ALTALAND INDUSTRIAL PARK

AREA STRUCTURE PLAN

Prepared for: 945 Developments Ltd.
Presented by: Select Engineering Consultants Ltd.
Date: July 4, 2022
RPT-1-284-19001-8.5-AltalandIndustrialParkASP-220613

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This Disclaimer is attached to and forms part of the Report.

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1.0 Introduction

1.1 Purpose

The purpose of this Area Structure Plan is to provide a document to establish a land use framework for the north half of NE1-58-10-W4 within The County of St. Paul No. 19. This Area Structure Plan will guide the review and approval of future development applications within the Plan area.

A subdivision and redistricting application is submitted concurrently with this Area Structure Plan. The subdivision will require County of St. Paul approval prior to any development in the Plan area. The Plan area will also be redistricted from Agricultural (A) District to Industrial/Commercial (IC) District.

1.2 Location

This ASP is located immediately west of Range Road 100 and south of Highway 29. The Town of St. Paul is located east of the Plan area and Upper Therien Lake is to the southeast. The Plan is located within the boundaries of County of St. Paul No. 19 and legally defined as NE1 58-10-W4. **(See Figure 1)**

1.3 Vision

This Area Structure Plan envisions a mix of commercial and light industrial land uses that are ideally located along a major transportation corridor with direct connections to the Town of St. Paul and other surrounding communities. Land uses within the ASP will be developed in a coordinated and compatible fashion to adjacent land uses and provide economic opportunity for the County.

1.4 Property Ownership

The entirety of the Plan area is held under one certificate of title registered to Hi-Way 29 Industrial Park GP Ltd. **(See Figure 2)**

2.0 Statutory Conformance

This Area Structure Plan has been prepared in accordance with the objectives and policies within the County of St. Paul No 19 statutory plans.

2.1 Inter-Municipal Development Plan

The County has developed multiple Inter-Municipal Development Plans (IDP) with neighboring Rural municipalities such as Two Hills, Smoky Lake, Bonnyville, Lac La Biche and Vermillion River. These Inter-Municipal Development Plans are required by the *Municipal Government Act* and generally provide direction for inter-municipal communication between neighbouring municipalities.

The County of St. Paul No. 19 also includes Inter-Municipal Development Plans for Urban communities within its boundaries. These urban centers include Elk Point, Summer Village of Horseshoe Bay and St. Paul. These plans identify a set of policies that each municipality will use as a basis for decision making on land use, transportation and servicing matters.

The Altaland Industrial Park ASP is outside of the IDP area as the east boundary of the ASP forms the western boundary of the St. Paul and County of St. Paul No. 19 Inter-Municipal Development Plan area.

2.2 Municipal Development Plan Bylaw 2021-14

The County of St. Paul No. 19's *Municipal Development Plan (MDP) Bylaw 2021-14* is a statutory policy document to outline the framework for growth within the County. The MDP outlines how and where land can be developed and addresses future land use and growth areas, the process of how land is developed, the transportation network and the delivery of municipal services. The commercial and industrial objectives of the MDP are:

1. To encourage new commercial and industrial businesses at appropriate locations, and
2. To provide a diverse range of economic development and employment opportunities.

The County of St. Paul No. 19 intends to meet these objectives by implementing policies such as:

Policy 2.2(13) Any proposed multi-lot commercial/industrial development of 10 or more parcels, the County shall require an Area Structure Plan and should generally address the following issues as deemed appropriate by the County:

a. Conformity with this Plan,other Statutory Plans, and the Land Use Bylaw,

b. impacts on adjacent uses, environmentally sensitive areas, and recreational uses, and mitigation methods,

c. proposed land uses and population projections,

d. proposed methods of water supply, stormwater management and sewage disposal,

e. access and internal circulation and impact on the transportation network,

f. allocation of municipal and environmental reserve,

g. suitability of the development site in terms of soil stability, groundwater level, and drainage,

h. confirm the location and geographic extent of any environmentally sensitive areas, hazard lands, and historic or archaeological sites. A detailed analysis shall be undertaken by a qualified consultant with all costs borne to the developer

Policy 2.3(3) Rural commercial and industrial businesses shall be controlled by the County Council through the process of Land Use Bylaw amendment to an appropriate Industrial or Commercial District.

Policy 2.3(4) In consideration of a proposal for a commercial or industrial development, an assessment of the proposed development may be required which:

a) Precisely defines the boundaries of the proposal,

b) Designates suitable building sites,

c) Ensures the functional integrity of the adjacent roads is maintained through the use of service roads and/or limited access points,

d) Defines standards of development which may include architectural, landscaping and sign controls,

e) Identifies methods and facilities for servicing, and

f) Includes groundwater and soil permeability.

Policy 2.3(6) Highway commercial uses shall refer to those uses, primarily established adjacent to highways, which provide service requirements for highway traveling public. Such uses would include service stations, bulk oil sales, restaurants, motels and campsites.

Policy 2.4(6) As part of the subdivision process, municipal reserve shall be provided where required in accordance with an Area Structure Plan or conceptual scheme and the county's DEV-4 Reserve Lands Management Policy. If the reserve land is not required within a

current phase but will be required in future phases, the reserve lands shall be deferred to the remnant parcel where the reserve lands are required in accordance with the Municipal Government Act.

Policy 3.1(6) The County desires to increase public involvement in planning and development decisions in order to result in more informed decisions, greater public understanding, acceptance and more enduring solutions.

a) Prior to the County giving first reading to a proposed Area Structure Plan and Redistricting application, Developers will be required to undertake "Public Consultation" in support of the proposed amendments.

b) Public Consultation is to be undertaken by either a Public Meeting or Open House.

c) Notification requirements include newspaper ads and contact to neighbouring municipalities and residents within 800m of the plan.

d) A minimum of two opportunities for Public Consultation, coordinated by the Developer, shall be required for Area Structure Plans and one opportunity for Public Consultation, coordinated by the Developer, shall be required for redistricting applications.

e) All Public Consultation requires the Developer to provide either a written record of the Public meeting and/or copies of the comment forms by participants in an Open House, and a written report outlining issues raised at the consultation and how the Developer intends to address each.

This ASP conforms to the requirements of the MDP by showing how it conforms to higher order statutory plans, addressing surrounding land uses and owners, providing the proposed land uses and land use statistics, supporting technical studies and public consultation.

Initial discussions with the County of St. Paul confirmed that only one (1) public consultation will be required for the ASP and LUB applications. This consultation will take place once circulation is completed and before first reading. The Altaland Industrial Park ASP is currently identified as an Agricultural Use Area within the County of St. Paul Municipal Development Plan (MDP). As confirmed with the County, an MDP Amendment will not be required.

2.3 Land Use Bylaw 2021-13

County of St. Paul's *Land Use Bylaw No. 2021-13 (*LUB), as amended, is a planning tool that defines land use districts in the County and prescribes the types of land uses allowed in each district. This LUB will be used to implement the Altaland Industrial Park ASP's land use concept as appropriate.

The Plan area is currently districted Agricultural (A) District and will be redistricted to Industrial/Commercial (IC) District.

2.4 General Municipal Servicing Standards Bylaw 2021-17

The County of St. Paul No. 19 *General Municipal Servicing Standards Bylaw No. 2021-17* was approved in February 2014 and provides general servicing standards and guidelines for all new development. These standards also provide direction to all stakeholders regarding the development process and ultimate servicing of the County.

The Altaland Industrial Park ASP was written with these standards in mind and will adhere to them through the entire development process.

3.0 Public Consultation

To be filled out once Pubic Consultation is completed.

4.0 Site Analysis

4.1 Surrounding Site Features

The majority of lands surrounding the Plan area have been cleared and used for agricultural uses. An approved Country Residential subdivision is currently under construction immediately south of the Plan area. The St. Paul airport and Blue Quills First Nation Indian Reserve is located northwest and a large wetland is located immediately west of the Plan area. St. Paul Alliance Church is located northeast of the Plan area and the St. Joseph Roman Catholic Cemetery is to the southwest **(See Figure 1).**

Highway 29 forms the north boundary of the Plan area and provides direct access to the Town of St. Paul to the east. Lower and Upper Therien Lake are located further south and southeast of the Plan area and the St. Paul Airport is located northwest across Highway 29.

4.2 Existing Site Features

The lands are generally cleared and used primarily for agricultural purposes. Some existing building structures are located in the north-central Plan area which will be demolished and removed with development. A large wetland and associated tree stands are located within the ASP area which are planned to be removed and compensated for upon development. No pipelines or wellheads exist within the Plan area.

The topography of the subject land slopes from southwest to northeast with an approximate 4 metre elevation change. A high elevation in the southeast and southwest of approximately 652 metres to a low elevation of 648 metres northeast of the Plan area. **(See Figure 3)**

The natural drainage generally follows this topography and is currently stored in an existing wetland. Through this development the wetland will be removed, and a stormwater management facility will be constructed to store all on-site drainage.

4.3 Wells and Utility Rights of way

According to Alberta Land Titles and Surveys Spatial Information System no pipelines are located within the Plan area.

According to the Alberta Energy Regulator, no well heads or abandoned well heads exist within the Plan area.

4.4 Supporting Technical Documentation

Several professional and technical studies have been completed within NE1 58-10-W4 to support the Altaland Industrial Park ASP. These include:

4.4.1 Environmental Site Assessment – Phase 1

A *Phase I Environmental Site Assessment* (ESA) was completed by Venture Engineering Consultants Ltd. in August 2019 for lands within NE1 58-10-W4. This ESA was performed to identify potential or actual environmental contamination that could be associated with the current and past activities on the site. A site visit was completed in August of 2019.

No asbestos materials were observed on the site however, the house, garage, shop facility, or any other buildings on the property were not accessed. Six pole mounted electrical transformers were located on the property with no signs of leakage and determined to not be a hazard. These poles are owned by EPCOR and are the responsibility of EPCOR for maintenance and any future contamination.

It was concluded by Venture Engineering that no environmental concerns exist within the property and recommends that the two soil-based piles on the subject property should be removed along with the ground under it when the property undergoes construction.

No further environmental investigation is required.

4.4.2 Geotechnical Investigation

ENC Testing Inc. conducted a Geotechnical Investigation for lands legally described as NE1 58-10-W4. This investigation was completed in October of 2019 and generally describes the sub-soil conditions. This investigation also provides recommendations to aid in the design and construction of the ASP.

A field investigation was performed on September 24, 2019, consisting of ten test holes in which all recommendations were based from. Underground utilities were present and avoided during testhole probing. All testholes were excavated to a depth of 4.9 metres and tested within the laboratory. Groundwater depth varied from 1.26 metres to 3.98 metres throughout the site. Six testholes were completely dry. It is intended that all wetland areas are to be removed and compensated which will require excavation and grading of the site. Through this process, the low areas of the site will be filled and allow greater separation between groundwater levels and the surface. A stormwater management facility will also be located in the central plan area which is the lowest area of the site. Exact details of the grading plans will be confirmed through detailed engineering design.

ENC Testing Inc. provided recommendations for general construction, site grading, footings, slabs on grade, frost protection, trench excavation and backfill, gravel and concrete. These recommendations are given based on the subsurface soil conditions at the time of the investigation.

4.4.3 Traffic Impact Assessment

A Traffic Impact Assessment was completed by Bunt and Associates in November of 2020. Bunt concluded that no access will be permitted to the development off of Highway 29 and that the following upgrades to the Highway 29 / Range Road 100 intersection is recommended:

- AT Type IVb intersection with 25 m additional westbound left turn storage (See Figure 7),
- Exclusive eastbound right turn bay development, and

- Delineation lighting.

The two-access location along Range Road 100 were also recommended to be upgraded to a County of St. Paul Class 2 asphalt surface from Highway 29 to the south access. No turn bays are warranted along Range Road 100.

The provincial *Subdivision and Development Regulation* requires that all subdivision applications within 1600 metres of a provincial highway receive approval from the Minister of Alberta Transportation. A meeting with Alberta Transportation was held on January 22, 2019 to discuss the proposed land use plan. Updates were made to satisfy Alberta Transportation requirements which include restricting access to Highway 29.

4.4.4 Stormwater Management Plan

Select Engineering Consultants Ltd. completed a *Stormwater Management Plan* for the ASP area in February of 2020. This report was completed to provide a stormwater management scheme that addresses the site drainage to the satisfaction of County of St. Paul No. 19.

Section 5.3.3 of this ASP provides additional information regarding the Stormwater Management Facility. Furthermore, the Stormwater Management Plan report, submitted under separate cover, provides more detailed information.

4.4.5 Wetland Assessment and Impact Report

It was confirmed by the County that a Biophyscial Assessment would not be required for this project however a Wetland Assessment & Impact Report would be required and submitted to both the County and Alberta Environment for approval prior to the disturbance of any identifies wetland areas.

Fiera Biological Consultants Ltd. completed a Wetland Assessment & Impact Report in March 2021. Fiera identified two wetlands that are connected through an associated drainage ditch within the Plan area however, these wetlands were not considered valuable due to poor quality of wetland and were not claimed by the Province under the Public Lands Act. These two wetlands are described below:

Wetland 1

Wetland 1 was a large (5.35 ha), centrally located wetland comprised of shallow open water and swamp wetland forms. Much of the wetland had an extensive emergent zone, where sedges and cattails dominated. A partial riparian zone was identified on the south eastern side, where balsam and aspen poplars were present on the wetland boundary. Finally, a small section of shrubby swamp wetland was identified in the north portion of the wetland. This area was dominated by shrub cover, contained sparse sedge and forb cover, and many standing dead trees were identified. Standing dead trees were in several different places in the wetland, suggesting that water levels were not always as high as observed at the time of the assessment. Significant standing water was observed throughout the wetland at the time of the assessment and can likely be attributed to beaver activity and high levels of precipitation observed in 2019. Further, the historical air photo record suggests the wetland has progressively increased in permanence since 1949, likely as a result of ditching between Wetlands 1 and 2.

Several impacts were observed within and surrounding Wetland 1 that may be influencing the condition and boundaries of the wetland, including ditching, cultivation and cropping, recent earthworks, fill materials, and truck trails. It is presumed that a culvert connects Wetland 1 to the NE drainage ditch, however, a culvert was not observed in this location due to high water levels. Finally, a culvert was observed beneath the access road on the east side of the wetland. Wetland 1 was determined to have a relative wetland value of D.

Wetland 2

Wetland 2 was located on the west side of the study area, and only a small portion (0.69 ha) of the wetland was located within the study area and therefore assessed. Wetland 2 contained shrubby swamp and marsh wetland forms. The wetland was characterized by an outer ring of willows and other shrubs surrounding a central emergent zone with patches of open water. Graminoid species included mainly sedges, cattails, slough grass, reed grass, reed canary grass, and foxtail barley. Wetland 2 was determined to have a relative wetland value of C; however, given the abundance of wetlands in the area, an abundance factor of -1 was applied resulting in a final relative value of D. Water levels throughout the wetland were high at the time of the assessment. Wetlands 2 is hydrologically connected to Wetland 1 via a drainage ditch.

Through discussions with Fiera and the developer, it was concluded that it was not feasible to retain any wetlands within the area due to the difficulty arising from the construction of a separate stormwater management facility and lack of land within the ASP area. By removing all identified wetlands within the Plan area, proper grading and servicing can be completed.

A total of 6.04ha of land will be compensated to a rate of $18,600/ha. This Wetland Assessment Impact Report has been submitted to Alberta Environment for approval. Disturbance to any wetlands prior to receiving Alberta Environment approval will be strictly prohibited.

4.4.6 Historical Site Assessment

Historical Resources Act clearance was granted by Alberta Culture on November 19, 2020 for the entirety of NE 1-58-10W4M. No further actions are required.

5.0 Development Concept

5.1 Introduction

The Altaland Industrial Park ASP consists of a mixture of Industrial/commercial lots with a central stormwater management facility. **(See Figure 4)** An overall grading plan will be completed to fill low lying areas, provide a level area for building construction and prevent cross lot drainage by draining to the central stormwater management facility.

The St. Paul Airport is located northwest of the ASP area and is 3 kms west of St. Paul. This airport is an all-weather facility and is one of two airports within the County. Due to the ASP's close proximity to this airport, it is important to reduce any potential impacts that may affect air traffic.

5.2 Industrial/Commercial

The proposed ASP development will provide a mix of commercial and light industrial land uses that are compatible with one another and that will serve the surrounding residents, as well as, the Town of St. Paul to the East.

The site area will utilize the industrial/commercial (IC) District which allows for but not limited to the development of agricultural service centres, commercial service centre, and personal service shops. Light industrial is also permitted within the site and includes the processing of raw materials, the manufacturing or assembly of goods and equipment and the storage or transshipment of materials, goods and equipment as permitted uses. Other uses may be permitted and will be to the discretion of the development authority. Each parcel will range from 0.5ha to 3.5ha in size and will be confirmed at the time of subdivision.

All industrial activities within the ASP area will not result in the emission of odours, dust, smoke, gas, noise or vibration outside the buildings so that no impacts are created to the St. Paul Airport to the northwest. All activities will be carried out inside the facilities, except for the storage of finished goods which may be located outdoors provided it is screened from view of public roadways or public spaces. While outdoor storage of finished goods is permitted, outdoor storage of used goods or materials will be prohibited.

5.2.1 Design Standards

The purpose of the Design Guidelines is to ensure an attractive and distinct built environment for development within the Plan area. Design guidelines for the Plan will promote the area's ability to function well, while accommodating commercial and industrial uses in a cohesive fashion. The Plan area has significant frontage along Highway 29 and a multi-lot country residential subdivision that requires mindful and attractive design.

These requirements will apply to applications for rezoning, subdivision, development permit and building permit stages, depending on the nature of the guidelines.

5.2.1.1 Site Layout

- Work with existing site topography and minimize disturbance where possible.
- Use through roads to connect sites and promote good street linkages where feasible.
- Additional landscaping or other methods of screening may be required along the south and north boundary of the site to provide a visual barrier from the Country Residential subdivision to the south and Highway 29 to the north, which will be confirmed at the time of development permit.

5.2.1.2 Streetscape and Site Design Guidelines

- Complimentary and consistent signage and wayfinding materials shall be incorporated into site design.
- Situate buildings close to the front of the lot and orient to the street in order to create a pleasing streetscape and reduce the distance for infrastructure extensions from municipal roadways.
- All loading, storage and waste collection areas should be concealed from view of adjacent sites and public roadways.

5.2.1.3 Building Design

- Buildings shall be oriented to abut public streets and roadways to create interest and definition using setbacks allowable in the Land Use Bylaw's zoning regulations.
- Building scale and height shall be sensitive to adjacent development and consider mass, overshadowing and privacy of abutting uses.
- All visible sides of buildings within the plan area should have a high level of quality that is attractive from Highway 29 to the north and the country residential subdivision to the south.
- Best efforts should be used to screen mechanical equipment in a manner compatible with the site character.
- Alternative roofing materials that improve environmental or building performance shall be encouraged; examples include green or reflective roofs. These roofing options, and other available technologies, must reduce heating and cooling costs, decrease site runoff and extend the life of the roof itself to save maintenance costs.
- Reuse of grey water or use captured rainwater for landscaping uses to achieve water savings and reduce the amount of water waste being generated on the site is encouraged. This can be done by installing grey water capture systems and the use of freestanding or integrated cisterns.
- Design of buildings and site features will have a common architectural theme, principal design elements, finishing materials, colours and roof styles. These elements should be applied to each building, with minor variations.

5.2.1.4 Outdoor Display Areas and Lighting

- Lighting design should complement the design of the development and provide for a safe, attractive environment.
- Energy efficient exterior lighting should be considered, and design should reduce off-site lighting and limit night sky pollution.

5.2.1.5 Outdoor Space

- All proposed outdoor areas shall be designed using Crime Prevention through Environmental Design (CPTED) principles to proactively deter criminal behavior through alterations to the urban environment.

5.2.1.6 Landscaping

- Low maintenance, commercially available and zone appropriate/native species will be given priority over non-native grasses in site landscaping, stormwater management facility landscaping, municipal reserve and public utility lots.
- Use of drought resistant vegetation in order to reduce irrigation needs and landscape maintenance, using xeriscaping techniques in onsite landscaping is encouraged.

5.3 Open Space

5.3.1 Municipal Reserve

A 6m municipal reserve (MR) strip is located along the south boundary of the Plan. This MR area will provide a buffer between the Multi-lot Country Residential subdivision to the south and the ASP area and may include a berm, fence or landscaping such as trees and shrubs. The Municipal Government Act Section 666 stipulates that a maximum of 10% of land within a parcel will be required to be provided as municipal reserve dedication either as land dedication, cash-in-lieu or a combination of both.

Due the industrial nature of the development and size of the parcel, the majority of municipal reserves owing will be paid as cash-in-lieu to the County of St. Paul No 19. A land appraisal shall be completed to determine the amount of cash-in-lieu required.

5.3.2 Environmental Reserve

Multiple wetlands were identified through the completion of a *Wetland Assessment and Impact Report* completed by Fiera Biological Consultants Ltd. These wetlands were considered to have low value based on the poor connection to surrounding lands and current level of disturbance based on past land uses. A low wetland value of "D" was given to all wetlands within the site by Fiera Biological. The feasibility to retain these wetlands through development of the site would be very difficult if not impossible due to grading restrictions and servicing constraints.

Due to the quality of the wetland, current disturbance levels, size of the parcel and limited development potential of the site, all wetlands are proposed to be removed with development. The disturbance and removal of these lands will require Alberta Environment approval and compensation paid to the Government of Alberta.

5.3.3 Stormwater Management Facility

A stormwater management facility is located in the central Plan area. This stormwater management facility will provide visual amenity to the development, as well as, provide a utility function for the retention of stormwater. All industrial/commercial lots within the ASP area will drain to this central stormwater pond and discharge at pre-development rates to ensure no lands outside of the Plan area are affected.

Table 1: Land Use Statistics

Land Uses	Ha	%	Units	%	Pop.	%
GROSS AREA	**30.09**					
GROSS DEVELOPABLE AREA	**30.09**					
LAND USES						
Industrial/Commercial	22.27	74.0%				
Stormwater Management Facility	3.21	10.7%				
Public Utility Lot	0.72	2.4%				
Circulation	3.41	11.3%				
Municipal Reserve	0.48	1.6%				
SUBTOTAL - LAND USES	**30.09**	**100.0%**				

5.4 Transportation

In order to ensure that the transportation system accommodates both current and future needs in the greater Plan area, we have included a general transportation concept. **(See Figure 5)** The transportation concept demonstrates that traffic movements can be accommodated east to Range Road 100. **(See Figure 5)** A Transportation Impact Assessment has been completed in support of the proposed development, as well as, consultation with Alberta Transportation.

5.4.1 Perimeter Roads

Two access locations are located along Range Road 100 which forms the east boundary of the ASP area. These two access locations will provide direct access to Highway 29 to the north which forms a major link to the town of St. Paul east of the development.

No access from Highway 29 will be permitted and any upgrades to Range Road 100 that are warranted based on the recommendations of the Transportation Impact Assessment will be completed to the satisfaction of the County of St. Paul.

5.4.2 Internal Road Network

The internal road network forms a "U" pattern with two access locations east to Range Road 100. While these two access locations will serve as the primary entrance and exit to the proposed ASP area, a third access to the west provides a connection to future development. A Turnaround may be constructed in this location until future development west of the ASP area proceeds.

The internal road network will be constructed as a Class 2 – Arterial Industrial roadway that has a 20 m right-of-way and will be constructed to transport vehicles larger than a WB-20 with medium or low traffic counts. The surface for this class will be constructed using hot asphalt mix. For more details, see the County of St. Paul No. 19's minimum engineering design standards Bylaw 2021-17.

6.0 Utility Services

The study area shall be serviced by County of St. Paul's sanitary, storm and water system in accordance with County of St. Paul Design Standards and Alberta Environment Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage system.

6.1 Water Servicing

Water servicing within this area shall be in accordance with County of St. Paul rural water servicing policy.

The surrounding developments are not equipped with a municipal water supply or fire protection system. The proposed development will be restricted to private, individual water supply systems. Typical systems for these rural developments involve a buried water tank (cistern) that operates with a pressurized piping system in the building.

This method of providing water to each lot by a water cistern is the responsibility of the lot owner. The water cisterns are primarily used to store water for domestic use purposes. Each lot owner will be responsible to provide its own water based on Alberta Environment Potable Water regulations.

6.2 Sanitary Servicing

The surrounding developments are not equipped with a municipal sanitary effluent collection system. The proposed Industrial/commercial Development will require that each lot be serviced privately and independently with an approved system per each subsequent Development Permit. Approved tanks for septic collection that can be serviced on a regular basis are the proposed alternative servicing solution for this development. This sanitary system is the responsibility of each lot owner.

6.3 Stormwater management

The proposed industrial/commercial development will be designed with rural cross section roadways utilizing grassed roadside ditches and swales consistent through existing development. **(See Figure 6)** The site layout conforms to local drainage patterns. This will help minimize grading and ensure an overland drainage system with positive flows to the roadside ditch. The use of road networks, culverts and PULs will serve as a collective routing system.

The proposed study area will be graded so that the major flows will drain towards the proposed stormwater management facility located in the east central Plan area. This facility will be sized to store the 1:100 storm flow generated by the 30.03 ha of industrial land. The peak flow will be regulated based on a 2.5 L/s/ha release flow rate and discharged into the existing downstream drainage system by a lift station and forcemain proposed to be located

on the northeast side of the SWMF. The proposed stormwater facility characteristics are described in detail in the Stormwater Management Plan report.

The off-site area located west of St. Paul Industrial development is currently draining through the study area, towards the existing downstream drainage system located east of the study area. This natural drainage path will need to be maintained and re-routed towards the north property line of the proposed development. The offsite drainage flows will be conveyed through a proposed 9.0m drainage easement to the existing highway drainage system.

6.4 Shallow Utilities

Shallow utilities planned for this development include natural gas servicing, power and communication. Each utility owner will be contacted and supplied with the tentative legal plan for the development to initiate design and construction planning. All shallow utilities will be installed as underground infrastructure with the exception of street furniture including pedestals, transformers and streetlights. All utility alignments will adhere to alignments set out in County of St. Paul Engineering Design Standards.

For this report it is anticipated that shallow utilities will be provided through extension of the existing system. The alignment and required easements/right-of-way will be confirmed at detailed design stage.

6.5 Emergency Services

St. Paul Industrial development is planned to be developed in one stage of construction. The road network will allow for two primary accesses along Range Road 100 which will be designed and constructed to County of St. Paul Engineering Design Standards ensuring all season access with adequate turning movements for emergency vehicles.

Opportunities exist for the stormwater management facility to provide a water source for fire-fighting purposes. This will be confirmed at the time of detailed design.

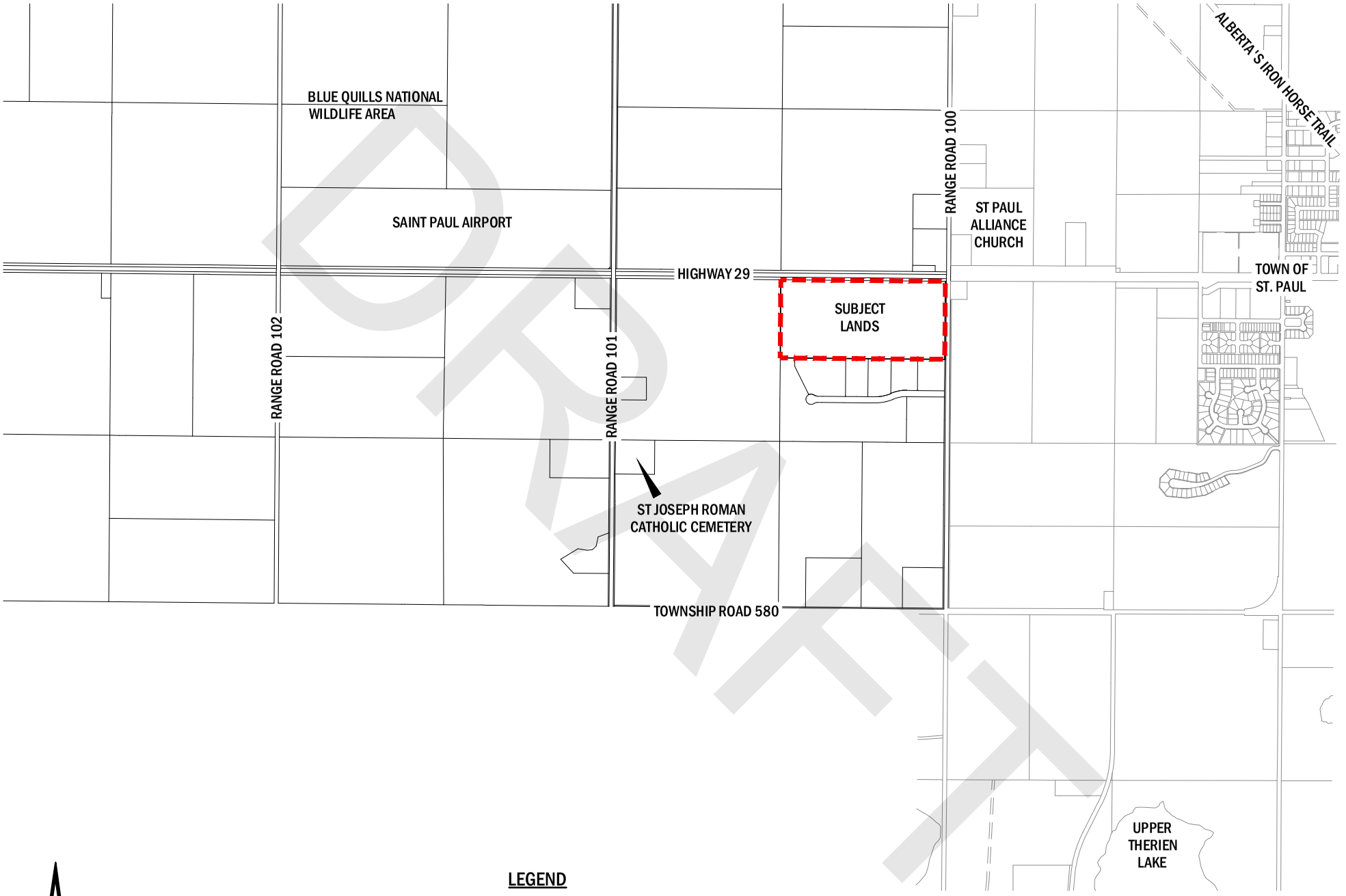
7.0 Implementation

7.1 Timeframe of development

The Altaland Industrial Park ASP is planned to be developed in one stage which is anticipated to begin construction in 2022-2023

APPENDIX A

Maps



LEGEND

ASP Boundary

LOCATION PLAN

scale 1:25,000

0 250 500 m

ALTALAND INDUSTRIAL PARK
COUNTY OF ST. PAUL NO. 19

284-19001-03-PRF001.DWG
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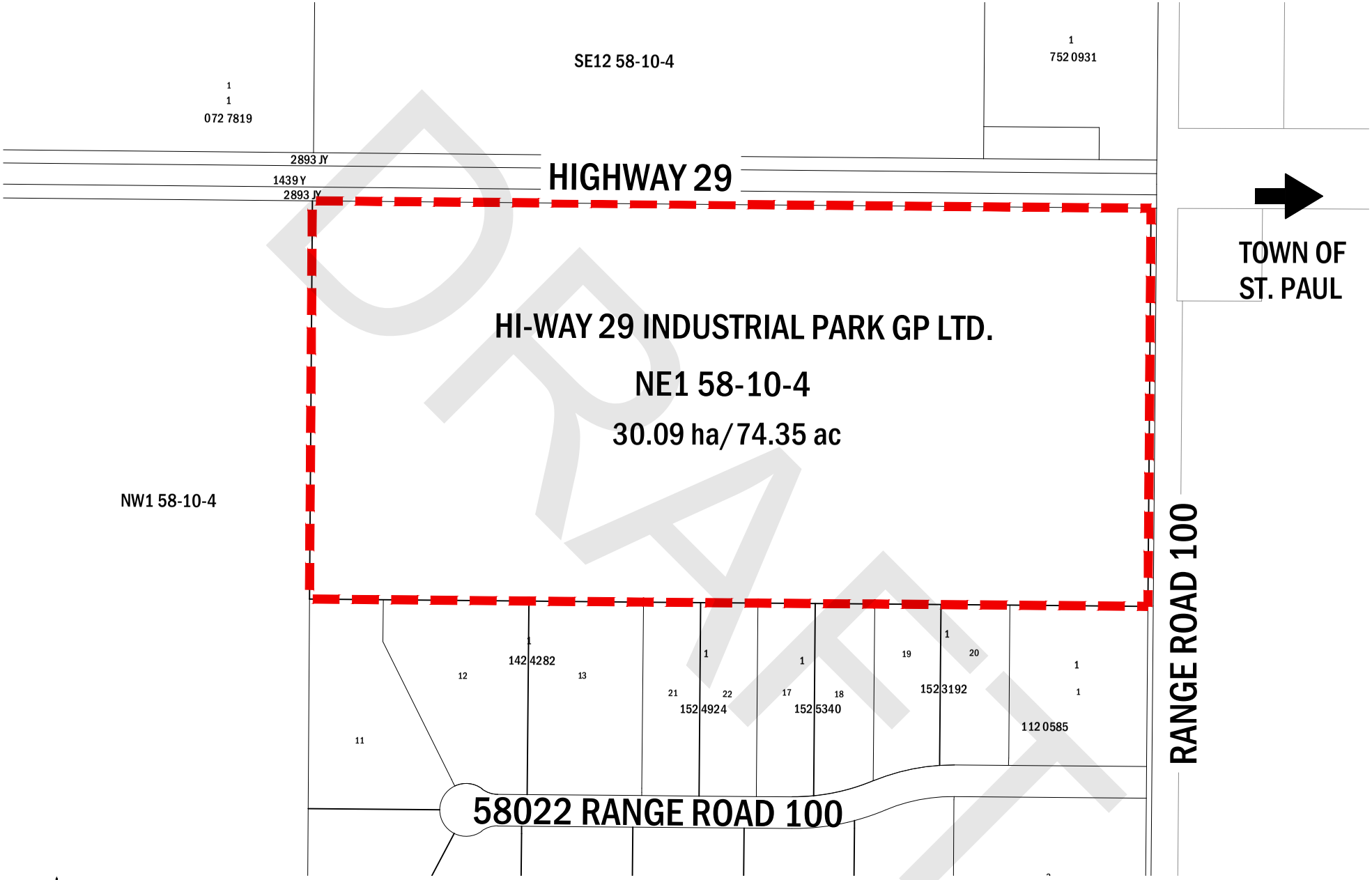
FIGURE 1



OWNERSHIP PLAN

scale 1:5000

0 50 100 m

ALTALAND INDUSTRIAL PARK
COUNTY OF ST. PAUL NO. 19

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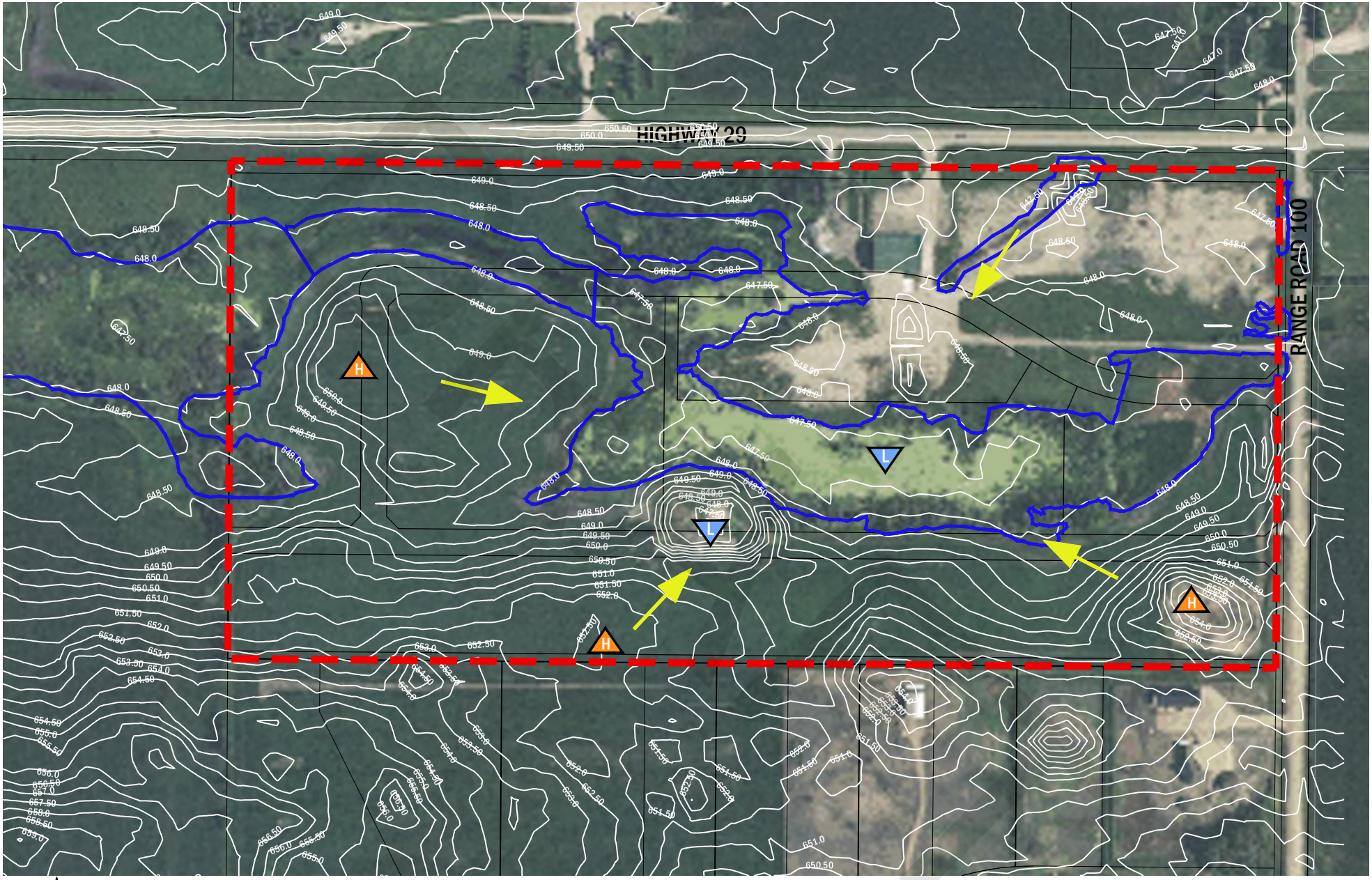
Jjurincic April 8, 2022

FIGURE 2



EXISTING SITE FEATURES

LEGEND

- Contours (650.50)
- Drainage Flow
- High Point (H)
- Low Point (L)
- Existing Wetlands
- ASP Boundary

scale 1:4000

0 40 80 m

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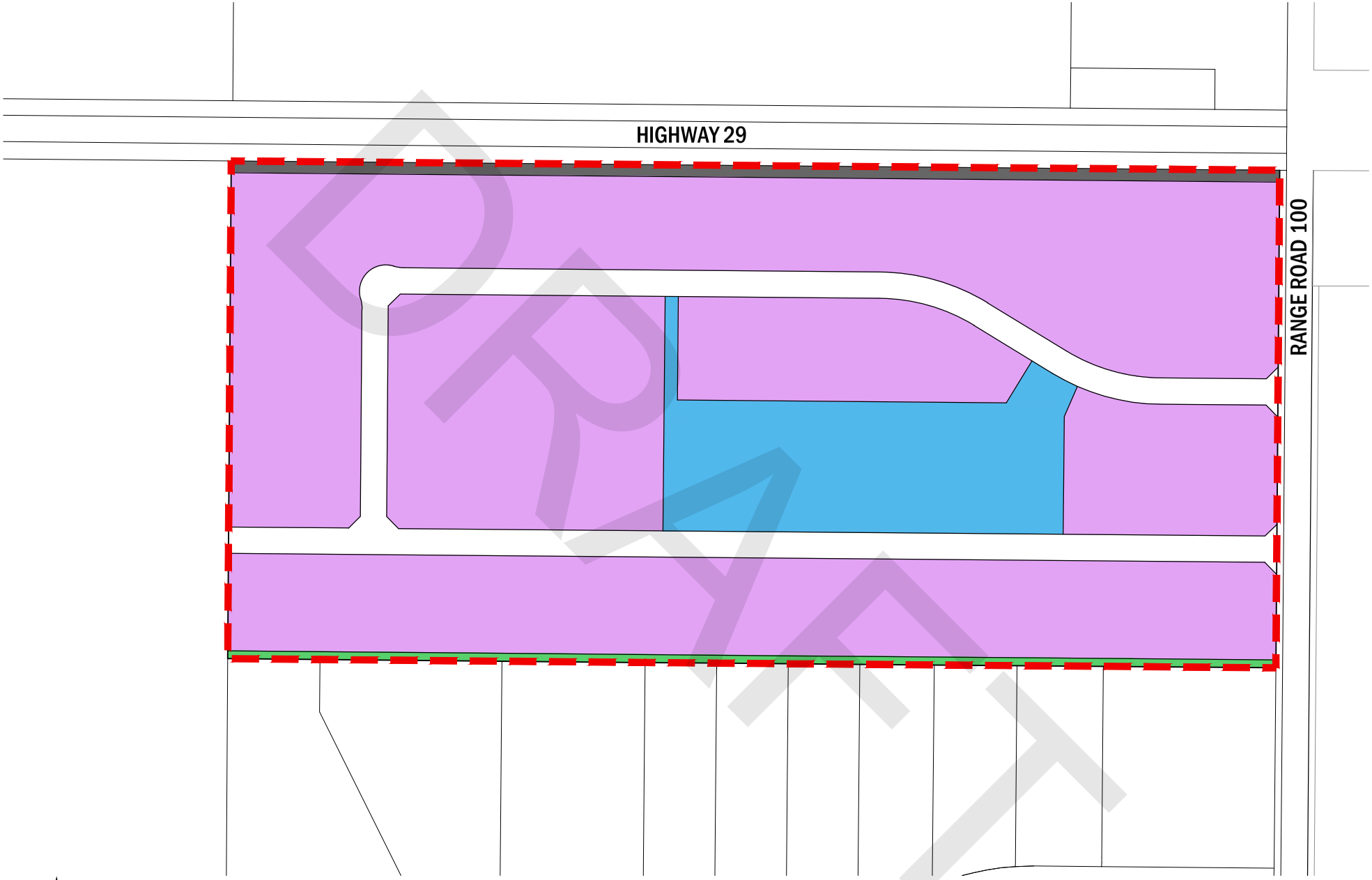
FIGURE 3



DEVELOPMENT CONCEPT

scale 1:4000

0 40 80 m

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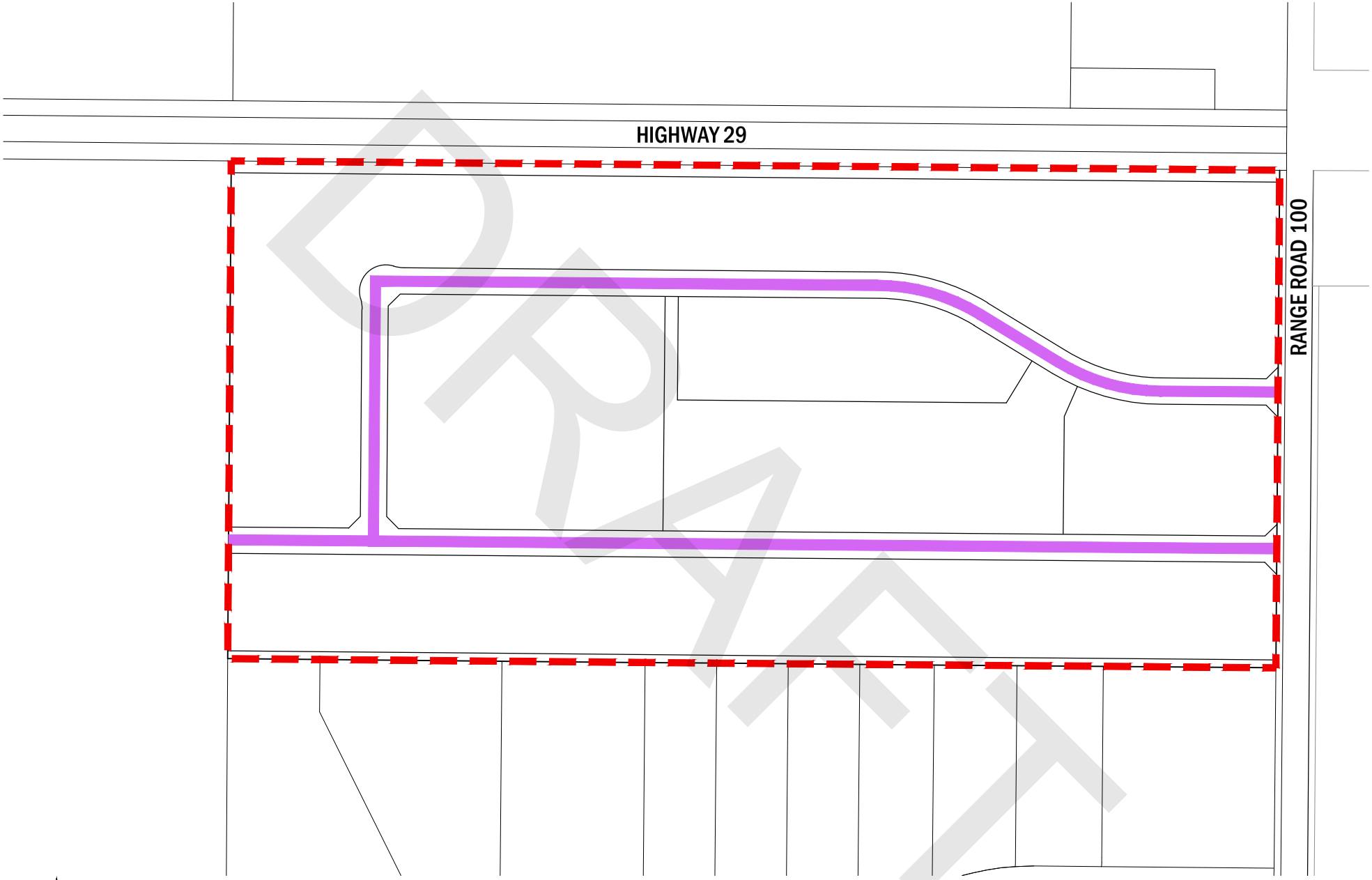
FIGURE 4



TRANSPORTATION PLAN

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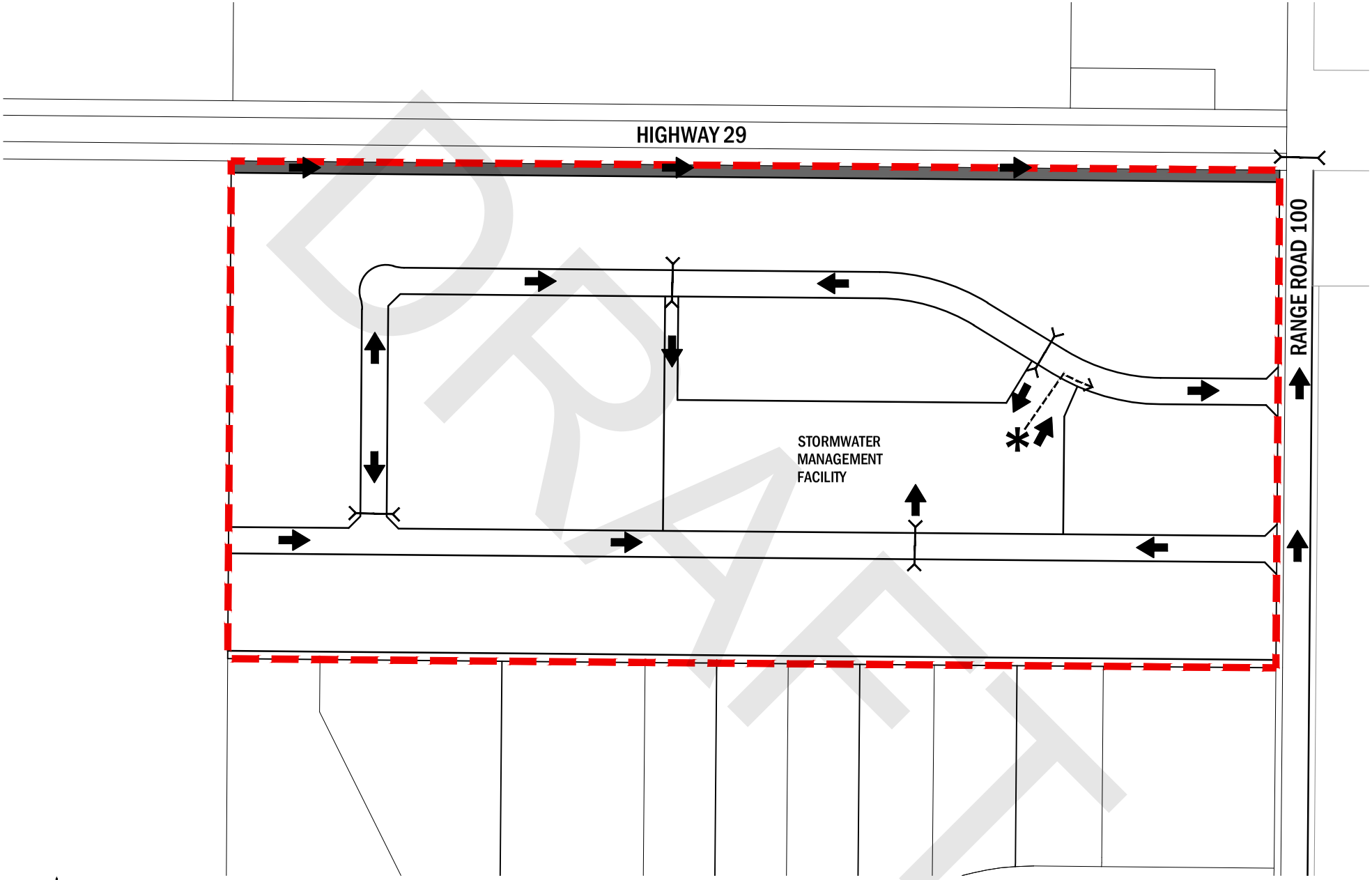
FIGURE 5



STORMWATER SERVICING PLAN

scale 1:4000

0 40 80 m

ALTALAND INDUSTRIAL PARK
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FIGURE 6

TABLE 3: RIGHT TURN LANE

HIGHWAY DESIGN SPEED (km/h)	LENGTH AND TAPER RATIO "TR" OF RIGHT TURN TAPER (m)	LENGTH OF PARALLEL LANE "P1" ** (m) RIGHT TURN LANE NOT + WARRANTED	RIGHT TURN LANE + WARRANTED	LENGTH AVAILABLE FOR DECELERATION: LANE + TAPER	DECELERATION LENGTH REQUIRED BASED ON DESIGN SPEED	STORAGE LENGTH PROVIDED BY STANDARD TREATMENT
50	87.5 at 25:1	0	0	87.5	70	17.5
60	87.5 at 25:1	0	10	97.5	90	7.5
70	87.5 at 25:1	0	35	122.5	110	12.5
80	87.5 at 25:1	10	50	137.5	130	7.5
90	87.5 at 25:1	10	65	152.5	150	2.5
100	87.5 at 25:1	10	85	172.5	170	2.5
110	140.0 at 40:1	20	100	240 ⚠	190	50
120	140.0 at 40:1	20	100	240	210	30
130	140.0 at 40:1	30	110	250	215	35

** ADJUST PARALLEL LANE LENGTH FOR GRADE EFFECT.
+ SEE RIGHT TURN LANE REQUIREMENTS IN SECTION D.7.7

TABLE 2: LEFT TURN LANE

HIGHWAY DESIGN SPEED km/h	LENGTH AND TAPER RATIO "TB" OF BYPASS LANE (m)	PARALLEL DECELERATION LANE "P2" ** (m)	LENGTH AVAILABLE FOR DECELERATION ½ TAPER+LANE	DECELERATION LENGTH REQUIRED BASED ON DESIGN SPEED	STORAGE LENGTH PROVIDED BY STANDARD TREATMENT
50	140 at 40:1	20	90	70	20
60	140 at 40:1	35	105	90	15
70	140 at 40:1	55	125	110	15
80	140 at 40:1	80	150	130	20
90	210 at 60:1	70	175	150	25
100	210 at 60:1	85	190	170	20
110	210 at 60:1	100	205	190	15
120	210 at 60:1	120	225	210	15
130	210 at 60:1	125	230	215	15

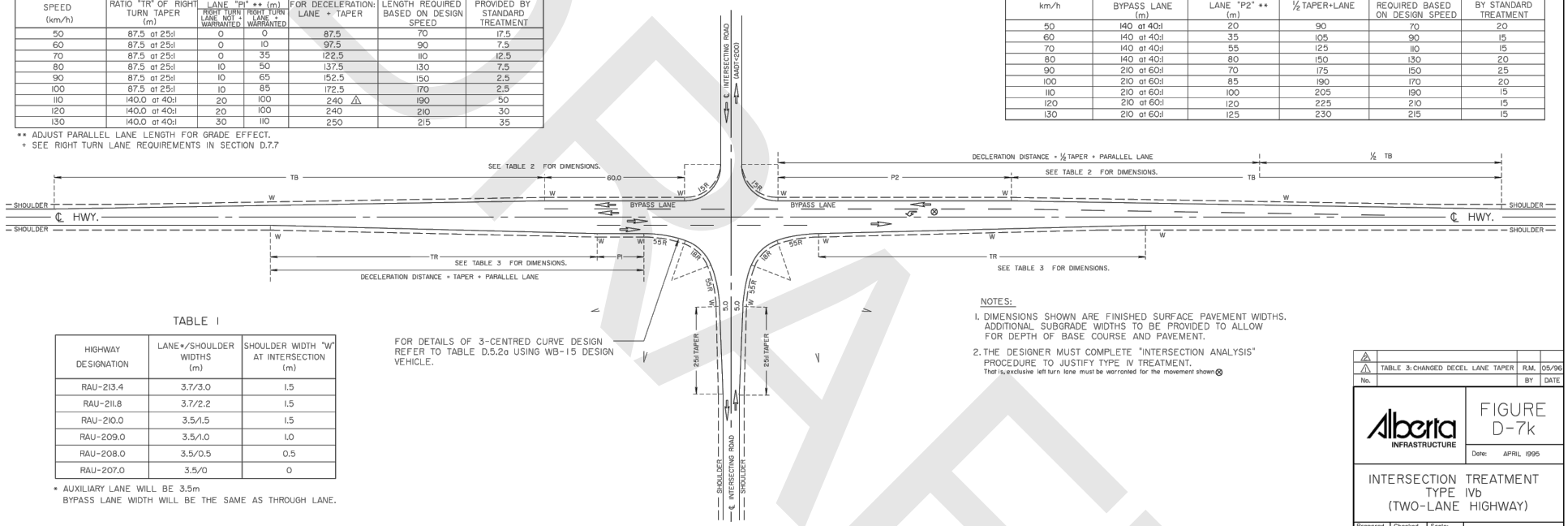

TABLE 1

HIGHWAY DESIGNATION	LANE*/SHOULDER WIDTHS (m)	SHOULDER WIDTH "W" AT INTERSECTION (m)
RAU-213.4	3.7/3.0	1.5
RAU-211.8	3.7/2.2	1.5
RAU-210.0	3.5/1.5	1.5
RAU-209.0	3.5/1.0	1.0
RAU-208.0	3.5/0.5	0.5
RAU-207.0	3.5/0	0

* AUXILIARY LANE WILL BE 3.5m
BYPASS LANE WIDTH WILL BE THE SAME AS THROUGH LANE.

FOR DETAILS OF 3-CENTRED CURVE DESIGN REFER TO TABLE D.5.2a USING WB-15 DESIGN VEHICLE.

NOTES:

1. DIMENSIONS SHOWN ARE FINISHED SURFACE PAVEMENT WIDTHS. ADDITIONAL SUBGRADE WIDTHS TO BE PROVIDED TO ALLOW FOR DEPTH OF BASE COURSE AND PAVEMENT.
2. THE DESIGNER MUST COMPLETE "INTERSECTION ANALYSIS" PROCEDURE TO JUSTIFY TYPE IV TREATMENT.
That is, exclusive left turn lane must be warranted for the movement shown ⊗

No.		BY	DATE
⚠	TABLE 3: CHANGED DECEL. LANE TAPER	R.M.	05/96

Alberta INFRASTRUCTURE

FIGURE D-7k

Done: APRIL 1995

INTERSECTION TREATMENT TYPE IVb (TWO-LANE HIGHWAY)

Prepared By: R.T. | Checked By: B.K. | Scale: N.T.S.

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Graphics File: debd7k.mon

HIGHWAY INTERSECTION DETAIL

N.T.S.

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FIGURE 7