prov: AB	NTS:		UTM Zone:		NAD:	
Location:		Easting:			Northing:			
Slope: 0	Aspect: —	Slope Position:		Soils / Terrain:				
Vegetation Type:		Pretyped As:			Structural Stage:		pH:	
					Health / Disease:			
					Depth to Permafrost:			
Moisture Regime:	very xeric (0)	xeric (1)	subxeric (2)	submesic (3)	mesic (4)	subhygric (5)	hygric (6)	subhydric (7)	hydric (8)
Observers: GP		Photo Nos.: 0015 – 0017						

Bryophytes

Microhabitat Code	Moisture	Tree	# of Sample Bags	Comments:
Code LD / DHL	Dry Species	✓	1	

Diagram / Notes:

Dry
b/w fallen debris

LD + DHL

capital region board
regional action. global opportunity.

September 28, 2009

Capital Region Board,

Dear Capital Region Board Member:

Re: **Part 3 Transitional Application, Town of Stony Plain dated August 28, 2009 (TREF #54)**
Southeast Area Structure Plan Amendments

Please be advised that on Monday, September 28, 2009 the Capital Region Board CAO Subcommittee unanimously approved the above application from the Town of Stony Plain that was submitted pursuant to the Transitional Regional Evaluation Framework (TREF).

In accordance with the July 2, 2008 Capital Region Board delegation to the CAO Subcommittee, this represents CRB approval and deemed disposition of this application.

Yours truly,

Andrew Haden

Andrew (Andy) Haden
Manager – Regional Projects (Land Use)
Capital Region Board

cc Capital Region CAOs
Christopher Sheard, Interim Chair, Capital Region Board
Kathleen LeClair, Chief Officer, Capital Region Board
Ms. Connie Gourley, ISL

#1405 Bell Tower, 10104 - 103 Avenue, Edmonton AB T5J 0H8
Office # 780-638-6005 | FAX #780-638-6009
www.capitalregionboard.ab.ca

Original Southeast Area Structure Plan and Subsequent Amendments

The original Southeast Area Structure Plan and all subsequent amendments are available on the Town's website in the Planning and Infrastructure section. Below is a list of the bylaws and the URL web address where the files can be downloaded from.

Instructions: To download the files, simply copy the link below the into the address bar of your web browser (Internet Explorer).

1. Bylaw 865 Original Southeast Area Structure Plan is available on the Town's Website at:
   http://www.stonyplain.com/public/data/documents/SE-ASP.pdf

2. Subsequent amendments to the Southeast Area Structure Plan are also available on the Town's website at the following links:
   a. Bylaw 1031/D&P/90 Southeast Area Structure Plan Amendment (High Park Area)
      http://www.stonyplain.com/public/data/documents/Bylaw1031SoutheastASPAmendHighParkAreapdf.pdf

   b. Bylaw 1095/D&P/90 Southeast Area Structure Plan Amendment (High Park Area)
      http://www.stonyplain.com/public/data/documents/Bylaw1095SoutheastASPAmendHighParkAreapdf.pdf

   c. Bylaw 1178/D&P/94 Stony Plan South East Area Structure Plan Amendment – Technical Report
      http://www.stonyplain.com/public/data/documents/Bylaw1178SoutheastASPAmendHighParkareapdf.pdf

   d. Bylaw 2037/D&P/97 Town of Stony Plain Southeast Area Structure Plan Amendment (High Park Area)
      http://www.stonyplain.com/public/data/documents/Bylaw2037SoutheastASPAmendmentHighParkAreapdf.pdf