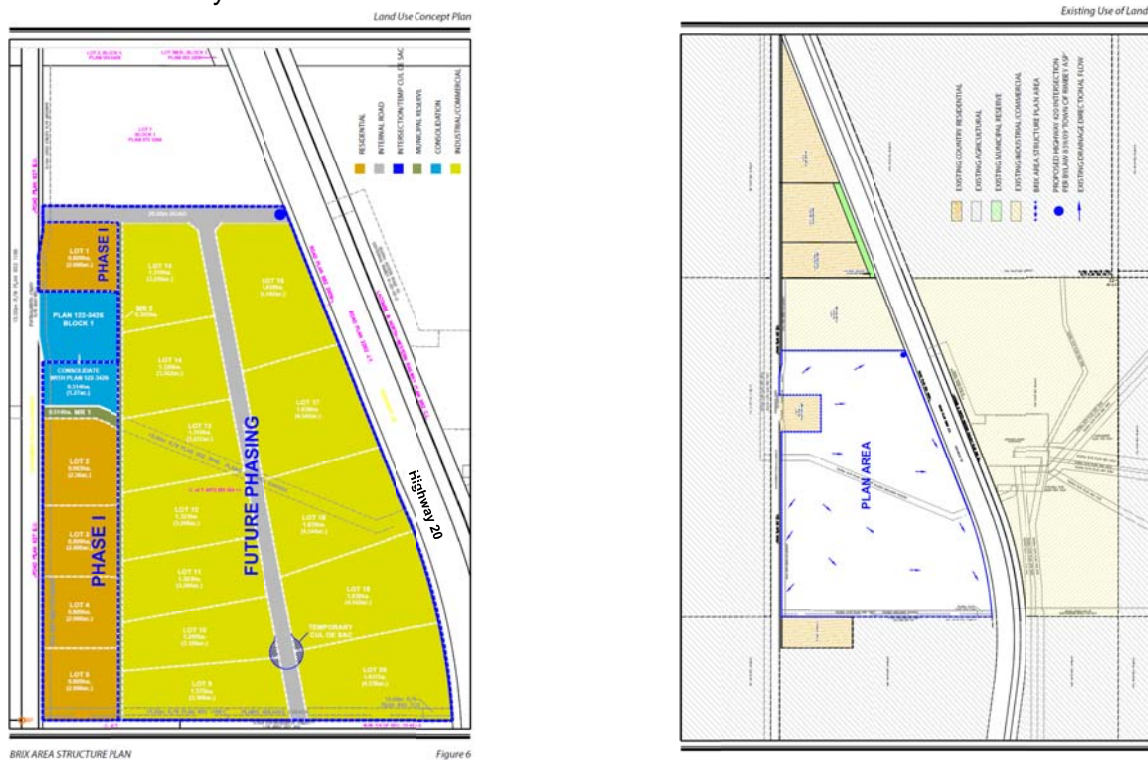


January 17, 2013

NOTICE OF PUBLIC HEARING

The Council of the Town of Rimbey is considering Bylaw 881/13 to establish the Brix Area Structure Plan for PT of SW 22-42-2-W5, west of Highway 20 and will be holding a public hearing regarding this bylaw prior to second reading. The Public Hearing will take place on Monday, February 11, 2013, at 7:00 p.m. in Council Chambers at the Town Office located at 4938 – 50 Avenue.

Bylaw 881/13 is intended to provide a framework for subsequent subdivision and future development of this area of land, as shown on the attached map. Copies of the Brix Area Structure Plan Bylaw are available at the Town Office or on our website.



Written submissions to Council regarding this proposed bylaw will be accepted or received on or before 1:00 p.m. on Thursday, February 7, 2013. Submissions may be addressed to:

Assistant CAO
Box 350
Rimbey, AB
T0C 2J0
Re: Bylaw 869-11

Verbal representation may be arranged by calling the Town Office prior to 1:00 p.m. on Thursday, February 7, 2013, at 403-843-2113.

Melissa Beebe
Assistant CAO

The Town of Rimbey Brix Area Structure Plan

Bylaw 881/13

A BYLAW OF THE TOWN OF RIMBEY, IN THE PROVINCE OF ALBERTA, FOR THE PURPOSE OF ADOPTING THE BRIX AREA STRUCTURE PLAN.

WHEREAS, Part 17 of the Municipal Government Act permits the Council of a municipality to enact an Area Structure Plan to provide a framework for subsequent subdivision and development of an area of land within the municipality; and;

THEREFORE; the Council of the Town of Rimbey deems it advisable to adopt the Brix Area Structure Plan; and

COUNCIL OF THE TOWN OF RIMBEY, ALBERTA, ENACTS AS FOLLOWS:

1. That this bylaw is to be cited as the "Brix Area Structure Plan" set out for parcel Part of SW 22-42-2-W5.
2. That schedule "A" attached hereto is hereby adopted as part of the bylaw.

AND FURTHER THAT this Bylaw shall take effect on the date of third and final reading.

READ a first time this ____ day of _____, 2013.

READ a second time this ____ day of _____, 2013.

READ a third and final time this ____ day of _____, 2013.

MAYOR

CHIEF ADMINISTRATIVE OFFICER

**BRIX
AREA
STRUCTURE PLAN**

BRIX AREA STRUCTURE PLAN

Within the

PT SW 22 - 42 – 2 - 5

TOWN OF RIMBEY

PREPARED FOR

Brix Construction

BY

Robert Wescott, B.Sc. AICP

Wescott Consulting Group Ltd.

December, 2012

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Appendices

Appendix 'A'

"Aquifer Analysis of SW Sec. 22, Twp 42, Rge 2, West of the 5th Meridian
Groundwater Information Technologies Ltd.

Appendix 'B'

Kaizen LAB results and analysis, September 27th, 2012 for Plan 122-
3426 within the SW Sec. 22, Twp. 42, Rge. 2, West of the 4th
Meridian.

Appendix 'C'

Traffic Impact Assessment, New Recreational Vehicle Storage Facility on
Highway 20 south of Rimbey, Traffic Solutions, September 4th, 2012.

1.0 INTRODUCTION

The BRIX Area Structure Plan is defined as all that portion of the SW ¼ Section 22, Township 42, Range 2, West of the 5th Meridian which lies to the west of Road Plan 2262 JY and south of Lot 1, Block 1, Plan 972-3266 containing 24.72 hectares (61.08 Acres) more or less as shown in Figure 1 (*Regional Context*).

1.1 PLAN AREA JURISDICTION

The Plan Area (as shown in Figure 1 Regional Context) is located within the municipal jurisdiction of the Town of Rimbey. This plan consists of policy statements and conceptual representations that provide the framework to promote the following principles:

- Promote sustainable development;
- Promote the expansion of the tax base within the Town of Rimbey;
- Acknowledge and promote the development potential of the lands while recognizing the geographical importance within both the local and regional context;
- Create a visually appealing residential, commercial/industrial environment.

1.2 PURPOSE

This Area Structure Plan provides for the orderly and economic approach to the subdivision and development of the lands within that portion of the SW ¼ Section 19, Township 53, Range 17, West of the 5th Meridian which lie to the south and west of Highway 20.

The BRIX Area Structure Plan is intended to identify key issues such as land use, servicing, aesthetic design, transportation network and municipal reserve issues, and to provide viable options in the solution of those issues.

The Area Structure Plan is intended to establish a process of sequencing to ensure that development occurs in a logical, efficient and sequential manner.

1.3 PLAN COMPLIANCE

This Area Structure Plan hereinafter referred to as ‘the Plan’, has been prepared at the request of Town of Rimbey in compliance with Section 5.6, 5.7 and Section 11.14 of the Town of Rimbey Municipal Development Plan, which requires that such plans be prepared for select study areas.

The Area Structure Plan shall be prepared in accordance with the requirements as stipulated of the Municipal Government Act. The specific legislation under Section 633 of the MGA enabling the creation of Area Structure Plans states:

- (1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may by bylaw, adopt an area structure plan.
- (2) An area structure plan
 - (a) must describe
 - (i) the sequence of development proposed for the area,
 - (ii) the land uses proposed for the area, either generally or with respect to specific parts of the area,
 - (iii) the density of population proposed for the area either generally or with respect to specific parts of the area, and
 - (iv) the general location of major transportation routes and public utilities, and
 - (b) may contain any other matters the council considers necessary.

In addition the Area Structure Plan will incorporate the principles and policies stipulated in Bylaw 839/09 “The Town of Rimbey Area Structure Plan.”

1.4 KEY ELEMENTS OF THE PLAN

The two key elements in the Area Structure Plan are:

- A process that is structured to coordinate development intensification in concert with transportation capacities and servicing capabilities.
- Policy Statements supplemented with a Land Use Concept Plan to establish a logical and sequential pattern of development.

1.5 POLICY INTERPRETATION

The explanatory text accompanying a policy within the Plan is provided for information purposes only to enhance the understanding of the policy. If an inconsistency arises between this text and a policy, the policy will take precedence.

Where “shall” is used in a policy, the policy is considered mandatory. However, where actual quantities or numerical standards are contained within the policy, such quantities or standards may be varied, provided that the variance is necessary to address unique circumstances that would otherwise render compliance impractical or impossible, and the general intent of the policy is still achieved.

Where “should” is used in a policy, the intent is that the policy is to be complied with. However, the policy may be varied in a specific situation provided that the variance is necessary to address unique circumstances that will otherwise render compliance impractical or impossible, or to introduce an acceptable alternate means to otherwise achieve the general intent of the policy.

1.6 PLAN AMENDMENTS

In order to amend this Plan, including any changes to the text or maps within, an amendment to the Plan will be required to be approved by Bylaw. An amendment will require the holding of a statutory public hearing together with public notification carried out in accordance with procedures established by the Town of Rimbey.

Where an amendment to the Plan is requested, the applicant will be required to submit supporting information necessary to evaluate and justify the amendment. Such changes will be made from time to time as determined necessary to ensure that the text and maps remain accurate.

1.7 MAP INTERPRETATION

Unless otherwise specified within the Plan, the boundaries or locations of any symbols or areas shown on a map are approximate only, not absolute, and shall be interpreted as such. They are not intended to define exact locations except where they coincide with clearly recognizable physical features or fixed boundaries, such as property lines or road and utility rights-of-way.

1.8 CONSISTENCY AND MONITORING OF THE PLAN

It is intended that consistency between the Plan and any other policy directives which have been approved by Council be maintained, including but not limited to, the Municipal Development Plan of the Town of Rimbey.

In order to ensure the Plan remains current and relevant, it will be monitored over time. If any changes are deemed necessary as a result of future monitoring, the Plan will be modified through the amendment process

2.0 PLAN AREA

2.1 REGIONAL CONTEXT

Rimbey is located at the junction of Highways 20 and 53 in the Blindman River valley area, approximately 62 kilometers (39 mi) northwest of Red Deer and 145 kilometers (90 mi) southwest of Edmonton

As of 2011 the population of Rimbey was 2378. This represented an increase of approximately 5.6% from a population 2252 in 2006. The land area encompassing the Town of Rimbey is approximately 4.38 sq. miles.

Rimbey is the center of a thriving mixed farming and oil and gas region, and is the gateway to some excellent recreational facilities. Rimbey is centrally located amongst many lakes and rivers, and close to the foothills. Rimbey is the ideal area for fishing, hunting, snowmobiling, hiking and boating with close proximity to Sylvan Lake, Gull Lake and Pigeon Lake. An abundant array of wildlife offers endless hours of enjoyment for photographers and nature-lovers.

Rimbey offers a lifestyle that is the envy of many communities. The town has a very sound economy and is blessed with having most services within the community. As you walk the streets of Rimbey, you will always be greeted by a hello and a smile from those you pass by.

3.0 EXISTING SITE FEATURES & CHARACTERISTICS

The Plan Area (as shown in Figure 6) consists of approximately 24.72 ha (61.08 Acres) of land intended to accommodate country residential development, Municipal Reserve dedications and future commercial/industrial parcels.

The five (5) residential lots proposed in Phase I range in size from 2.0 acres to 2.51 acres while the twelve (12) industrial lots proposed in future phasing range in size from 3.18 acres in size to approximately 4.5 acres. In addition the plan provides for the expansion of the existing Country Residential parcel contained with Plan 122-3426.

3.1 SITE CHARACTERISTICS

The Plan Area as shown in Figure 5 (*Topographical Features*) has a gently rolling topography. The plan area varies approximately 8 meters in elevation difference with the high point located in the west quadrant of the plan area to the lowest point which is the extreme south east quadrant of the plan area.

3.2. DRAINAGE BASIN

The plan area is part of the Blindman Valley drainage system.

Drainage of the existing site flows in two directions. A relatively small area located in the western extreme area of the plan area flows westerly into the drainage ditch system within 40th Street (Range Road 23) and flows in a southerly direction to a drainage course which leads to the Blindman Valley drainage system. In the remainder of the lands within the Plan Area the drainage flows easterly overland towards Highway 20 and is collected in the Highway 20 road ditch system with eventual flow to the Blindman Valley drainage system.

3.3 PIPELINES & RIGHTS OF WAY

The Plan area is severed by a resource industry pipeline (Plains Midland Canada) running diagonally through the center of the parcel. There is a right of way located along the south boundary of the parcel owned by Plains Midland Canada, however, the holder of the right of way has indicated that they are in the process of abandonment. In addition, an ATCO gas pipeline is located along the west and south boundary of the parcel with a Fortis Right of Way along the south boundary of the plan area as shown in Figure 4 (*Pipelines & Rights of Way*).

3.4 ADJACENT LAND USES

Lands to the west and south of the Plan area are predominantly agricultural and grazing lands. Lands directly to the north are utilized as an oil field servicing site and is designated Industrial. Lands east of the plan area and Highway # 20 are primarily industrial, a proposed recreation storage facility and some minor agricultural pursuits as shown in Figure 2 (*Existing Uses of Land*).

Within the 'Plan Area' the proposed development lands are presently designated as "UX – Urban Expansion District" as shown in Figure 5 (*Existing Land Use Designation*). Redesignation to the appropriate Land Use Districts to facilitate development will be required.

3.5 BUILDINGS

There are no buildings contained within the plan area.

3.6 VEGETATION & SOILS

The Plan area is presently in cultivation. The lands within the plan area are identified as having a soil rating of Canada Land Inventory 2c. This rating is defined as soils having moderate limitations that restrict the range of crops or require moderate conservation practices. The soils are deep and hold moisture well. However, the subclass C indicates that the main limitation is low temperature or low or poor distribution of rainfall during the cropping season, or a combination of these.

3.7 SURFICIAL GEOLOGY

The surficial geology consists of Pleistocene lacustrine deposits, composed of lake-deposited sediments containing clay, silt and sand. Outliers of glacial Rimbey Till are also present. The till is primarily continental in source with few stones (quartzite, granite, and metamorphic rock) with a silty-clay matrix with low carbonate content (Roed, 1970).

3.8 EXISTING TRANSPORTATION NETWORK

Figure 2 (*Existing Land Use Patterns*) illustrates the major features of the area's existing transportation network. The system impacting the plan area is comprised of Highway 20, and 40th Street (Range Road 23).

These features are described as follows:

- Highway 20 is directly adjacent to the plan area. This major provincial highway is a two lane, undivided highway.

3.9 ACCESS

Physical access to the plan area is via 40th Street (Range Road 23) which is a component of the provincial grid road allowance system.

3.10 WATER AND SANITARY SEWER SERVICES

The Plan area is not presently serviced with municipal water or waste water services. The Town of Rimbey, in adopting the Municipal Development Plan, has indicated that servicing of the Plan Area with municipally owned water and waste water service does not appear to be a viable option at this time.

In recognizing these constraints, the solutions as proposed in Section 6.7 are based on the principles referred to below.

3.11 MAJOR FRANCHISED UTILITIES

Fortis Alberta owns an overhead power transmission line, which is located on the west and south boundary of the Plan area. Future subdivision will require connection to this line for electrical servicing.

ATCO Gas is presently located within the right of way which parallels the east boundary of 40th Street (Range Road 23) and future subdivision will require connection to this line for natural gas service.

4.0 STRATEGY

4.1 PLAN PRINCIPLES

4.1.1 SUSTAINABLE DEVELOPMENT

The first principle is focused on sustainable development.

- All development shall be in an environmentally sustainable manner, which includes the protection of groundwater supply to ensure that this resource lasts well into the future.
- Development shall be restricted to non-polluting uses and practices.

4.1.2 SIGNIFICANT ENVIRONMENTAL FEATURES

The second principle is one of identifying and protecting environmental features of significance.

- Low lying areas, which at the present time serve as a seasonal surface runoff retention area, need be protected where possible.

4.1.3 INTEGRITY OF HIGHWAY INFRASTRUCTURE

The third principle is maintaining the integrity of the highway infrastructure:

- Ensuring that development is accommodated in a fashion that public safety is first and foremost.

4.1.4 EXPANSION OF THE TAX BASE

The fourth principle is taking the necessary steps to broaden the tax base of the Town of Rimbey in a manner that limits the demands of new development on the Town's existing infrastructure.

- Proposing the uses of land that demand limited services from the Town of Rimbey.
- Encourage the location of land uses in which assessment are sustained at a high level (minimal depreciation).

4.1.5 GEOGRAPHICAL IMPORTANCE AND VISUAL APPEAL

The last principle relates to the highest and best use of lands:

- Ensuring that the nature of development is one that reflects positively on the Town of Rimbey.
- Development espouses the values of a proud, prosperous, healthy, and vibrant community.
- Consistent site development guidelines are implemented to ensure that development within the Plan Area is visually appealing and environmentally sustainable.

4.2 PLAN PROCESS

The Plan preparation process began by gathering, reviewing and analyzing all relevant information pertaining to future development options within and around the Plan Area. In addition, inventories relating to hydrology and soil permeability are referenced in support of this Plan.

4.2.1 HYDROLOGICAL REPORT

An “Aquifer Analysis of the SW 22-42-2-W5” completed by Groundwater Information Technologies Ltd. (see Appendix ‘A’) determine a safe 20 year potable water yield to sustain development with the plan area.

4.2.2 PRIVATE SEWAGE DISPOSAL SYSTEM ANALYSIS

In September 2012, an application for a permit to construct a Private Sewage Disposal System on Plan 122-3426 within the SW Sec. 22, Twp. 42, Rge. 2, West of the 5th Meridian was approved by the Town of Rimbey. A copy of the PSDS application with supporting documentation is provided as a reference in support of the use of individual sewage disposal systems within the Plan Area.

4.2.3 TRAFFIC IMPACT ASSESSMENT

A Traffic Impact Assessment referenced as “Traffic Impact Assessment - New Recreational Vehicle Storage Facility on Highway 20 south of Rimbey” was completed by Traffic Solutions and dated September 4th, 2012. The purpose of the Traffic Impact Assessment was to support a request to the County of Ponoka to develop a Recreational Vehicle Storage area directly west of the Plan Area on the east side of Highway 20. It is important to note that the Traffic Impact Assessment reflected the construction of a point of intersection with Highway 20 which coincides with a proposed future highway access identified in Bylaw 839/09 ‘The Town of Rimbey Area Structure Plan’.

5.0 PLAN OBJECTIVES

5.1 PLAN OBJECTIVES

The Future Land Use Concept reflects the following key planning objectives of the Municipal Development Plan:

- "The developer pays" is accepted practise throughout Alberta. When new subdivision and development occurs in a .municipality the Municipal Government Act allows the Municipality to require the developer to pay for necessary infrastructure. Past practise in Rimbey often did not conform to this practise and the long-term interests of the town were poorly served. As a result, current and future Councils are forced to deal with the problems of the past. Council serves notice, by way of this Plan that proper practices must and will be followed in the future.
- Council's position on the planning system is clear - Council will respect the system and "go by the book". Council will apply its planning authority fairly and consistently and will ensure the same from the town's other planning authorities, such as the subdivision committee, the development authority, the development agreements committee and the Subdivision and Development Appeal Board. In return, Council expects a similar commitment to the planning system from those who live and work in Rimbey.
- Recent changes in Alberta's planning legislation have given the town greater control over the planning system than ever before. This is particularly true for subdivision and development - parts of the system which tend to affect people most directly in their daily lives. Given this level of control, Council encourages anyone who has difficulty with the town's planning policies and standards, or with a subdivision or development application, to make constructive suggestions for changing the system. In other words, don't "go away mad". Work with Council and the administration to improve the system.

6.0 CONCEPT PLAN

The land use prescribed for the site is reflected in Figure 6 (*Future Land Use Concept Plan*). This concept plan outlines the land uses, transportation network, and utility infrastructure for the Plan Area.

6.1 PLAN POLICIES

The policies listed below are unique to the BRIX Area Structure Plan and are to be applied at the time of the new subdivision and development. All existing statutory plans and policies, particularly those policies referenced in the Town of Rimbey Municipal Development Plan, as well as the Town of Rimbey Area Structure Plan, shall be applied.

6.2 PHASED DEVELOPMENT

The BRIX Area Structure Plan envisions that the Plan Area will be a phased development, the timing of which is influenced by several factors notwithstanding:

- The immediate needs of the landowner.
- Market conditions.
- A coordinated approach in the provision and construction of both the 'on-site' and 'external' infrastructure requirements such as road design, storm water management, drainage and shallow utility installation.
- The establishment of an economic model that reflects the nature of the development and the limitations of front-loading financial obligations.

6.2.1 PHASE I

Phase I shall consist of Five (5) Country Residential parcels and a Municipal Reserve lot as shown in Figure 6 (*Future Land Use Concept Plan*).

6.2.2 FUTURE PHASING

Future Phasing shall include the subdivision and development of the residual lands in title as shown in Figure 6 (*Future Land Use Concept Plan*). Future phasing is contingent on upgrading of the existing Traffic Impact Assessment, as referenced in Appendix 'C', as well as the completion of a comprehensive geotechnical investigation to confirm both site suitability and the load bearing capacity of the proposed development lands.

6.3 LAND USE

While it is recognized that much of the Plan Area is considered as lands having marginal agricultural capabilities it is further acknowledged that development pressures, existing parcel configurations and general public input suggest that support exists for the proposed use of the lands.

The public recognizes that the proximity of the area to the Town of Rimbey, the highway corridor, the resultant increases in land values and marginal agricultural soil capacities have reduced the viability of conventional agricultural operations. As such the plan area has been identified as having characteristics favorable for future development as per Figure 6 (*Land Use Concept Plan*). Development of the Plan Area could provide the opportunity for properties adjacent to the plan area to take advantage of upgraded infrastructure.

The Land Use Concept Plan proposed for the BRIX Area Structure Plan is shown on Figure 6 (*Land Use Concept Plan*).

Specifically, the Land Use Concept Plan responds to the following critical factors:

- The Town of Rimbey existing statutory plans and in particular the Municipal Development Plan and Bylaw 839/09 – The Town of Rimbey Area Structure Plan.
- Acknowledgment of the existing conditions, such as natural features, current uses of land, parcel boundaries, and subdivision and development opportunities, which result in both opportunities and constraints for future land use.
- The existing transportation network infrastructure including proposed improvements.
- Acknowledgement, that, for the foreseeable future, services will be provided on-site.

6.3.1 LAND USE POLICIES

Notwithstanding the above, all future subdivision and development within the Plan Area shall have regard to the spirit and intent of the BRIX Area Structure Plan and in particular shall have regard to both the vision and the following land uses which serve to promote that vision.

- 6.3.1.1 All future subdivision and development within the Plan Area shall comply with the Land Use Concept shown in Figure 6 (*Land Use Concept Plan*).
- 6.3.1.2 All future subdivision and development within the Plan Area shall be in accordance with the requirements stipulated in the Land Use Bylaw of the Town of Rimbey.
- 6.3.1.3 Prior the approval of future phasing as shown in Figure 6 (*Land Use Concept Plan*), a comprehensive geotechnical investigation shall be provide by the developer in support of future phasing development.
- 6.3.1.4 Prior to the approval of future phasing a traffic impact assessment relating to the construction of the point of intersection with Highway 20 as shown in Figure 6 (*Land Use Concept Plan*), shall be completed by the developer.
- 6.3.1.5 Phase I shall consist of Five (5) Country Residential parcels and Municipal Reserve lots as shown in Figure 6 (*Future Land Use Concept Plan*).
- 6.3.1.6 Phase I shall include the consolidation of approximately .514 hectares of land with existing Block 1, Plan 122-3426 as shown in Figure 6 (*Future Land Use Concept Plan*).

Notwithstanding the above, all future subdivision and development within the Plan Area shall have regard to the spirit and intent of the Bylaw 938/09, the “Town of Rimbey Area Structure Plan” and in particular shall have regard to the land uses which serve to promote that vision.

6.4 TRANSPORTATION NETWORK

The proposed development is to be served by both 40th Street (Range Road 23) and through a proposed access to Highway # 20.

6.4.1 TRANSPORTATION POLICIES

- 6.4.1.1 All road improvements, including new construction and highway improvements shall be constructed to municipal standards as dictated by the Town of Rimbey and shall be at the sole cost and expense of the Developer.
- 6.4.1.2 Required future road widening to any existing roads including 40th Street (Range Road 23) shall be dedicated at the time of subdivision.
- 6.4.1.3 Direct access from the proposed Country Residential lots to 40th Street (Range Road 23) will be permitted.
- 6.4.1.4 All internal development (Future Phasing) within the Plan Area will access a proposed internal road system as shown in Figure 6 (*Future Land Use Concept Plan*).
- 6.4.1.5 The Developer shall be responsible for the dedication of land necessary for the upgrading of the point of intersection of the proposed internal road with Highway # 20 as shown in Figure 6 (*Land Use Concept Plan*).
- 6.4.1.6 Until such time as the north/south internal road (as shown in Figure 6 (*Land Use Concept Plan*)) extends southerly beyond the plan area a “temporary” Cul De Sac shall be provided.

6.5 ENVIRONMENTALLY SIGNIFICANT FEATURES

Policies are proposed to ensure that the existing environmentally significant features within the Plan Area are protected, while also providing opportunities for the development of new environmental features.

6.5.1 ENVIRONMENTALLY SIGNIFICANT FEATURES POLICIES

- 6.5.1.1 Existing natural features, such as tree cover and drainage courses, shall be preserved, wherever possible, by integrating such features into the design of the new subdivision.
- 6.5.1.2 The use of high efficiency and energy efficient building materials, fixtures and appliances shall be encouraged.
- 6.5.1.3 The individual harvesting of rain water for irrigation purposes on each lot shall be encouraged.
- 6.5.1.4 Where possible buildings shall be orientated to provide the greatest exposure to the sun and create solar heating and solar capture opportunities.
- 6.5.1.5 Each lot owner shall be encouraged to plant shelter belts along the north boundary of their lot to provide additional protection from the northern winds.

6.6 MUNICIPAL RESERVE

- 6.6.1 Municipal Reserve, as shown in Figure 6 (*Land Use Concept Plan*) will be dedicated in a manner which will enhance and compliment both the Plan Area and the community at large.
- 6.6.2 Cash in Lieu of Municipal Reserve and the disposition of the existing deferred reserve caveat will be provided to the Town of Rimbey in accordance with requirements stipulated within the Municipal Government Act. The Town of Rimbey will determine the cash in lieu requirements and disposition of Municipal Reserve lands within their jurisdiction at the time of subdivision.

6.7 SERVICING INFRASTRUCTURE

The “Aquifer Analysis SW 22-42-2-W5” (see Appendix ‘A’) confirms an apparent safe yield to sustain the development as proposed.

6.7.1 POTABLE WATER POLICIES

6.7.1.1 All subdivision and development shall be capable of being serviced on site with individual well systems. Each lot will be served by an individual water well system located on each individual lot.

6.7.2 SANITARY SEWER SYSTEM

Individual ‘on-site’ systems of sewage treatment and disposal are proposed for all development within the Plan Area.

In addition to the traditional on-site ‘septic tank and field disposal systems’ several other methods of on-site sewage treatment and disposal are approved for use within the Province of Alberta. These systems are installed in compliance with and in accordance to the Alberta Plumbing Code, as well as, practices and procedures stipulated by Alberta Environment. System alternatives range from septic tank and above ground field systems, evaporation mounds to packaged mechanical treatment systems. Again, each alternative method of ‘on-site’ sewage treatment and sewage disposal is constructed or installed and maintained in accordance with the requirements of both the Alberta Plumbing Code and practices and procedures provided by Alberta Environment.

It is also recognized that identifying the appropriate method of sewage treatment and subsequent disposal may be site specific and based on proven technologies as well as the physical attributes and soil characteristics of the site.

6.7.2 SANITARY SEWER SYSTEM POLICIES

6.7.2.1 Prior to the issuance of a development permit for any construction on each specific lot, the Developer shall provide the following for both Municipal and Provincial regulatory approval:

- Plans of the proposed construction including a site plan indicating the topographical features.
- A detailed report indicating the anticipated volumes of sewage treatment and an ‘Approved’ method of sewage treatment and disposal completed by a professional engineer or agrologist.

6.7.3 STORM WATER MANAGEMENT

Storm water management will incorporate overland drainage only. This will be accomplished by using roadway ditches, culverts, and drainage swales along lot lines. Individual lots will be graded to direct runoff water to the drainage swales or ditches. These ditches will be used to convey water from the lots to the storm pond.

The layout of the overland flow system will be chosen to work closely with existing topography, as well as the lot layout. The slopes of the ditches and the drainage swales should be maintained between 0.5% and 2.0%. The ditches and swales should be protected with grass vegetation as soon as possible to reduce erosion, and help with storm water quality.

6.7.3.1 STORM WATER MANAGEMENT POLICIES

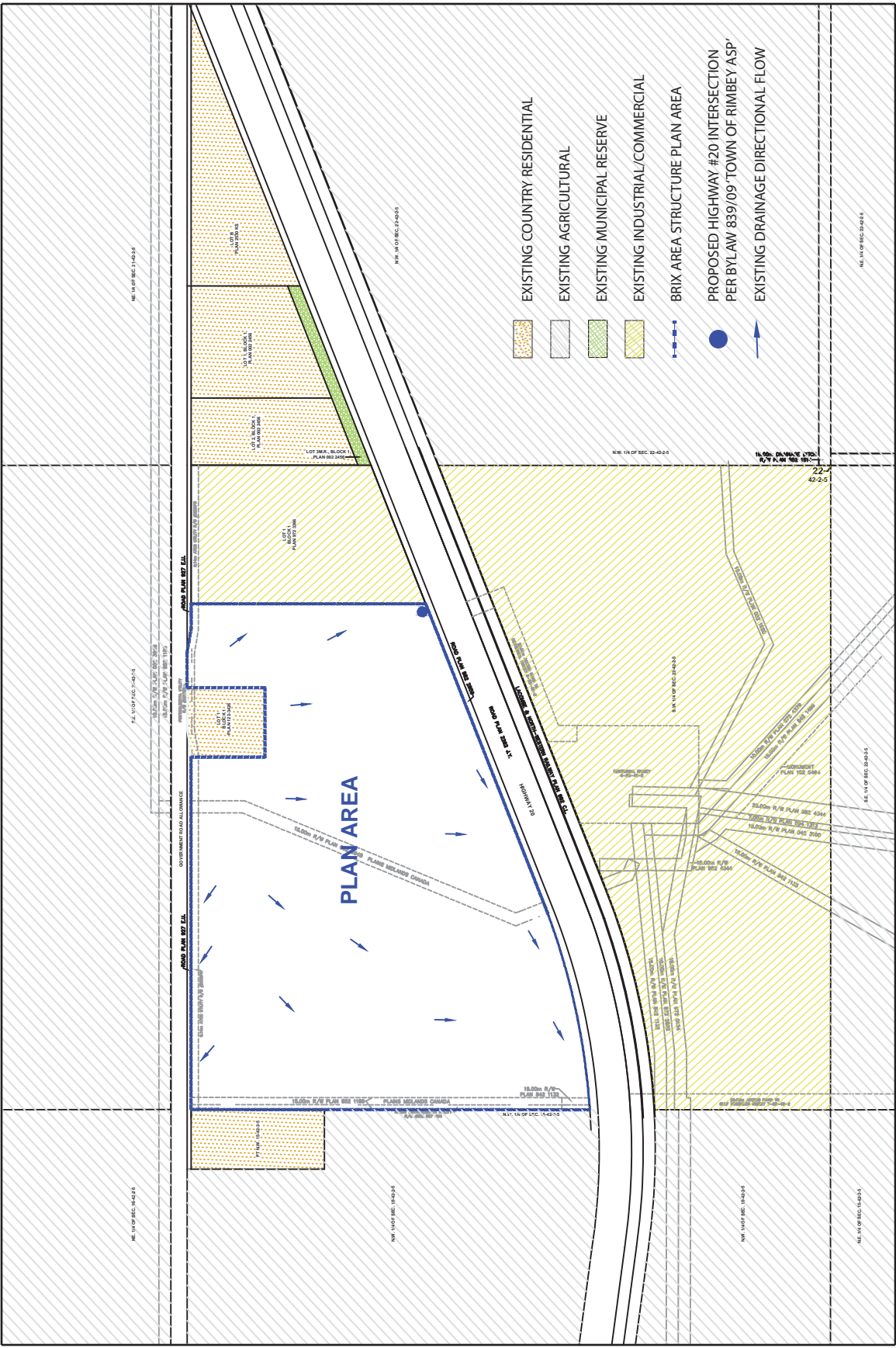
6.7.3.1 Prior to the subdivision and development of 'Future Phasing' the Developer shall provide a storm water management plan to the satisfaction of the Town of Rimbey.

6.7.3.2 Design for constructed storm water management facilities shall follow the 'Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems,' Alberta Environment, latest edition as a minimum.

6.7.3.3 Native soils shall be salvaged and stockpiled and reused as topsoil and planting bed material

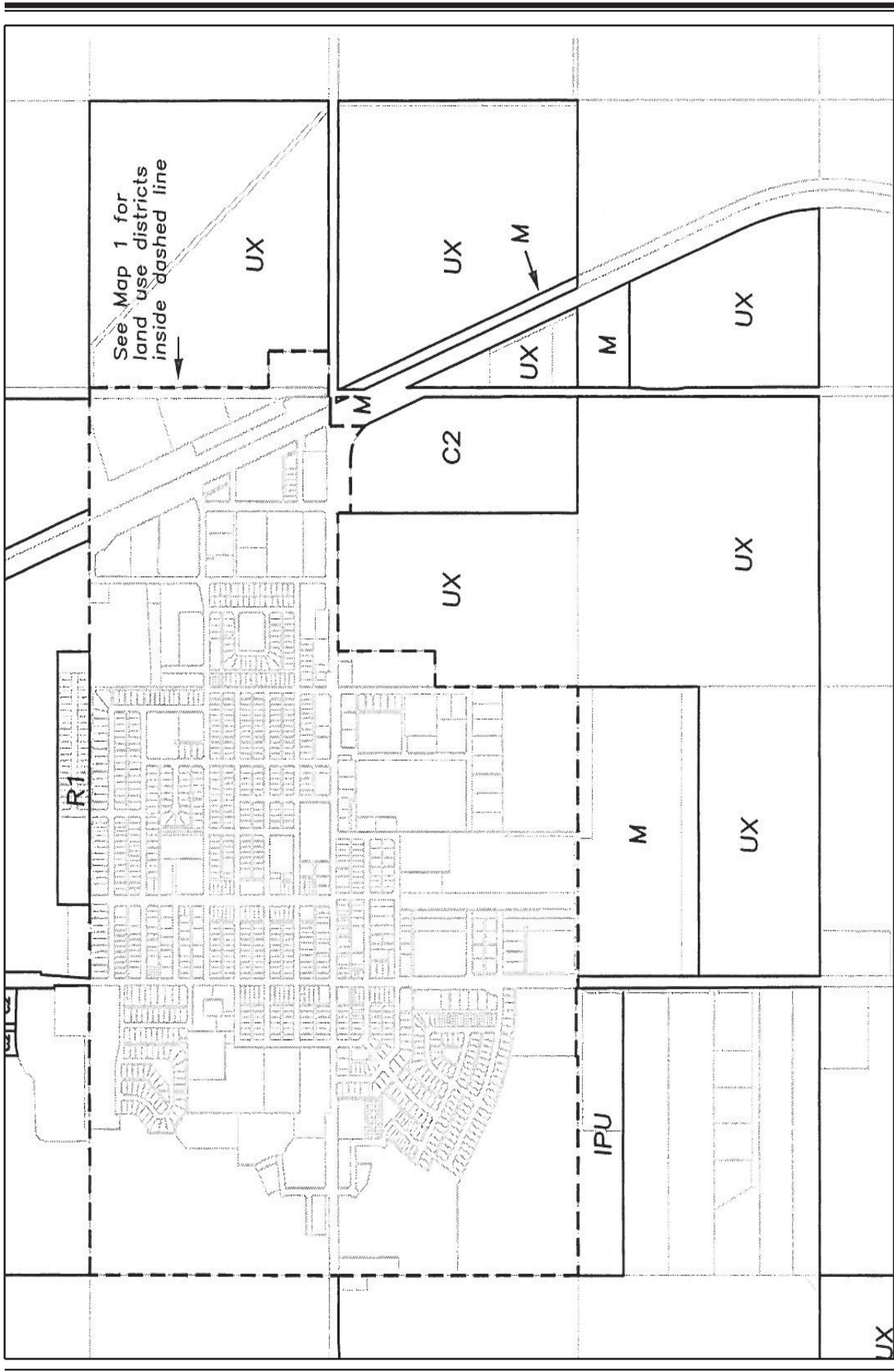


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BRIX AREA STRUCTURE PLAN

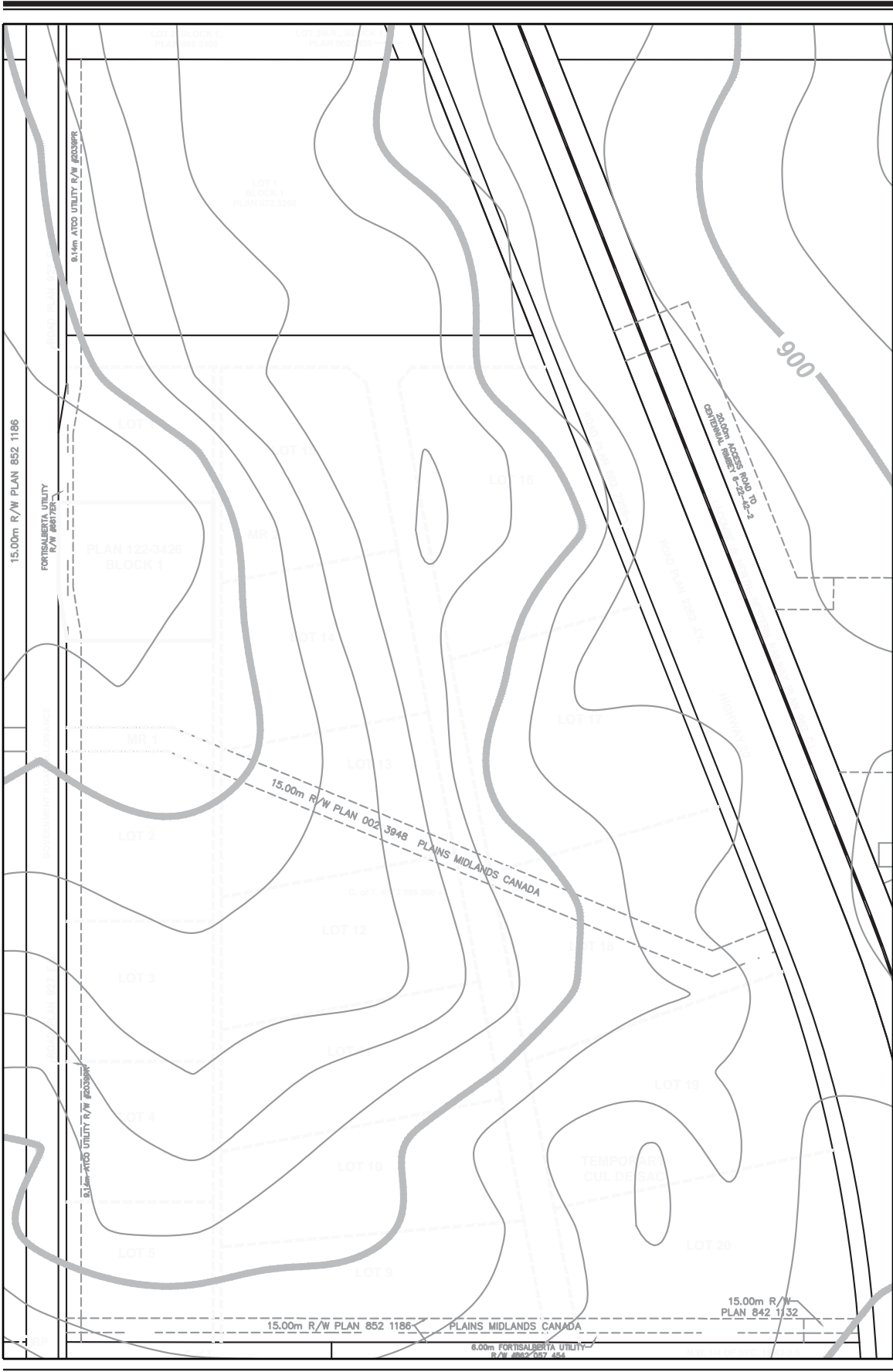
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BRIX AREA STRUCTURE PLAN

Figure 3

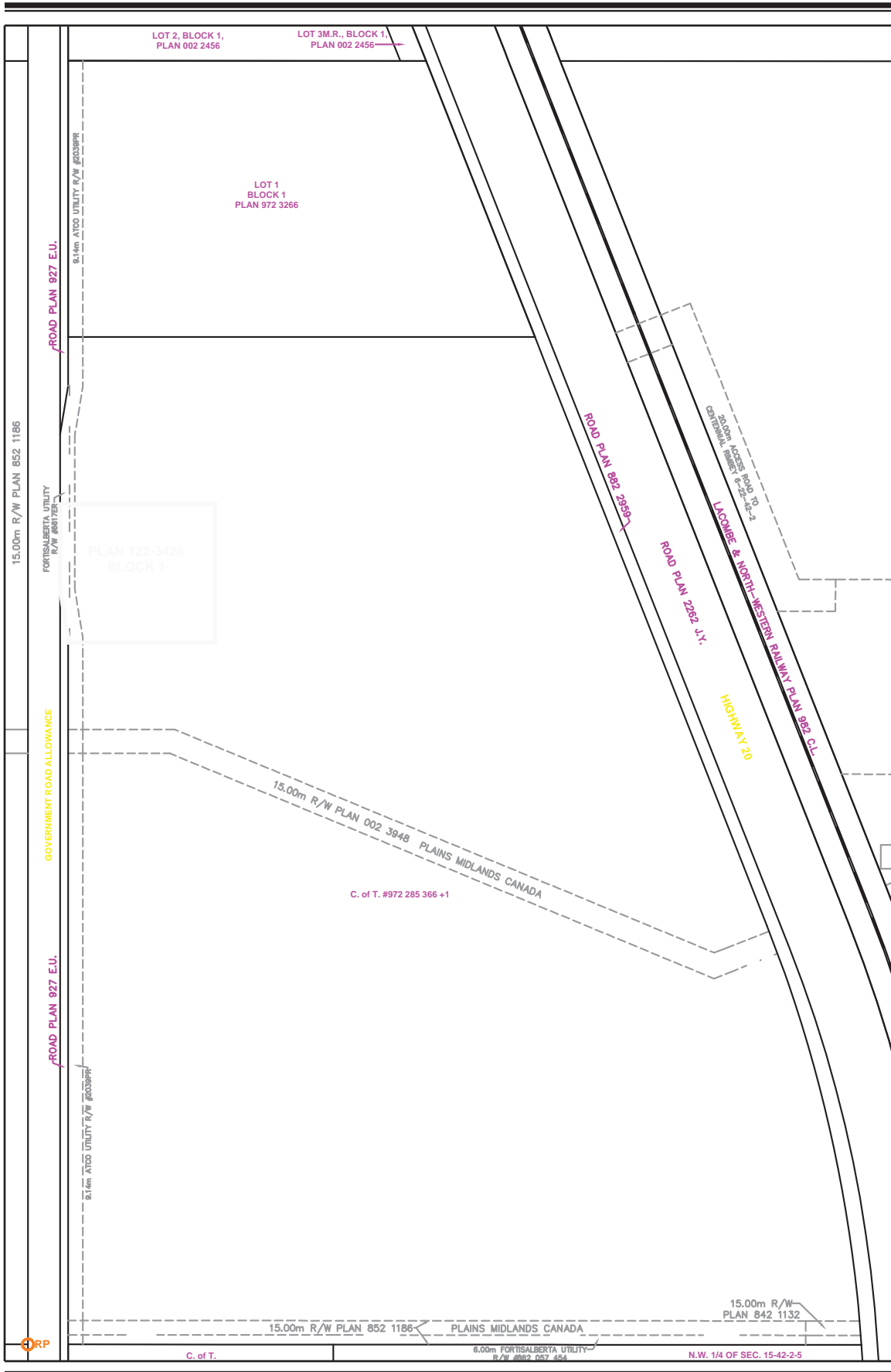


C://RTW076Brix ASP

BRIX AREA STRUCTURE PLAN

Figure 5

C://RTW076 BRIXASP



BRIX AREA STRUCTURE PLAN

Figure 4

“ACQUIFER ANALYSIS”

SW 22-42-2-W5

PREPARED BY

GROUNDWATER INFORMATION TECHNOLOGIES LTD.

APPENDIX ‘A’

December 2012

GRIT Ltd.

Groundwater Information Technologies Ltd.

Aquifer Analysis

SW – 22 – 42 – 2W5

Prepared For:

Wescott Consulting Ltd.

Attention: Robert Wescott

Prepared By:

Groundwater Information Technologies Ltd.



Table of Contents

Introduction 1

Nature of Regional Aquifers 2

Local Well Users 4

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Recommendations and Conclusions 6

Appendix 1 – Reconnaissance Report of wells in area

Executive Summary

An analysis of wells and aquifers in the vicinity of a proposed commercial and residential development located within the SW ¼ - 22 - 42 - 2W5 was undertaken to determine whether the aquifers underlying the site are capable of supplying water for the development. The analysis consists of a review of existing data such as water well records and previously published reports. No pump tests on wells from the subject site or in the immediate area were available for review of aquifer capabilities.

The aquifers in the area consist of bedrock sandstones of the Paskapoo Formation. This formation has been subdivided into three members, with an upper (Sunchild) and lower (Haynes) aquifer separated by an aquitard (Lacombe). The Sunchild aquifer is sporadically present within the area and has a maximum thickness of approximately 100 m. This aquifer appears to be present underlying the site and it is recommended that well depths of at least 30 m be utilized to maintain high quality groundwater.

High production rates are observed in many wells in the area and it may be possible to utilize a single well as a licensed source for groundwater supply for the development. Alternately, individual wells for each lot may also be used, although licensing will be required for all commercial users.

The water quality is generally good with a total dissolved concentration of less than 100 mg/L and low sulphate content. Minimal treatment would be necessary, likely consisting of chlorination only for a community well supply. No indications of aquifer depletion in the area are observed.

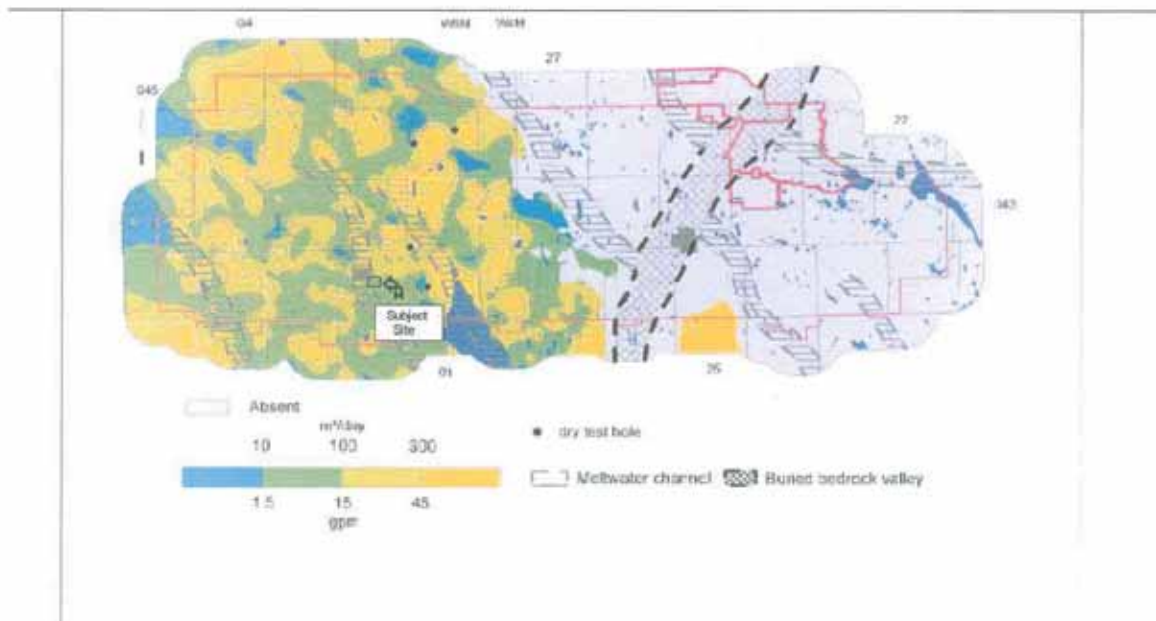
No adverse effects to existing users by water use at the proposed development are anticipated based on typical consumption rates that may be needed for the various establishments in the development. No licensed users are present within Section 22 - 42 - 2W5, but some registrations for water use for agricultural purposes are present in the subject section and adjoining sections. The Town of Rimbey obtains their water from the Sunchild Aquifer in Sections 27 and 28 north of the site, but due to the distance of the subject site to the town supply wells and the discontinuous nature of the Sunchild Aquifer in the area, no adverse effects between the town wells and the water supply at the subject site would be expected.

Nature of Regional Aquifers

The area is located within a meltwater channel of post glacial origin and the soil underlying the site consists of a thin (approximately 3 m) thick unit of silts and clays which are likely either till or lake bed deposits. No aquifers are expected to be found in the immediate area within these upper units.

According to the Regional Groundwater Assessment undertaken for Ponoka County by Agriculture and Agri-Food Canada in 2003, the aquifers in the area consist of bedrock sandstones of the Dalehurst Member of the Paskapoo Formation. These sandstones consist of sands that infilled river channels. The sandstone channels are separated both vertically and horizontally by overbank and flood plain shales. As a result the aquifers are somewhat isolated from each other.

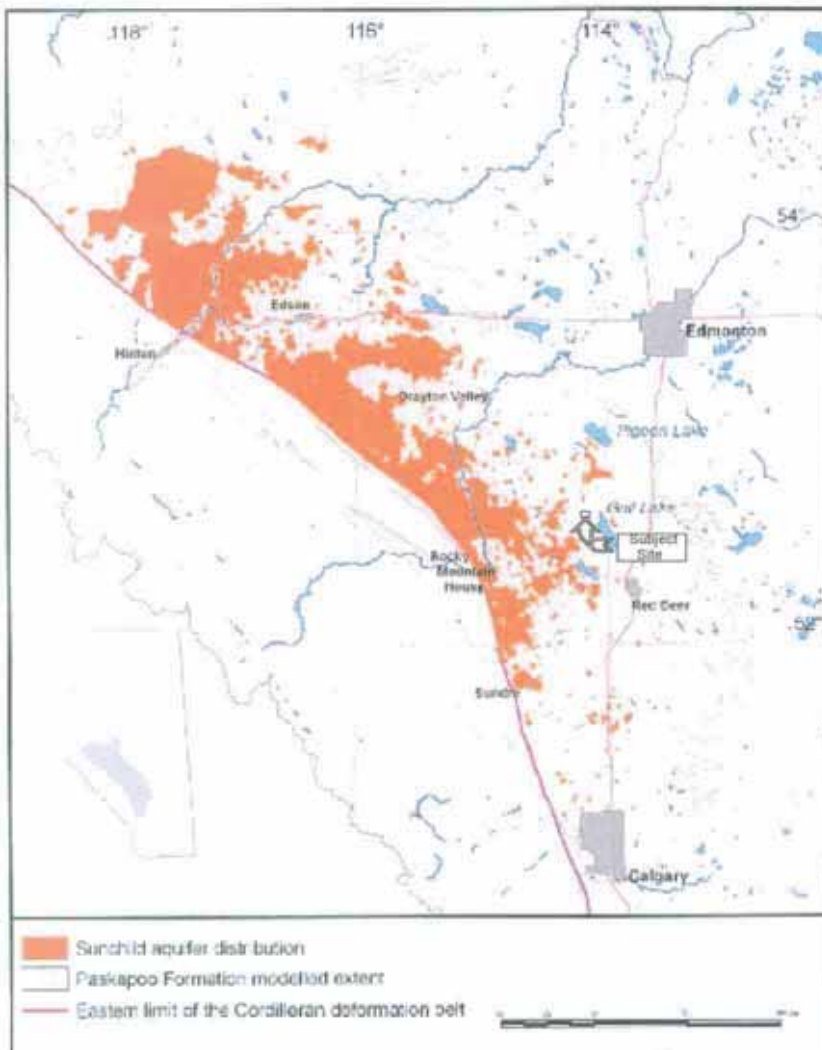
The productivity of the aquifers range in the area is quite variable ranging from 1.5 to 45 imperial gallons per minute ($10\text{ m}^3/\text{day}$ to $300\text{ m}^3/\text{day}$). A map from the Agriculture and Agri-Food Canada report of the productivity of the Dalehurst Aquifer is as follows:



The Dalehurst Member in the area is approximately 100 m thick. Underlying the Dalehurst Member is the Lacombe Member. Few wells are drilled to this depth; however the Lacombe Member is utilized east of the area and appears less productive overall than the Dalehurst Member.

A more recent study has been undertaken on the Paskapoo Formation by the Alberta Geological Survey (Geostatistical Rendering of the Architecture of the Hydrostratigraphic Units within the Paskapoo Formation, Central Alberta, ERCB/AGS Bulletin 66, 2012). The Paskapoo Formation is subdivided into three hydrostratigraphic units based on the amount of sand. The aquifer units are defined where 25 m thick slices contain over 55% sandstone. A lowermost Hayes Aquifer is separated by the Lacombe Aquitard and upper Sunchild Aquifer.

The Haynes Aquifer is present at depths exceeding 250 m and is not likely within accessible range for aquifer use. The Sunchild Aquifer is sporadically present within the area as shown by the following map taken from Bulletin 66:



Isolated zones with high sandstones / shale ratios are present in the area indicating some highly productive aquifers may be present. No large scale continuous aquifers are mapped in the Agriculture and Agri-Food Canada or Alberta Geological Survey reports indicating that aquifers are likely isolated in both a lateral and vertical sense.

Local Well Users

A review of AESRD water well database was made to determine the local well use within the area. The Reconnaissance Report summarizing the wells within a 1 km radius of the site is attached in Appendix A. Twenty three well records are present with depths ranging from 60 to 178 feet (18.3 – 54.3 m). All wells obtain water from bedrock aquifers, usually sandstone aquifers.

The productivity of the wells is relatively high as indicated by test rates ranging from 8 to 250 imperial gallons per minute with average rates of 26 gallons per minute. No wells in the area were found that would allow for detailed well test interpretation and calculation of 20 year safe yields, but examination of several of the air test records (recovery data only) indicates some wells may be able to produce even higher than the tested rates.

As no test data is available, a review of the formation logs in the Water Well Drilling Reports on the subject section was made to see if thick sandstone sequences are present (defined as greater than 55% sandstone in 25 m thick slices). Of the four well records present in the subject quarter section, Well 341956 has 21% sandstone in the upper 25 m and 66% sandstone in the lower 15 m, Well 472270 has 66% sandstone in the upper 25 m, Well 472271 has 0% sandstone in the upper 25 m and 22% sandstone in the lower 15 m and well 42272 has 87% sandstone in the upper 25 m.

A good correlation between sandstone percentages and initial pumping rates is observed with Well 341956 having an initial pumping rate of 25 gallons per minute, Well 472270 having an initial test rate of 40 gallons per minute, 472271 having an initial pumping rate of 12 gallons per minute and Well 472272 having an initial pumping rate of 30 gallons per minute.

A review of the AESRD license and approval database was undertaken to determine licensed groundwater usage in the area. No licenses are present within the subject section; however 2 registrations are in place owned by Fairplay Stable and Ormberg (for a maximum use of 6250 m³/year). Registrations in the adjoining sections are summarized as follows:

Section	Number of Registrations
14	2
15	3
16	1
21	1
22	2
23	1
26	0
27	2
28	0

One surface water license is located in Section 26 for 3 acre-feet per year. Water licenses for the Town of Rimbey water supply are located in Sections 27 and 28 from groundwater sources. These licenses are for a total supply of 74,100 m³/year and are obtained from wells less than 60 m deep.

The wells are located at distances of one to two miles from the subject site. Due to the relatively long distances and the discontinuous nature of the aquifer, it is not thought likely that the aquifer zones that supply the town water wells would be in direct communication with water supply wells at the subject site.

Water Quality

Water quality is generally good in the area with a total dissolved solids concentration of 500 – 1000 mg/L. Sulfate content is low and the dominant ions are sodium, calcium and bicarbonate.

The water can be considered as High Quality Groundwater by Alberta Environment definitions, and minimal treatment, likely consisting of chlorination only, will likely be the only required treatment. Detailed testing of the water supply will be required to confirm this as some parameters such as iron, manganese and fluoride can vary from well to well and can be a problem in an individual well.

Water Level Change with Time

A review of groundwater levels with time was made to determine if indications of aquifer depletion are occurring. A nearby AESRD observation well located in 1 – 32 – 39 – 2W5 which measures water over an interval of 31.3 – 32.9 m shows a decline in water levels of approximately 0.4 m in the 1990's and stable water levels since then.

A review of water levels based in the wells based on drill date from the data in the Reconnaissance Report was undertaken to also examine water level changes with time. A summary of the average water levels by decade is as follows:

Decade	Number of Wells	Average Depth to Water
1970's	2	16
1980's	11	33
1990's	6	26
2000's	2	33.5

Although the data is sparse and taken over a range of well depths, no discernible decrease in water levels with time is observed. Indications of aquifer depletion, based on the local water well database or the AESRD observation well, are not present.

Recommendations and Conclusions

As the upper silt and clay till units are relatively thin (less than 5 m), there is a potential for subsurface contaminants (i.e. septic field effluent, or industrial spills) contaminating shallow aquifers. Although aquifers may be present at depths of less than 50 feet (15 m) it is recommended that only aquifers below a depth of at least 15 m be utilized. It would be preferential if aquifers starting at depths below 30 m (100 feet) are utilized as it appears that sufficient aquifers may be found to depths of 100 m (300 feet).

Wells appear to have sufficient productivity in the area such that a well would likely be able to supply the several lots on the development, or individual lots could have their own supply. Water licenses would have to be obtained for any community well or individual wells on commercial lots. Treatment would also be required for any community water supply.

Groundwater Wells

Please click the water Well ID to generate the Water Well Drilling Report.

WELL ID	USD	SEC	TWP	RGE	M	DRIILLING COMPANY	DATE COMPLETED	DEPTH (ft)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (%)	TEST RATE (gpm)	
421956	06	22	042	02	5	ALKEN BASIN DRILLING LTD.	2002-10-09	140.00	New Well	Other		16	9	PLAINS MARKETING CAN L.P.	25.00	25.00	
422264	11	14	042	02	5	MID-WEST WATER WELLS LTD.	1992-07-02	80.00	New Well	Industrial		2		CHEVRON CAN RES/KENTING 39	10.00	65.00	
422265	11	14	042	02	5	MID-WEST WATER WELLS LTD.	1992-07-02	80.00	New Well	Industrial		2		CHEVRON CAN RES/KENTING 39	10.00	70.00	
405392	NW	22	042	02	5	ALKEN BASIN DRILLING LTD.	1995-06-07	140.00	New Well	Domestic		15	4	SOLOMONS, JOHN	55.00	60.00	
407826	NE	22	042	02	5	ALKEN BASIN DRILLING LTD.	1995-07-27	73.00	New Well	Industrial		3	10	ARMBERG, MURRAY	10.00	40.00	
466401	13	23	042	02	5	ALKEN BASIN DRILLING LTD.	1996-09-23	120.00	New Well	Domestic		17	11	AMCCO PETRO CO LTD	35.00	30.00	
467525	NE	16	042	02	5	MEDICINE VALLEY WATER WELLS	1997-05-23	89.00	New Well	Domestic		7	21	ANDERSON, RON	28.00	12.00	
472211	NW	14	042	02	5	UNKNOWN DRILLER		160.00	Chemistry	Domestic	1			PALMER, ROB	60.00		
472212	NW	14	042	02	5	FREEMAN W J	1956-11-26	54.00	New Well	Domestic & Stock		2			10.00	250.00	
472213	12	14	042	02	5	UNKNOWN DRILLER	1952-05-23	1,090.00	Structure Test Hole	Industrial					CALIFORNIA STANDARD		
472214	13	14	042	02	5	OTHER		0.00	Flowing Shot Hole	Industrial					SUN OIL		
472216	13	15	042	02	5	AB WATER WELL DRILLING	1977-03-28	90.00	New Well	Domestic & Stock		8		CADSAND, DAVID C.	21.00	20.00	
472217	14	15	042	02	5	MID-WEST WATER WELLS LTD.	1983-09-28	100.00	New Well	Industrial		5		CHIEFTAIN DEV #RIG WELL	15.00	45.00	
472218	15	15	042	02	5	ALBERTA EAGLE DRILLING LTD.	1982-05-25	90.00	New Well	Domestic & Stock		4		CADSAND, DAVID	36.00	30.00	
472220	16	16	042	02	5	MID-WEST WATER WELLS LTD.	1984-01-31	100.00	New Well	Industrial		5		GULF #RIG WELL	10.00	50.00	
472221	16	16	042	02	5	MID-WEST WATER WELLS LTD.	1984-01-31	100.00	New Well	Industrial		5		GULF #RIG WELL	10.00	50.00	
472260	01	21	042	02	5	UNKNOWN DRILLER	1952-05-20	1,119.00	Structure Test Hole	Industrial					CALIFORNIA STANDARD		
472265	NE	21	042	02	5	FORRESTER WATER WELL DRILLING (1981) LTD.	1985-09-11	177.00	New Well	Domestic & Stock		23		JORDAN, DON	89.00	25.00	
472266	NE	21	042	02	5	AB WATER WELL DRILLING	1989-06-09	181.00	New Well	Domestic		8		REIS, SUSANNA	93.00	8.00	
472267	16	21	042	02	5	MID-WEST WATER WELLS LTD.	1983-09-06	200.00	New Well	Industrial		4		CHIEFTAIN #RIG WELL	30.00	30.00	
472268	16	21	042	02	3	UNKNOWN DRILLER		90.00	Flowing Shot Hole	Industrial				REDWATER UTILS #SP401			
472269	SE	22	042	02	5	ALKEN BASIN DRILLING LTD.	1967-07-09	60.00	New Well	Stock		6		HUGHES, GARRETT	4.00	30.00	
472270	SW	22	042	02	5	SCHMIDT DRILLING LTD	1974-07-29	80.00	New Well	Stock		3		JORDAN, R.	10.00	60.00	
472271	SW	22	042	02	5	SCHMIDT DRILLING LTD.	1980-12-27	120.00	New Well	Domestic & Stock		4		JORDAN, R.	51.00	12.00	
472272	06	22	042	02	5	MID-WEST WATER WELLS LTD.	1983-07-18	100.00	New Well	Industrial		5		CHIEFTAIN #RIG WELL	10.00	30.00	

Reconnaissance Report

[View in Metric](#)
[Export to Excel](#)

Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (ft)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (ft)	TEST RATE (gpm)
472271	NW	22	042	02	5	FORRESTER WATER WELL DRILLING (1981) LTD.	1982-02-16	144.00	New Well	Domestic	1	22		KENDREW, KEITH	39.00	30.00
472273	NW	22	042	02	5	UNKNOWN DRILLER		50.00	Chemistry	Domestic	2			SALOMONS, J.		
472275	NW	22	042	02	5	UNKNOWN DRILLER		178.00	Chemistry	Domestic	1			NEWBURY, KEN		
472276	13	22	042	02	5	UNKNOWN DRILLER	1952-06-11	1,100.00	Structure Test Hole	Industrial				CALIFORNIA STANDARD		
455201	NW	22	042	02	5	ALKEN BASIN DRILLING LTD.	2000-04-03	160.00	New Well	Domestic		21	10	KENDREW, COLIN	42.00	15.00

“KAIZEN LAB RESULTS & ANALYSIS”

FOR PLAN 122-3426

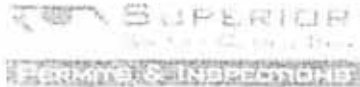
IN THE VICINITY

OF

S.W. SEC. 22, TWP. 42, RGE. 2, WEST OF THE 5TH MERIDIAN

APPENDIX ‘B’

December 2012



**Private Sewage Disposal
Permit Application**

Label TRY S 0002 12 RD
Town of Rimby

Other Required Permits: Building Electrical Gas Plumbing
 Permit Type: Owner Contractor Development Permit Number: _____
 Application Date (M/D/Y): OCT. 6 - 2012 Estimated Installation Date (M/D/Y): OCT 10 - 2012

Owner: Beix Coast Mailing Address: RR#4
 City: Rimby Prov: AB Postal Code: T0C-2S0 Phone: 703 704-3545
 Cell Number: _____ Email Address: _____ Fax: _____

Contractor: Pioneer Backhoe Service Mailing Address: RR#2
 City: Rimby Prov: AB Postal Code: T0C-0S0 Phone: 703 588 1700
 Cell Number: _____ Email Address: _____ Fax: _____

Project Location Name of Municipality: Pioneer County or Town of Rimby
 Street or Rural Address: _____ Subdivision or Hamlet Name: _____
 Unit or Suite # _____ Lot 2 Block I Plan 1223426 Tax Roll # _____
 Legal Subdivision Part of SW 1/4 Sect 28 Twp 42 Rge 2 W of 5
 Directions: From the 31 meters in Rimby go south on Simpson Rd just past the 1st

System Design Criteria (complete all applicable items) Soil Log Report from two (2) test pits with Soil Analysis Report (attach copy)
 Expected Volume of Effluent: 337.5 cubic meters per day gallons per day liters per day Number of bedrooms: 3
 Project Type: Commercial (Conventional) Industrial (Conventional) Residential (Conventional) Depth to Water Table: Not Found
 Commercial (Advanced) Industrial (Advanced) Residential (Advanced) Work Camp # of Men _____

SITE EVALUATION DIAGRAM: Attach a detailed site diagram including the system location in relation to buildings, distance to water supply and/or surface water bodies, and other pertinent information (AS PER PART 7 OF THE PRIVATE SEWAGE STANDARD OF PRACTICE 2009).

Project Information: New Installation Alteration Description of Work: Replace Septic Field
 Components Used: Septic Tank, Working Capacity Size _____ Lagoon Packaged Sewage Treatment Plant
 Holding Tank Size _____ Open (surface) discharge At Grade (variance required)
 Disposal Field Size 1500' Treatment Mound Size _____ Sand Filter _____

Homeowner Declaration: The permit applicant certifies that this installation will be completed in accordance with the Alberta Safety Codes Act and Regulations and work will commence within 90 days. The permit applicant/owner acknowledges that as per Section 12(2) of the Alberta Safety Codes Act, Superior Safety Codes Inc. is not liable for any decision related to the system of inspections, examinations, evaluations and in particular including but not limited to a decision relating to their Regulatory and the impact of which they may incur. This personal information provided on this form is protected by the Freedom of Information and Protection of Privacy Act.

Installer's Name (as on card): _____ Installer's Signature: _____ Homeowner's Signature: _____
 Private Sewage Installer's Certification Number: PS E133 Homeowner Declaration: By signing this permit I hereby certify that I own or will own and occupy this dwelling.

Permit Fee: \$ 150 *SCC Levy: \$ 6 TOTAL FEE: \$ 156

*SCC Levy is 4% of the permit fee with a minimum of \$4.50 and a maximum of \$560
 Payment Method: Visa M/C Debit Cheque Cash Authorization / Cheque Number: Inv 2012 225
 Credit Card #: _____ Expiry Date: _____ Date of Authorization: _____
 Name of Cardholder: _____ Signature of Cardholder: _____

Permit Validation Section to be completed by the Plumbing Safety Codes Officer:
 Special Conditions: _____
 SCC's Name (print or type): Gerald Bolze SCC's Signature: _____
 SCC's Designation Number: 25179 Date of Issue (M/D/Y): Oct 9/12

Calgary	25 2015 - 32 Avenue NE	T2E 6Z1	PH: 403 717 2344	Toll Free PH: 1 888 717 2344	Fax: 403 717 2346	Toll Free Fax: 1 888 717 2346
Edmonton	14512 - 114 Avenue	T6L 4S5	PH: 780 485 4777	Toll Free PH: 906 999 4777	Fax: 780 485 4711	Toll Free Fax: 1 866 202 4777
Fort McMurray	135 101 Signal Road	T8H 4N6	PH: 780 715 7726	Toll Free PH: 1 877 715 7726	Fax: 780 715 7731	Toll Free Fax: 1 877 715 7727
Grande Prairie	111 Floor 1052b - 100 Avenue	T6V 2V6	PH: 780 682 6777	Toll Free PH: 1 877 682 6777	Fax: 780 682 6877	Toll Free Fax: 1 877 682 6777
Lethbridge	422 North Mayor Macrae Dr	T1H 6H7	PH: 403 328 0124	Toll Free PH: 1 877 328 0124	Fax: 403 328 0966	Toll Free Fax: 1 877 328 0124
Lloydminster	Box 1 2014 - 40 Avenue	T9V 2S5	PH: 780 872 9020	Toll Free PH: 1 888 358 5545	Fax: 780 870 9036	Toll Free Fax: 1 800 358 5545
Red Deer	3 5264 - 67A Street	T4P 1E8	PH: 403 353 5545	Toll Free PH: 1 888 358 5545	Fax: 403 358 5085	Toll Free Fax: 1 800 358 5545

E-MAILED

Inv 2012 225

This was revised as per Ross!
Had page 13 correct Lot/Block/Plan

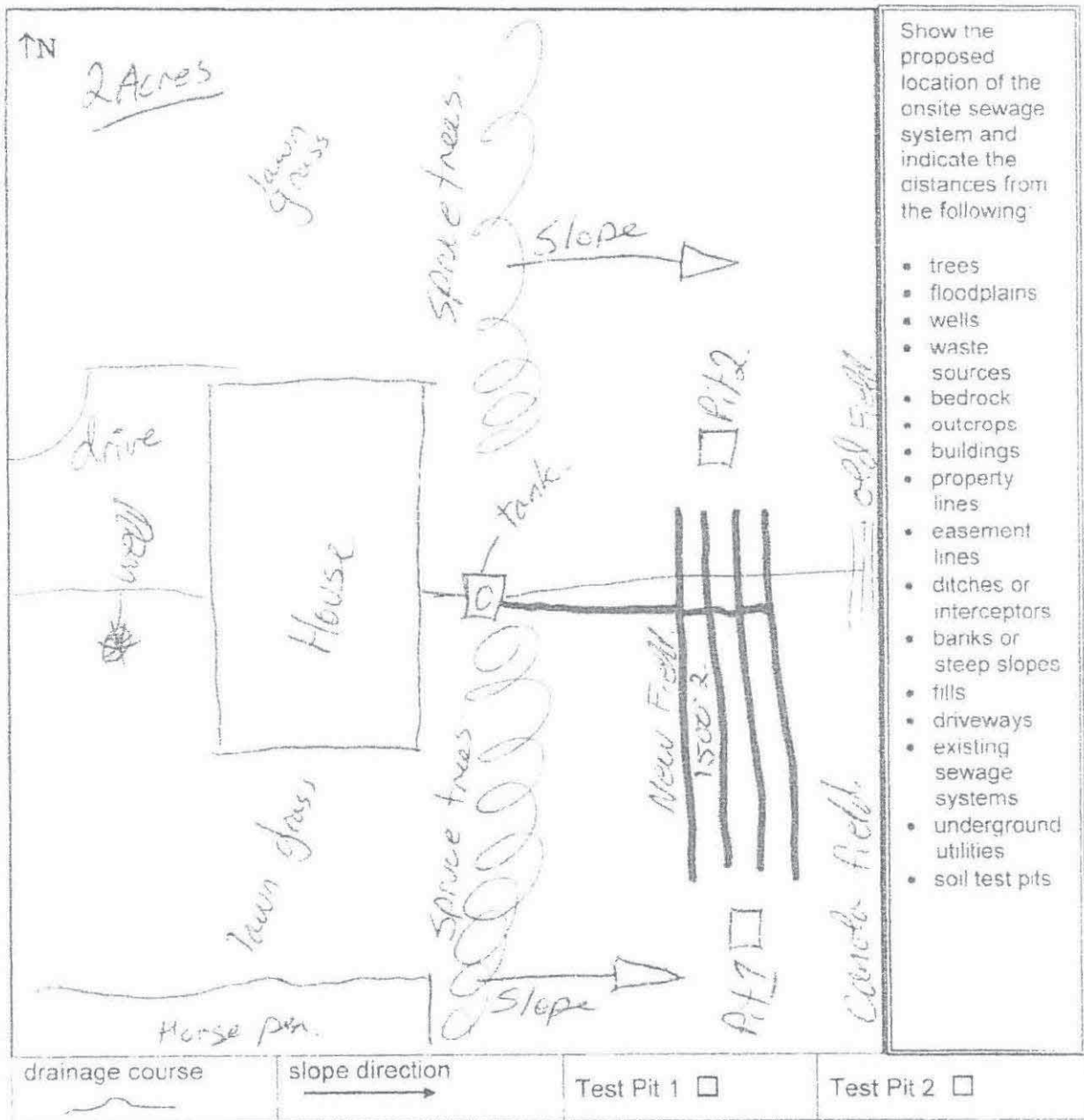


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Private Sewage System Site Evaluation Diagram

Legal Description: _____



Note: Additional information is required to be submitted separately for the system design detail.

Calgary	25, 2015 - 30 Avenue NE	T2E 6T7	PH 403 717 2344	Toll Free Ph 1 888 717 2344	Fax 403 717 2340	Toll Free Fax 1 888 717 2340
Edmonton	14613 - 734 Avenue	T5L 4S9	PH 780 489 4777	Toll Free Ph 1 866 999 4777	Fax 780 489 4711	Toll Free Fax 1 866 900 4711
Fort McMurray	165 101 Signal Road	T9H 4N6	PH 780 715 1126	Toll Free Ph 1 877 715 7126	Fax 780 715 7731	Toll Free Fax 1 877 815 7731
Grande Prairie	1 st Floor 10525 - 100 Avenue	T8V 0V8	PH 780 682 8777	Toll Free Ph 1 877 882 8777	Fax 780 682 7677	Toll Free Fax 1 877 882 8776
Red Deer	3 5264 - 67A Street	T4P 3E8	PH 403 358 5545	Toll Free Ph 1 888 358 5545	Fax 403 358 5085	Toll Free Fax 1 866 358 5085
Lethbridge	422 North Mayor Magrath Drive	T1H 6H7	PH 403 320 0734	Toll Free Ph 1 877 320 0734	Fax 403 320 9969	Toll Free Fax 1 877 882 9969
Lynchminster	Bay 1, 2914 - 80 Avenue	T9V 2S5	PH 780 870 9020		Fax 780 870 9035	

155, 50th Avenue SE
 Calgary, AB T2C 2B5
 Phone (403) 297-6666
 Fax (403) 297-0669
 E-mail: kaizenlab@kaizenlab.com



ANALYTICAL DATA REPORT

Client Company: Moore's Backhoe Date Received: Sep 27 2012 Lab File #: 144773
 Client Contact: Ross Macre Date Reported: Oct 01 2012
 Client Project #:

Sample ID: 144773-1, Erix Construction, Simpson Rd
 Date Sampled: Unknown

Package Name: Hydrometer

Parameter Name	Units	Results	Detection Limit
Sand %	%	87.5	0.1
Silt %	%	85.0	0.1
Clay %	%	0.75	0.1
Soil Texture		Clay loam	

Comments:

Test Methodologies:

Load Rate

$< \begin{matrix} .18 \\ .27 \end{matrix}$

Gal Per day

f+2

Soil Texture: Modified from Soil Sampling and Methods of Analysis, M.B. Carter, 1993

3 bedroom House

$$LR - .18 = 1666.67 \cdot 2 \text{ - field}$$

$$LR - .27 = 1111.11 \cdot 2 \text{ - field}$$

1500'² Installed

QA/QC Reviewed By: _____

Lab Manager: A. Saccis _____

Note: The results in this report relate only to the items tested. Information is available for any items in 9.10.2 of ISO/IEC 17025 that cannot be put on a test report.

*Detailed test methodologies and QA/QC data available upon request

OCT 1 2012

“TRAFFIC IMPACT ASSESSMENT”

NEW RECREATIONAL VEHICLE STORAGE FACILITY

IN THE

S.W. SEC. 22, TWP. 42, RGE. 2, WEST OF THE 5TH MERIDIAN

APPENDIX ‘C’

PREPARED BY

TRAFFIC SOLUTIONS

September 4th, 2012

September 4, 2012

TSCL File No: TE036

BRIX Construction

R.R. 4

Rimbey, AB T0C 2J0

Attention: Mr. Steffen Olsen

Regarding: Traffic Impact Assessment

New Recreational Vehicle Storage Facility on Highway 20 south of Rimbey

This letter report is prepared for BRIX Construction to assess the potential transportation impacts of the proposed Recreational Vehicle (RV) Storage Facility south of Rimbey on the operations on Highway 20

1. Background

The proposed RV Storage Facility is on a three (3) acre site located east of Highway 20, at 1.2 km south of Rimbey. It is expected that the site will be operating at full capacity in 1 year.

At present, an existing Plain Midstream Crude Oil Loading Facility is located near the proposed RV Storage Facility site. Both the proposed RV Storage Facility and the Plains Midstream Crude Oil Loading Facility will utilize the same approach to access onto Highway 20.

For the purposes of this report, the Highway 20 access which will be shared jointly by the existing Plain Midstream Crude Oil Loading Facility as well as the proposed RV Storage Facility will be referred to in this report as the “**Site Access**”. The Site Access has a Type I access intersection geometry.

1.1 Road Network and Canadian Pacific Railway (CPR) Track

Highway 20 at the Site Access is a 2-lane undivided Level 2 Arterial Highway with a pavement width of 11 m and a posted speed of 100 km/h. The 11 m cross-section of Highway 20 consists of two (2) 3.7 m travel lanes and a 1.8 m wide shoulder on each side of the northbound / southbound travel lanes. Highway 20 intersects with Township Road 424 / 50 Avenue in Rimbey at 1.2 km north of the Site Access. There is also an existing field approach on Highway 20 at 800 m south of the Site Access.

A Canadian Pacific Railway (CPR) track running parallel to and east of Highway 20 intersects the approach to the RV site and the Plain Mainstream Crude Oil Loading Facility at approximately 40 m east of the centreline of Highway 20. A 5 m long passenger vehicle stopped on the Site Access just east of the Highway 20 shoulder will be 29.5 m from the centreline of the CPR track. A 20 m long truck stopped on the Site Access just east of the Highway 20 shoulder will be 14.5 m from the centreline of the CPR track.

2. Existing Traffic Conditions

2.1 Existing Highway 20 Traffic Volumes / Conditions

It is anticipated that the PM peak period will be the critical traffic period along Highway 20. Traffic counts were collected at the Site Access on May 31, 2012 (Thursday). Only PM peak period traffic counts were collected.

The existing PM peak hour traffic flows at the Site Access are summarized in **Table 1** below:

Table 1 Existing Site Access Weekday PM Peak Period Traffic Volumes (4:15 PM to 5:15 PM)

Approach	Travel Directions	Volumes (% Truck)
North Approach	Southbound Through (Away from Rimbey)	198 vph (12% Truck)
	Southbound Left Turn (towards Plains Stream)	5 vph (80% Truck)
South Approach	Northbound Through (towards Rimbey)	178 vph (13% Truck)
	Northbound Right Turn (towards Plains Stream)	1 vph (100% Truck)
East Approach	Westbound Right Turn (towards Rimbey)	4 vph (0% Truck)
	Westbound Left Turn (away from Rimbey)	4 vph (50% Truck)

2.2 CPR Train Information

The train information summarized in **Table 2** below was obtained from a phone call to CPR:

Table 2 Train Information Provided by CPR (Contact: Ms. Brenda Land, Phone: 1-800-766-7912)

Train Frequency (from CPR reports)	From October to March: - Average 5 trains per week (could be anytime of the day)
	From April to September: - Average 2 trains per week (could be anytime of the day)
Train Length	Vary, up to ~ 3.05 km (10,000 ft)
Train Speed	40 km/h (25 mph), or equivalent to 11.1 m/s

Based on the above information provided by CPR, for a 3.05 km long train, travelling at 40 km/h, it is estimated that every time when the train passes will result in 4.6 minutes of road blockage to the Site Access (see calculation below).

$$\text{Blockage time} = \text{length of train} / \text{speed of train} = 3050 \text{ m} / 11.1 \text{ m/s} = 275 \text{ seconds (or 4.6 minutes)}$$

2.3 Existing Plains Midstream Crude Oil Loading Facility Traffic Information

The following traffic information related to the existing Plains Midstream Crude Oil Loading Facility was provided by Mr. Brent Moxness, the Site Supervisor of Plains Midstream:

- i) The Crude Oil Loading Facility is operating 24 hours a day with two (2) 12-hour shifts.
- ii) It generates approximately 80 truck trips per day – steady between 8 AM to midnight, and quiet down between midnight and 8 AM. The Weekday PM peak hour is the most critical period. PM peak hour traffic counts collected showed there were 6 inbound vehicles (1 car & 5 trucks) and 8 outbound vehicles (6 cars & 2 trucks)
- iii) Trucks are 20 m long (60 feet) tractor trailer units.
- iv) There were a couple of minor accidents on the highway over the past few years.
- v) Trains usually pass through twice per day – heading southbound around 10 AM and heading back north around 3 PM. (These could be just service trains that occupy the Site Access crossing for considerably shorter durations)

3. Traffic Analysis Methodology

The analysis methods used in this assessment include:

- **Geometry Requirements** - The methodology is used to determine if the intersection geometry / configuration is adequate. The methodology is based on the traffic volume warrant procedures outlined in the Alberta Transportation Highway Geometric Design Guide - in Figure D-7.4, Traffic Volume Warrant Chart for At-Grade Intersection Treatment on Two-Lane Rural Highways (for design speeds of 100, 110 and 120 km/h). The Alberta Transportation traffic volume warrant methodology provides a cursory assessment of the intersection geometry needs through checking the daily traffic volumes (AADT) on both the east/west Site Access road and on Highway 20.
- **Intersection Level of Service** – The Trafficware Synchro program was used to calculate the levels of service expected for all traffic movements at the Highway 20 Site Access – for both the east/west Site Access road and on Highway 20. This analysis was carried out for the most critical traffic period – the weekday PM peak hour.
- **Intersection Queuing Analysis** – The Trafficware SimTraffic program was used to simulate queue lengths on all approaches at the Highway 20 Site Access. The queuing analyses were carried out for scenarios with and without blockage of the Site Access road by passing trains. The queuing analysis was also carried out for the most critical PM peak hour traffic period. The intention of the analysis was to determine how often the queue would form on Highway 20 and on the Site Access road, and also how long the queues are.

4. Traffic Projection

The following traffic impact assessments take into account 2 key traffic components:

- Background traffic (at the time when the proposed RV site is fully developed)
- Site generated traffic (which consists of the traffic from both the existing Plains Midstream Crude Oil Loading Facility and the traffic generated by the proposed RV Storage Facility)

4.1 Background Traffic

4.1.1 Background Traffic - Peak Hour Traffic Flows

It is assumed that, by 2013, the proposed RV Storage Site will be fully built-out within 1 year with its maximum business potential realized. Accordingly, the existing traffic flows on Highway 20 were adjusted to account for 1 year of traffic growth on Highway 20.

To determine the current annual traffic growth rate on Highway 20, the AT website Automatic Traffic Recorder (ATR) volumes at the Highway 20 & Township Road 424 intersection from the Alberta Transportation website were reviewed and the results are shown below in **Table 3**:

Table 3 Traffic Growth on Highway 20 (ATR Station is located south of Hwy 20 & Twp Rd 424 intersection)

	Peak Hour Traffic Volumes			
	Hwy 20 Northbound		Hwy 20 Southbound	
	AM	PM	AM	PM
2011	164 vph	165 vph	184 vph	184 vph
2010	156 vph	158 vph	175 vph	173 vph
2009	155 vph	156 vph	173 vph	171 vph
2008	151 vph	151 vph	170 vph	168 vph
Growth Factor (2008 to 2011)	1.09	1.09	1.08	1.09
# of years from 2008 to 2011	3	3	3	3
Annual Growth Rate	3%	3%	3%	3%

Accordingly, a 3% growth rate is applied to the northbound and southbound traffic volumes on Highway 20 to come up with the projected highway background traffic volumes at 2013, the year when the RV Storage Facility is anticipated to operate at its full capacity.

4.1.2 Background Traffic - Daily Traffic Volumes

In 2011, the AADT on Highway 20 was 3,360 vpd. For the purpose of this traffic review, it is assumed that the proposed site will be built-out and operate in full capacity in 2013. Therefore, a 6 percent growth rate (3 percent per year, for two years) was applied to the 2011 AADT volumes. The 2013 AADT was determined to be 3,600 vpd along Highway 20.

4.2 RV Storage Facility Site Traffic

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition does not have a specific land use for the RV Storage Facilities. Typically, the RV storage facilities do not generate a significant number of vehicle trips. In addition, due to the nature of the development, it is likely that the majority of the traffic utilizing the RV Storage Facility will occur during non-peak hours and also at the start and end of weekends. A conservative estimate was prepared based on the worst case scenario, generating up to 20 trips a day, and up to 6 total site trips (3 entering and 3 exiting) for the PM peak hour.

5. Traffic Analysis

5.1 Intersection Geometry – Traffic Volume Warrant

Alberta Transportation’s traffic volume warrant analysis for At-Grade Intersection Treatment on Two-Lane Rural Highways (for design speeds of 100, 110 and 120 km/h) was used to determine if the intersection geometry of the current Site Access is adequate to handle the following proposed traffic flows as summarized in **Table 4**:

Table 4 Daily Traffic Volumes used in Traffic Volume Warrant Analysis

Road	Daily Traffic	Source of Traffic	Report reference section
Highway 20	3,600 vpd	Highway background traffic	Section 4.1.2
Site Access	100 vpd	Plain Midstream: 80 vpd	Section 2.3
		Proposed RV Storage Site: 20 vpd	Section 4.2

The above daily volumes were plotted onto the Traffic Volume Warrant Chart (attached. Source: Figure D-7.4, Traffic Volume Warrant Chart for At-Grade Intersection Treatment on Two-Lane Rural Highways, Alberta Transportation Highway Geometric Design Guide).

The attached Traffic Volume Warrant Chart shows that the current Type I intersection geometry would be adequate to handle the proposed level of traffic flows at the Site Access.

5.2 Intersection Level of Service – Synchro Analysis

The weekday PM peak hour volumes at the Site Access are summarized in **Table 5** below.

Table 5 PM Peak Period Traffic Volumes (Background Traffic plus Site Traffic)

Approach	Travel Directions	Volumes (% Truck)	Level Of Service
North Approach	Southbound Through	204 vph	LOS A
	Southbound Left Turn	7 vph	
South Approach	Northbound Through	184 vph	LOS A
	Northbound Right Turn	2 vph	
East Approach	Westbound Right Turn	6 vph	LOS B
	Westbound Left Turn	5 vph	

The result of the Synchro analysis are summarized in Table 6 below as well as attached with this Report. They show that Highway 20 will operate at Level of Service A and the Site Access east/west road will operate at Level of Service B.

5.3 Intersection Queuing Analysis – SimTraffic Analysis

SimTraffic model run was carried out using the same traffic volumes and assuming that the Site Access road will be blocked for 5 minutes. The results of the simulation queuing analysis are summarized in **Table 6** below as well as attached with this Report.

Table 6 PM Peak Period Traffic Volumes (Background Traffic plus Site Traffic)

Approach	Travel Directions	Average Queue	Remarks
North Approach	Southbound Through	1.0 m	No standing queue observed on Highway 20 in 60 minutes of simulation
	Southbound Left Turn	1.0 m	
South Approach	Northbound Through	No queue	
	Northbound Right Turn	No queue	
East Approach	Westbound Right Turn	1.9 m	Queue did not propagate back to the CPR crossing
	Westbound Left Turn	1.9 m	

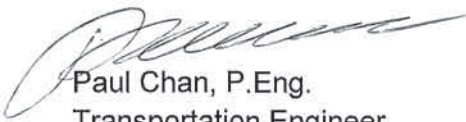
The results of the queuing simulation analysis indicate that queuing should not be an issue at the Site Access.

6. Conclusions

The purpose of this letter report was to evaluate the potential transportation issues of the new RV Storage Facility. The majority of traffic expected to be generated by the site will occur during non-peak hours and during the weekends. The report concludes that the traffic generated at the Site Access will still result in acceptable level of services on both the highway and the site access, and that the extent of queuing on both the highway and on the site access will be minimal.

It is therefore concluded that the proposed RV Storage Facility will not trigger any intersection improvements at the intersection of Highway 20 and the Site Access.

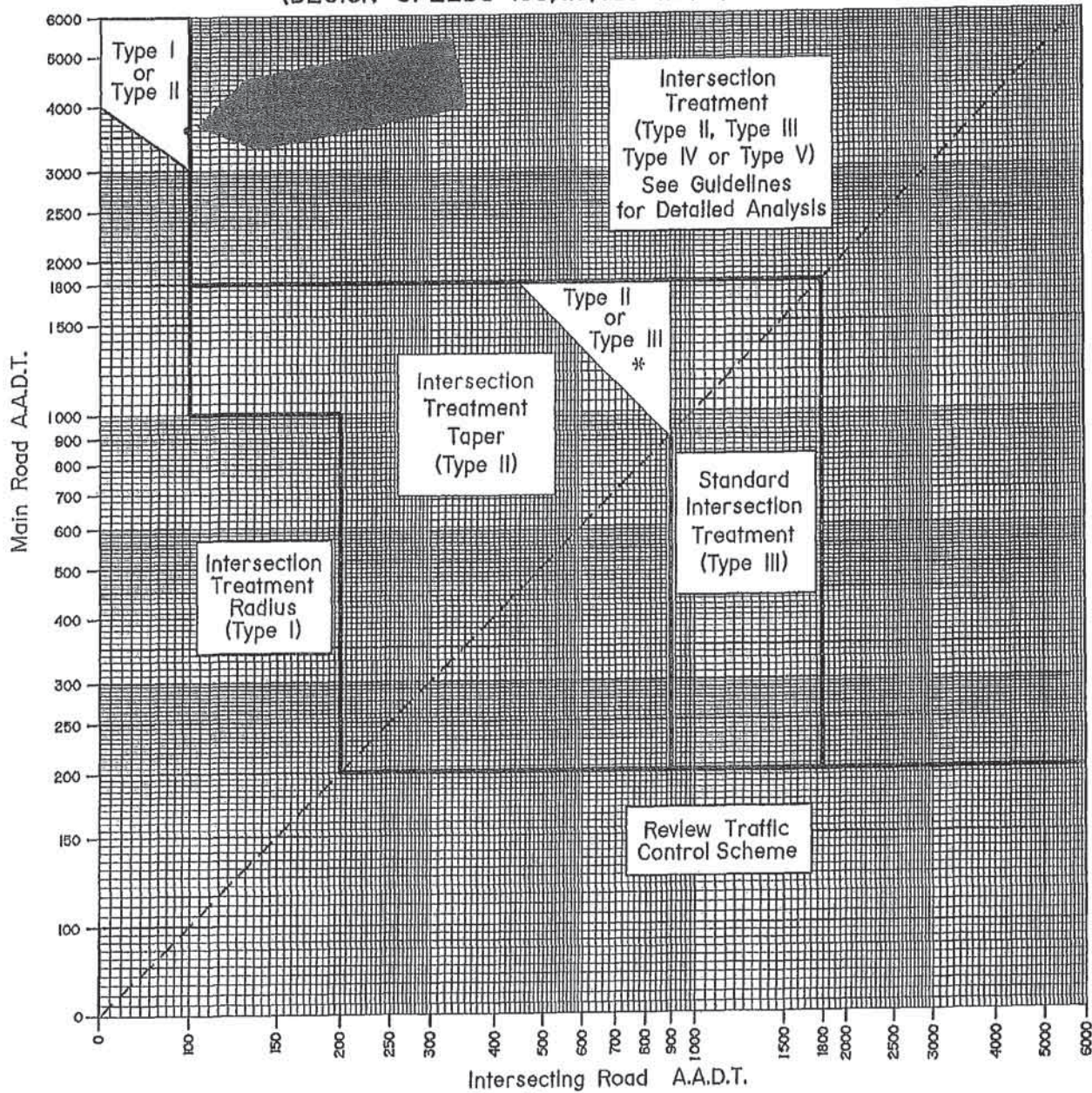
Sincerely,



Paul Chan, P.Eng.
Transportation Engineer

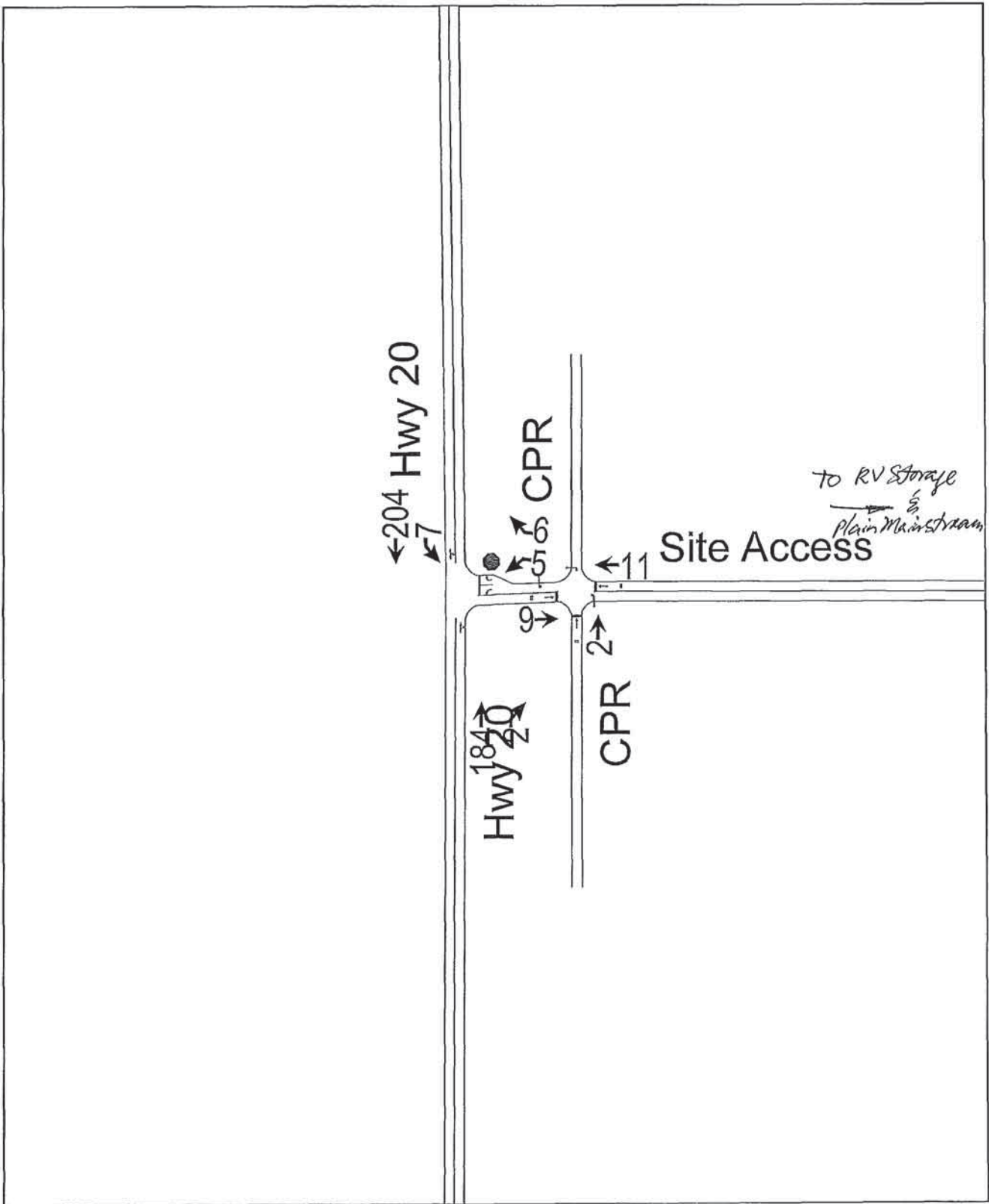
Cc: Gail Long, Alberta Transportation
Pat Sinclair, DGE Civil Engineering Consultants
Patrick Wong, Traffic Solutions Consulting Ltd.

FIGURE D-7.4 TRAFFIC VOLUME WARRANT CHART FOR AT-GRADE INTERSECTION TREATMENT ON TWO-LANE RURAL HIGHWAYS (DESIGN SPEEDS 100, 110, 120 km/h)



Notes:

1. If main road, or intersecting road, is <100 AADT provide Type I Intersection Treatment (15m radius), except as shown for the higher volume main roads on this chart (Type I or II zone) where engineering judgement may be used to select the appropriate treatment.
2. If main road is >4000 AADT Review Access Management
 - - - If Intersecting Road AADT is > Main Road AADT: Review Traffic Control Scheme
3. Use projected traffic volumes for design
 Sloping line is defined by Main Road AADT x Intersecting Road AADT = 800,000



HCM Unsignalized Intersection Capacity Analysis
 3: Site Access & Hwy 20

8/31/2012



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑	↘	↙	↗
Volume (veh/h)	5	6	184	2	7	204
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	6	8	230	2	9	255
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	504	231			232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	504	231			232	
tC, single (s)	6.9	6.2			4.9	
tC, 2 stage (s)						
tF (s)	4.0	3.3			2.9	
p0 queue free %	99	99			99	
cM capacity (veh/h)	448	813			986	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	14	232	264
Volume Left	6	0	9
Volume Right	8	2	0
cSH	985	1700	986
Volume to Capacity	0.01	0.14	0.01
Queue Length 95th (m)	0.3	0.0	0.2
Control Delay (s)	11.1	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		26.4%	ICU Level of Service A
Analysis Period (min)		15	

Queuing and Blocking Report
Baseline

8/31/2012

Intersection: 3: Site Access & Hwy 20

Movement	WB	WB	SB
Directions Served	L	R	LT
Maximum Queue (m)	20.4	10.3	20.4
Average Queue (m)	1.9	2.1	1.0
95th Queue (m)	11.0	8.7	7.6
Link Distance (m)	28.7		229.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		5.0	
Storage Blk Time (%)	1	1	
Queuing Penalty (veh)	0	0	

Intersection: 5: Site Access & CPR

Movement	NB
Directions Served	T
Maximum Queue (m)	9.1
Average Queue (m)	1.5
95th Queue (m)	6.8
Link Distance (m)	98.2
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0