SILVER CREEK
Developments

Varsity Valley

Comprehensive Development Review

Rural Municipality of Corman Park

Viking Land Corp.

Project Name:	Varsity Valley
Owner:	Viking Land Corp.
Prepared For:	Rural Municipality of Corman Park No.344
Prepared By:	Devin Clarke, RPP, MCIP Silver Creek Developments AND Maggie Schwab, RPP, MCIP Schwab Planning Solutions
Date:	December 2, 2025

CONTENTS

EXECUTIVE SUMMARY

Varsity Valley Business Park (VVBP) is a new boutique commercial and light-industrial development located in the RM of Corman Park, directly east of Saskatoon's City limits. The park is positioned west of Highway 41 and at the base of the scenic eastern ridge, an area well known to cyclists and outdoor recreation users.

This is one of the most strategically positioned areas in the region, with immediate exposure to Highway 41, excellent future visibility from the planned Saskatoon Freeway, and adjacency to lands designated Future Urban Residential in the P4G Land Use Plan. The park is also next door to University of Saskatchewan research lands and only minutes from both the U of S and the new Saskatchewan Polytechnic campus—connecting businesses to innovation, talent, and fast-growing neighbourhoods.

Phase 1 includes a limited release of 10 lots, reflecting the park's specialized, boutique nature. VVBP is designed for organizations seeking a high-quality commercial setting with strong growth fundamentals and a distinguished location. Additional phases will be considered following the build out of Phase 1.

This document serves as a Comprehensive Development Review (CDR) to support the rezoning and re-subdivision of a 12.86 ha (31.78 acre) parcel, located in all of Parcels D, E, F, G, H, and J, Plan No. 102331639, NW ¼ Section 10, Township 37, Range 04, W3M from DC-2 by contract to DC-2 in the Saskatoon North Partnership for Growth (P4G) Planning District. A previous application to subdivide and rezone this land was approved in 2019, which resulted in the creation of six commercial/light industrial lots sized approximately 5 acres each with DC-2 zoning by contract. The intent of this project is to re-subdivide the parcels into smaller sizes and to remove the contract zoning.

The project land was initially identified for "Future Urban Development" within the P4G District Official Community Plan. To accommodate this development, a Detailed Planning Document (DPD) was submitted to the five partner municipalities for consideration to change the land use to "Rural Commercial/Industrial". This document was submitted in April 2023 for consideration, and the land use was ultimately amended to accommodate this future development.

Water supply will be provided by SaskWater. Sewage treatment will be handled with either individual septic tanks or mounds installed at each lot, depending on each individual lot owner.

A preliminary grading and drainage plan were completed by BCL Engineering. All internal site drainage will be contained within the boundaries and directed to a stormwater pond that will need to be constructed at the northwest corner of the development site. Drainage will be directed through internal site ditches and through culverts. To meet Water Security Agency standards, the drainage analysis considered the 1:100 year 24-hour storm event, plus an additional 25% freeboard. Pre-development and post-development conditions were calculated to ensure that post-development conditions do not exceed pre-development conditions. Storm water pond sizing and site grading options were also provided. To ensure proper drainage, an existing cross culvert along Township Road 3043 was recommended to be cleaned and maintained.

A geotechnical investigation and report were undertaken in August 2025 by P. Machibroda Engineering Ltd. Through borehole drilling and analysis, soil stratification, groundwater conditions, position of unstable sloughing soils, and the depths at which cobblestones/boulders were encountered were recorded. Design considerations were provided, based on the existing subsurface soil and groundwater conditions for potential site development. It was concluded that based on current conditions, conventional site preparation (scarifying, moister conditioning, and re-compacting of soils) will suffice over the majority of the lots. The use of geosynthetics and additional fill thicknesses may be required in the lower lying areas of the parcel. If fill is required, on-site clays are considered acceptable for use as general subgrade fill. The groundwater table is anticipated to be below the depth of typical excavations at the site, and as such, conventional open-cut excavations with sloped sidewalls are feasible. In terms of foundation recommendations, alternatives for structures at the site include drilled, cast-in-place concrete piles, continuous flight auger piles, driven open-ended steel pipe piles and helical screw piles. Pile foundations will not undergo movements to the same level as footings and are preferred if potential foundation movements are not tolerable.

A Traffic Impact Assessment was undertaken by KGS Group and was completed in August 2025. The analysis proved that little impact is expected to the road network. Turning movement counts captured the combined weekday morning peak period and the afternoon peak period for intersections at Highway 41 and Township Road 372 and at Highway 41 and Range Road 3043. Background 2040 traffic volumes without the development were calculated, followed by 2040 traffic volumes with full build-out of the proposed development. Several conclusions were provided within the TIA. The Highway 41 and Township Road 372 intersection and the Highway 41 and Range Road 3043 intersection are expected to operate well (LOS A) in the morning and afternoon peak hours after the full buildout of the project, as well as the proposed site access intersections. Following the build-out of the Saskatoon Freeway, the Highway 41 and Range Road 3043 intersection will be closed due to its proximity to the freeway. This will cause the Highway 41 and Township Road 372 intersection to operate with slightly more delay than it would without the freeway. Despite this, the Highway 41 and Township Road 372 intersection would still operate adequately (LOS A) in the morning and afternoon peak hours.

A sensitivity analysis was also conducted to determine how much additional land could be developed in the development area if the Saskatoon Freeway and its associated right-of-way and setback requirements were not realized. It was determined that an additional eight to eleven parcels of land could be developed before the intersection of Township Road 372 and Highway 41 reaches excessive delays on its west leg which provides access to the proposed development.

Letters were distributed to all neighbours within one mile (1.6 km) of the proposed development in October 2025 informing residents of the proposed subdivision and rezoning application. A single response was received from a neighbouring resident, expressing their support for the development application.

1 INTRODUCTION

1.1 PURPOSE

This document shall serve as the Comprehensive Development Review (CDR) document required for the re-zoning and re-subdivision application from DC-2 by Contract to DC-2 in the Saskatoon North Partnership for Growth (P4G) Planning District. This review provides a framework for the rezoning and re-subdivision for the purpose of developing a total of 10 commercial / light industrial lots.

The development is called Varsity Valley Business Park. The Plan of Proposed Subdivision for the development is included in **Appendix A**.

This CDR has been prepared by Silver Creek Developments in collaboration with Schwab Planning Solutions, on behalf of the owner/developer (Viking Land Corporation). Questions on the proposal or the material contained within this document should be directed to:

Devin Clarke, RPP, MCIP
Principal
Silver Creek Developments
306-291-1668
devin@silvercreekdevelopment.ca

1.2 OVERVIEW

It is the intention of the Developer to rezone and re-subdivide the land to accommodate a multiple parcel commercial and light industrial development. The proposed development is located immediately east of Llewellyn Road and the City of Saskatoon, and west of Highway 41.

The RM of Corman Park, City of Saskatoon, City of Warman, City of Martensville and Town of Osler adopted a District Regional Plan entitled the Saskatoon North Partnership for Growth (P4G) Plan. The proposed development aligns with the policies of this plan.

The proposed Varsity Valley Business Park was designed to provide lots that accommodate the regulations in the DC-2 zoning district. The smallest lot is 0.59 hectares (1.46 acres) in size, while the largest lot is 1.08 hectares (2.66 acres) in size. As a part of the Detailed Planning Document submitted to the P4G Group in 2024, the Developer sought out a market analysis to determine the ideal parcel size for a commercial/light industrial development. Colliers International concluded that the ideal parcel size to accommodate a development such as Varsity Valley Business Park ranges from 1.5 to 2.5 acres (see Detailed Planning Document attached as **Appendix B**).

Policy and zoning reviews as it relates to the P4G District Official Community Plan and Zoning Bylaw are provided in Sections 5.1 and 5.2 of this report.

2 INVENTORY AND ANALYSIS

2.1 EXISTING LAND USE

The development site is currently characterized by very flat terrain that is currently used for agricultural purposes. The local topography of the area ranges from near level to moderate slopes no greater than 11% moving towards the east to the Strawberry Hills. The property and surrounding area are in the physiographic region known as the Saskatchewan Rivers Plain. The Saskatchewan Rivers Plain is characterized as gently undulating to rolling glacial lacustrine-alluvial plains (glacial lake plains), aeolian plains (dunes) and till plains.

The parcel is bordered by Township Road 372/Agra Road on the north and Range Road 3043/Llewellyn Road on the west. Other land uses in the area consist of a mixture of multiple parcel country residential development, agricultural land (research land and cultivated land). The closest highway to the proposed development is Provincial Highway #41, adjacent to the southeast boundary of the subject parcel (see Map 1 on following page).

The Existing Land Use Context of the Proposed Development is as follows:

North

- Township Road 372/Agra Road	Adjacent to north boundary
- Monsanto Research Farm	Immediately across Agra Road
- Lafarge Canada	Approx. 400 m west of northwest corner
- Dow Agro	Approx. 1 km northwest of northwest corner

South

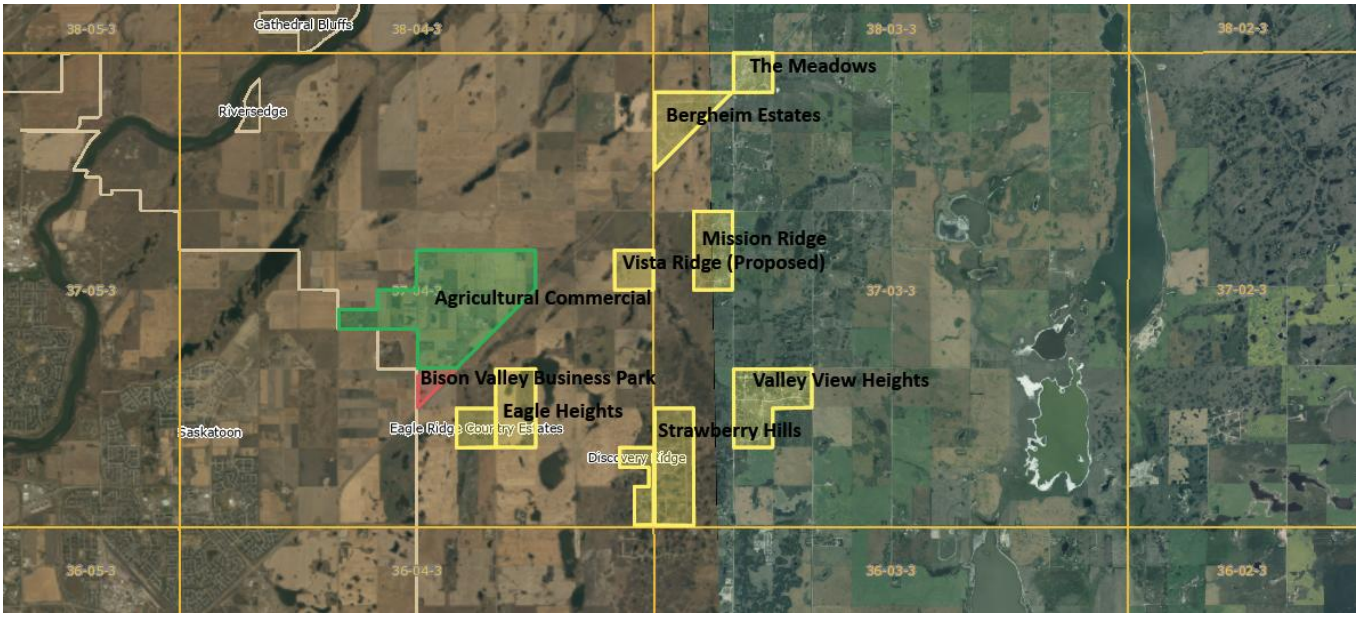
- Provincial Highway #41	Adjacent to southeast boundary
- Cultivated Farmland	Adjacent to south boundary
- Eagle Ridge Estates	Approx. 800 m southeast of south boundary
- Provincial Highway #5	Approx. 3.0 km south of south boundary

West

- Faith Alive Family Church	Adjacent to west boundary
- Prairie Christian Academy	Adjacent to west boundary
- Range Road 3043/Llewellyn Road	Adjacent to Faith Alive Community Church
- City of Saskatoon Boundary	Immediately west of Llewellyn Road

East

- Cultivated Farmland	Adjacent to east boundary
- Farm	Approx. 1.0 km southeast of east boundary
- Organized Hamlet of Discovery Ridge	Approx. 4.0 km southeast of east boundary



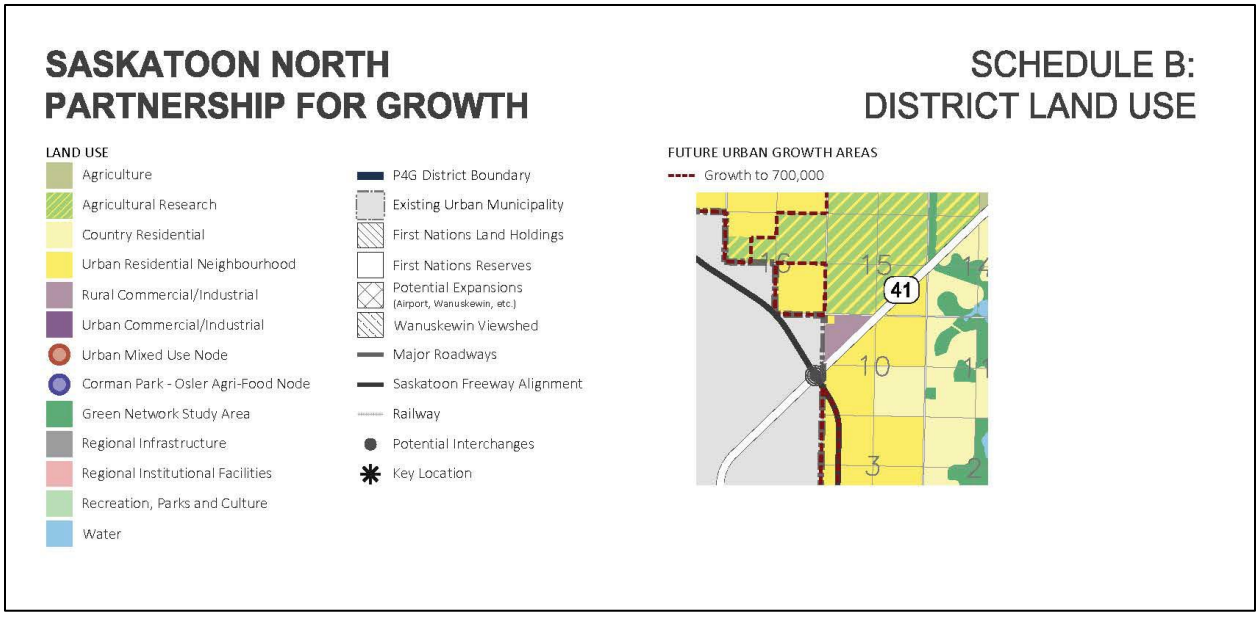
Map 1. Location of proposed Varsity Valley Business Park Development

2.2 PROPOSED LAND USE

The proposed land use is multiple parcel rural commercial/industrial development (Arterial Commercial 2 / DC2 zoning district).

The proposed Varsity Valley Business Park is compatible with the existing land uses currently in the surrounding area. The area consists of a mixture of multiple parcel country residential development, agricultural land (both grain farming and pastureland) in addition to Monsanto, DowAgro and the Pioneer Research Centre. The existing surrounding country residential developments include: Eagle Ridge Estates, Eagle Heights, Vista Ridge, Mission Ridge Estates, The Meadows, Bergheim Estates, Discovery Ridge, and Valley View. At the northwest corner of the subject parcel, there is an existing school/church (Faith Alive Family Church) which houses a Church, K-12 school, and Bible College. Undeveloped lands in the area include cultivated field crops, pasture lands and pockets of tree stands and low lying sloughs (see map above). Vista Ridge, which is not yet approved, but is proposed to feature 54 residential lots, is also identified on Map 2, as this area of the RM is characterized by a variety of existing country residential development and agricultural research lands.

Previous correspondence with the RM of Corman Park indicated that there are no gravel pits or ILOs in the area. There are known agricultural support/research services north of the subject parcel and Eagle Ridge Estates is located at the SE-10-37-4 W3M. The P4G Official Community Plan Future Land Use Map was recently amended so that this parcel of land is now designated as “Rural Commercial / Industrial” (see Map 2 on the following page).



Map 2. Land Use designation illustrating rural commercial/industrial land use designation

3 TRANSPORTATION AND MUNICIPAL SERVICES

3.1 COMMUNITY ACCESS

Varsity Valley Business Park (VVBP) is located directly east of Saskatoon's city limits. The park is positioned northwest of Highway 41 and at the base of the scenic eastern ridge. Township Road 372/Agra Road is located immediately to the north and Range Road 3043/Llewellyn Road is located to the west. A Traffic Impact Assessment (TIA) was completed in 2025 by KGS Group. The objectives of the study were to:

- Estimate the number of weekday morning and afternoon peak hour trips that will be generated by the proposed development at full build-out.
- Assess the adjacent intersection operations and the proposed development's internal road network ten years after the full build-out of the development.
- Identify mitigation measures on the surrounding road network necessary to accommodate the traffic volumes generated by this development.
- Assess the impacts that the construction of the proposed Saskatoon Freeway will have on the development as well as the surrounding road network.

Turning movement counts were conducted in early June 2025 to avoid the end of classes for elementary and high school students at the adjacent school. Turning movement counts captured the combined weekday morning peak period (7:00 am to 10:00 am) and the afternoon peak period (3:00 pm to 6:00 pm) at two intersections. The intersections that were studied included:

- Township Road 372/Agra Road and Highway 41;
- Range Road 3034/Llewellyn Road and Highway 41.

Existing traffic volumes, background 2040 volumes (estimated intersection volumes without the proposed development) and total 2040 forecast volumes (estimated intersection volumes with full build-out of the proposed development) were provided using Synchro 11.0 (industry-standard traffic analysis software). Level of Service (LOS) analysis was completed, which assesses the effectiveness of a transportation system, with LOS "A" equating to the best operating conditions and LOS "F" representing the failure of a movement or intersection. Volume-to-capacity (v/c) ratios were also calculated. The v/c ratio identifies the intersection or individual movement's ability to accommodate fluctuations in traffic flow.

3.2 EXISTING TRAFFIC VOLUMES

Both study intersections were analyzed using their existing road geometry, traffic control, and 2025 peak hour traffic volumes. The morning peak hour capacity analysis demonstrates that the study intersections currently operate well in the morning with an LOS A overall, with no leg on either intersection having an average delay above 12 s. The afternoon peak hour capacity analysis returns similar results with very little delay for vehicles and LOS A.

3.3 BACKGROUND (2040) TRAFFIC VOLUMES

Background conditions provide a point of reference to understanding the relative impact of surrounding development and growth on the transportation network and how it is expected to operate, regardless of the proposed development.

The future background traffic volume projections were developed for the 2040 horizon, 10 years after estimated full build-out. The Ministry of Highway's 15-year growth rate for Highway 41, as received from the Ministry's Traffic Services branch, is 1.35, which represents a 35% increase in traffic volumes over the next 15 years. The 15- year growth rate was applied to all roads within the study area.

The capacity analysis shows that both intersections will perform with slightly more delay than existing conditions with the addition of the background traffic volumes. There is a negligible difference in delay at the Highway 41 and Township Road 372 intersection during the morning peak hour. The northbound approach at the Highway 41 and Range Road 3043 intersection is anticipated to operates at a LOS C with the background traffic growth. Vehicles on the northbound approach will experience an average delay of 18 s during the morning peak hour. The intersection itself continues to operate at a LOS A overall.

The afternoon peak hour is similarly affected by the background traffic volume growth. The capacity analysis shows that both intersections will continue to operate at a LOS A overall. The westbound approach at the Highway 41 and Township Road and 372 intersection, and the northbound approach at the Highway 41 and Range Road 3043 intersection, are anticipated to operate at a LOS C during the afternoon peak hour. The queueing analysis for both approaches indicated approximately one vehicle waiting during the afternoon peak hour.

3.4 TOTAL (2040) TRAFFIC VOLUMES

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, was used to estimate traffic generating potential for the proposed Varsity Valley development for both weekday morning and afternoon peak hours.

The total operations assessment evaluates the traffic conditions in the area that would occur with the development of the Varsity Valley site. The study area was analyzed using the existing traffic control, the new access intersection points and the estimated 2040 full build-out traffic volumes.

The capacity analysis indicates that the Highway 41 and Township Road 372 intersection and the Highway 41 and Range Road 3034 intersection will continue to operate at a LOS A overall. The south leg at the Highway 41 and Range Road 3043 intersection is anticipated to operate at LOS D during the afternoon peak hour. Due to the very small amount of traffic from that direction, the poor performance of that leg does not majorly affect the overall operation of the intersection which remains a LOS A.

The new proposed access intersections are shown to function effectively with minimal delay and LOS A is present at the access intersections with only slightly more delay than the morning peak hour forecast.

3.5 Saskatoon Freeway Impact on 2040 Operations

The Saskatoon Freeway is a proposed 4-lane highway used to bypass Saskatoon. The proposed Phase 2 freeway route currently passes directly southwest of the development, although the right-of-way has yet to be finalized. As it stands, the proposed route will result in changes to how vehicles will access the development, and changes to how much land will be permitted to develop, as well as how close land is able to be developed to the freeway.

The total operations assessment evaluates the traffic conditions in the area that would occur with the development of the Varsity Valley Business Park and the Saskatoon Freeway. The study area was analyzed assuming the closure of the Highway 41 and Range Road 3043 intersection and the estimated revised 2040 full build-out traffic volumes. The east leg of the Highway 41 and Township Road 372 intersection performs slightly better than the morning peak hour at a LOS C and 19 seconds of average delay. Both access intersections continue to operate at a LOS A.

Development setbacks and right-of-way requirements for the Saskatoon Freeway were also illustrated in the TIA (see **Appendix C**). However, it was noted that without these required setbacks, an additional eight (8) parcels of land would be developable without a LOS D occurring at the study intersection of Highway 41 and Township Road 372. An additional 11 lots could be developable without a LOS E occurring at the same study intersection. Therefore, the Highway 41 and Township Road 372 intersection has sufficient capacity to accommodate 20 to 23 lots compared to the proposed 12 lots in the proposed site plan.

3.6 Mitigation Measures

According to the TIA, it was determined that the existing lighting in place at Highway 41 and Township Road 372 is sufficient. While a streetlight at each intersection of the proposed Varsity Valley Business Park would improve visibility for drivers in the evening, there are no street lights provided along the roadway for access to the school or businesses on the north side of the road.

In terms of turning-lane warrants, there is a channelized northbound left-turn lane and southbound right-turn lane at the intersection of Township Road 372 and Highway 41. There are no auxiliary lanes at the intersection of Highway 41 and Range Road 3043. The warrants identified that a westbound flared left-turn lane is warranted at both proposed access intersections under 2040 total forecast conditions. It is worth noting that the warrants outlined by the Ministry are applied to provincial highways and not typically used for rural roads such as Township Road 372. However, the warrants can still be an indication of a potential need for left-turn lanes if the delay for through movements is excessive.

Sight triangles were analyzed at the proposed access road intersections with Township Road 372 using the Transportation Association of Canada (TAC)'s Geometric Design Guide for Canadian Roads. Sight triangles are specified areas along intersection approach legs that should be clear of

obstructions that could obstruct a driver's view of potentially conflicting vehicles. It is important that no obstructions are present in these sight triangles to ensure a driver's view of oncoming vehicles. These potential obstructions include utility boxes, billboards/advertisements, trees or other vegetation, among other objects.

Currently, the speed limit on Township Road 372 is not posted and is assumed to be at 80 km/h as is outlined in the RM of Corman Park Traffic Bylaws. Due to the number of driveways and access roads that are already present and proposed on Township Road 372, it is recommended that the speed limit is reduced from 80 km/h to a posted speed limit of 60 km/h. The two access intersections are 185 m apart so reducing the speed limit will make it so that drivers can enter and exit the development in a safe and controlled manner.

3.7 Internal Roads

Only one internal road is proposed at the Varsity Valley Business Park development. The proposed internal road (30 m wide) will be constructed to the RM of Corman Park road standards.

3.3 Sewage Collection & Wastewater Treatment

Through correspondence between the RM of Corman Park, Community Planning Branch, and Saskatchewan Health Authority, it was determined that it would be up to each lot owner to employ septic tanks or mounds at the proposed development. Each lot owner will be responsible for choosing an appropriate means of wastewater management.

A site and soils evaluation was completed to support the previous application in 2017 by Imagine Contracting Ltd (report attached as **Appendix D**). Two test pits were excavated to a depth of approximately seven (7) feet and all horizons within the pits were evaluated. The water table was not located during the time of the investigation, however, it was noted that indications of seasonal water table were found in both tests at approximately 50" and 66", respectively. It was concluded that either holding tanks or onsite wastewater disposal systems can be utilized.

3.4 Potable Water Supply and Distribution

SaskWater has indicated that there is capacity to service the proposed Varsity Valley Business Park (see letter attached as **Appendix E**).

3.5 Drainage and Stormwater Management

A grading plan and associated drainage report were completed by BCL Engineering in August 2025 (see report attached as **Appendix F**).

The region is considered well drained with no historical issues noted, particularly on the NW ¼ Section 10, Township 37, Range 04, W3M. The subject parcel has a well-defined drainage outlet to the South Saskatchewan River. There are very few concerns that this quarter section would

experiencing any type of extreme flood event and can utilize the nearby ditching and defined drainage paths in the area.

Topographical surveys of the site were undertaken, and the review indicated a flat topography with the natural drainage direction to the west towards the South Saskatchewan River. All internal site drainage will be contained within the boundaries and directed to a stormwater pond that will need to be constructed at the northwest corner of the development site. The proposed pond has two inlet locations, and the discharge location is at the northwest corner of the pond where the existing road ditches are located. The discharged water will flow through existing culverts along the RM road allowance.

Drainage will be directed through ditches along the backside of lots and the proposed road. To meet Water Security Agency standards, the drainage analysis considered the 1:100 year 24-hour storm event, plus an additional 1.5 factor freeboard. Pre-development and post-development conditions were calculated to ensure that post-development conditions do not exceed pre-development conditions. Storm water pond sizing and site grading options were also provided. Design criteria that were applied to the pond included the following:

- 5 m setback from property lines (to comply with the P4G Zoning Bylaw);
- 3 m wide berms with 5:1 inner slopes and minimum 4:1 outer slopes; and,
- 1.5 factor of safety for freeboard between top of berm and High Water Level.

It was recommended that the high-water level of the pond should observe the Faith Alive Church entrance elevation, as provided within the City of Saskatoon Planning and Development Standards Manual.

Upon review of the site plan, a 4.13 ac Municipal Utility lot (MU1) located north of Lot 1 will be adequate in size for the construction of the new storm pond. The active storage of 6,235 m^3 is required with an active storage depth of 0.887 m and a floor elevation of 514.055 m.

To ensure proper drainage, an existing cross culvert along Township Road 3043 was recommended to be cleaned and maintained.

3.6 Shallow Utilities

Community Planning has referred the development to all utility providers and no issues were identified throughout the subdivision application process. Additionally, SaskEnergy and SaskPower have existing lines in the immediate vicinity servicing Faith Alive Family Church and Prairie Christian Academy.

Loraas Disposal has confirmed they can be contracted to provide waste and recycling removal services at the proposed development (see confirmation attached in **Appendix G**).

3.7 Fire and Protective Services

Saskatoon Fire and Protective Services was contacted via telephone. They indicated that the subject parcel is located in their service area. While the Fire Department does not provide letters of confirmation, they indicated that the RM is welcome to clarify to discuss the parameters of levels of protection.

Police services will be provided by the Corman Park Police Services and the Saskatoon Detachment of the Royal Canadian Mounted Police.

4 HERITAGE, ENVIRONMENT AND GEOTECHNICAL

4.1 HERITAGE CONSERVATION

According to the Heritage Conservation Branch at the Ministry of Parks Culture and Sport, the proposed development is not located in an area with any potential heritage sensitivity (query attached as **Appendix H**).

4.2 ENVIRONMENTAL CONSIDERATIONS

A query of HabiSask indicated that the development is not located in an area with potential endangered animal of plant species, nor is it located in proximity to a permanent water source (see environmental query attached as **Appendix I**).

In December, 2015 P. Machibroda Engineering Ltd. was contracted to undertake a Phase 1 Environmental Site Assessment (ESA) at the proposed development (report attached as **Appendix J**). The Phase 1 ESA consisted of a review of available background and historical information, a visual site review, and a report of findings. The purpose of the ESA was to determine the potential existence of contaminants and/or environmental concerns on the subject parcel.

Based on the above, it was determined that the subject property is considered to have a low environmental hazard potential and no further investigation (Phase II ESA) was considered warranted. An update to the Phase 1 ESA was determined to not be warranted due to no activity occurring on the land since the assessment was completed.

4.3 GEOTECHNICAL ANALYSIS

A geotechnical investigation and report were undertaken in August 2025 by P. Machibroda Engineering Ltd (**Appendix K**). A total of three (3) boreholes were dry drilled to depths between 12.0 and 12.4 m below the existing ground surface. Soil stratification, groundwater conditions, position of unstable sloughing soils, and the depths at which cobblestones/boulders were encountered were recorded.

Design considerations are provided based on the existing subsurface soil and groundwater conditions for potential site development. It was noted that the subgrade soils are considered frost susceptible, and the potential depth of frost penetration could range from 1.7 m to 2.5 m, depending on a number of factors. While the groundwater table was greater than 4.6 m below existing grade, higher conditions should be expected during spring snowmelt and periods of precipitation. It was concluded that based on current conditions, conventional site preparation (scarifying, moisture conditioning, and re-compacting of soils) will suffice over the majority of sites. The use of geosynthetics and additional fill thicknesses may be required in the lower lying areas of the parcel. If fill is required, on-site clays are considered acceptable for use as general subgrade fill. The groundwater table is anticipated to be below the depth of typical excavations at the site, and as such, conventional open-cut excavations with sloped sidewalls are feasible.

In terms of foundation recommendations, alternatives for structures at the site include drilled, cast-in-place concrete piles, continuous flight auger piles, driven open-ended steel pipe piles and helical screw piles. With respect to footings, they can be considered as a foundation support, but will be exposed to potential foundation movements associated with the highly plastic nature of the clay soils. Pile foundations will not undergo movements to the same level as footings, and are preferred if potential foundation movements are not tolerable. It was noted that grade-supported floor slabs could also be considered, but will be exposed to potential differential movements associated with soil volume changes in the clay. If grade-supported floor slabs are constructed, it was recommended that methods to minimize potential movements should be implemented during design/construction.

5 POLICY CONTEXT

The proposed Varsity Valley Business Park development is located within the P4G Planning District area. The proposed development has been designed to meet the requirements of the P4G Official Community Plan and Zoning Bylaw as described in Sections 5.1 to 5.2 below.

5.1 P4G DISTRICT OFFICIAL COMMUNITY PLAN

Land Use Objectives and Policies (Section 10) – Section 10 of the P4G District Official Community Plan identifies the following land use policies that are pertinent to the proposed Varsity Valley development.

10.3.1 Land Use Compatibility

The proposed Varsity Valley development was re-designated from an Urban Residential Neighbourhood designation to Rural Commercial / Industrial designation in 2024. A Detailed Planning Document, attached as **Appendix B**, was submitted to the five partner municipalities and five separate amendments were prepared and adopted. The Detailed Planning Document identified the compatibility of this proposed development with other existing land uses, as well as future potential land uses in the area. The intent of the developer is to move forward with rezoning the entire parcel to DC2 – Arterial Commercial District.

10.3.2 District Land Uses

The subject parcel has been designated as "Rural Commercial / Industrial" on Schedule B – District Land Use Map.

10.3.3 Future Urban Growth Areas

As a part of the previous re-designation of the parcel from Urban Residential Neighbourhood to a Rural Commercial / Industrial designation, application was made, and an amendment was undertaken to Schedule C – Future Urban Growth Areas to remove this parcel of land from being designated to accommodate a regional population of 1 million.

10.3.4 Intent of the Land Use Designations

- 10.3.4 (c): The potential development of this parcel aligns with the Rural Commercial / Industrial designation, as the developer is applying to rezone a portion of the subject parcel to DC-2 – Arterial Commercial 2 District. This land use designation suggests that uses at the site will accommodate general commercial and industrial uses, including lightly serviced industrial, storage, and commercial areas that require a large land base. The permitted and discretionary uses within the DC-2 District align well with the intended occupants of the subject parcel.

Agricultural Objectives and Policies (Section 11) - Section 11 of the P4G District Official Community Plan identifies the following agricultural policies that are pertinent to the proposed Varsity Valley rural commercial / light industrial development.

11.3 Fragmentation of Agricultural Land

- 11.3.5: Correspondence with the RM of Corman Park planning staff indicated that there no gravel pits or ILOs in the area. There are also no other land use conflicts in the vicinity of the proposed development (see correspondence attached as **Appendix L**).

Rural Commercial Policies (Section 13) and Rural Industrial Policies (Section 14) – Sections 13 and 14 of the P4G District Official Community Plan identifies the following Rural Commercial and Industrial Policies that are pertinent to the proposed Varsity Valley development. Policy review of Sections 13 and 14 are combined as the two sections are identical.

13.3 and 14.3 Policies

- 13.3.1 and 13.3.2 and 14.3.1 and 14.3.2: The proposed development is located on land designated as "Rural Commercial / Industrial" as provided on Section B – District Land Use Map, and as illustrated in the attached Detailed Planning Document (see **Appendix B**).

- 13.3.3 (a) and 14.3.3 (a): A query of the Habi-Sask database indicated that the parcel is not occupied by any rare or endangered species (see query attached as **Appendix I**). It is noted that the proposed development is located on land that has been previously used as farmland and any habitat would have been previously destroyed as a result of annual farming activities. The proposed development is also not located in the vicinity of any permanent water sources.

- 13.3.3 (b) and 14.3.3 (b): A preliminary grading and drainage plan were completed by BCL Engineering. Topographical surveys of the site were undertaken and review indicated a flat topography with the natural drainage direction to the west towards the South Saskatchewan River. All internal site drainage will be contained within the boundaries and directed to a stormwater pond that will need to be constructed at the northwest corner of the development site. Drainage will be directed through internal site ditches and through culverts. To meet Water Security Agency standards, the drainage analysis considered the 1:100 year 24-hour storm event, plus an additional 25% freeboard. Pre-development and post-development conditions were calculated to ensure that post-development conditions do not exceed pre-development conditions. Storm water pond sizing and site grading options were also provided. To ensure proper drainage, an existing cross culvert along Township Road 3043 was recommended to be cleaned and maintained (see Drainage Plan in **Appendix F**).

- 13.3.3 (c) and 14.3.3 (c): SaskWater has confirmed a conditional allocation of potable water to the proposed Varsity Valley development (see letter attached as **Appendix E**). Wastewater management will be determined by each individual lot owner. Either holding

tanks or Type II mounds will be employed on site, depending on the end user. Low intensity users may choose to employ holding tanks, or vice versa, but must be acceptable according to the Saskatchewan Health onsite wastewater treatment guidelines.

- 13.3.3 (d) and 14.3.3 (d): Varsity Valley is compatible with the surrounding area for a multitude of reasons, including the following:
  - There is a significant lack of designated commercial land in the area north and south of Highway 41, but a significant amount of designated country residential and urban residential land;
  - This area is potentially located adjacent to the future perimeter highway including a future interchange, making this location better suited for commercial development than an urban residential neighbourhood;
  - The number of existing and proposed country residential developments in the area would complement the proposed zoning of the subject site to accommodate commercial development, both as an employment centre, but also as a rural convenience commercial development; and,
  - A market analysis undertaken by Colliers International concluded that the ideal parcel size to accommodate commercial development in this area ranges from 1.5 to 2.5 acres. More specifically, it was recommended that parcel sizes of 2 acres would be sufficient to comply with the P4GDistrict Zoning Bylaw, while also remaining competitive in the market and with the comparable City of Saskatoon land.

- 13.3.3 (e) and 14.3.3 (e): The proposed Varsity Valley development will minimize pressure to expand or upgrade services and infrastructure. The existing road network will not be significantly impacted by the proposed Varsity Valley development. The Traffic Impact Assessment undertaken by KGS Group in August 2025, proved that little impact is expected on the road network (see **Appendix C**). Existing traffic volumes were collected in June 2025. Turning movement counts captured the combined weekday morning peak period and the afternoon peak period for intersections at Highway 41 and Township Road 372 and at Highway 41 and Range Road 3043. Background 2040 traffic volumes without the development were calculated, followed by 2040 traffic volumes with full build-out of the proposed development. Several conclusions were provided within the TIA. The Highway 41 and Township Road 372 intersection and the Highway 41 and Range Road 3043 intersection are expected to operate well (LOS A) in the morning and afternoon peak hours after the full buildout of the project, as well as the proposed site access intersections. Following the build-out of the Saskatoon Freeway, the Highway 41 and Range Road 3043 intersection will be closed due to its proximity to the freeway. This will cause the Highway 41 and Township Road 372 intersection to operate with slightly more delay than it would without the freeway. Despite this, the Highway 41 and Township Road 372 intersection would still operate adequately (LOS A) in the morning and afternoon peak hours. In addition, a sensitivity analysis was conducted to determine how much additional land could be developed in the development area if the Saskatoon Freeway and its associated right-of-way and setback requirements were not realized. It was determined that an additional eight to eleven parcels of land could be developed before the intersection of Township Road 372 and Highway 41 reaches excessive delays on its west leg which provides access to the proposed development.

- 13.3.3 (g) and 14.3.3 (g): The subject land is not prone to natural hazards, as it is not located in an area of ground instability. Topographical surveys of the site were undertaken, and the review indicated a flat topography with the natural drainage direction to the west towards the South Saskatchewan River. This was confirmed by the geotechnical study undertaken for this project (see **Appendix K**). In addition to any natural hazards, a Phase I ESA was undertaken in 2015 by P. Machibroada Engineering to confirm that no environmental hazards exist (see **Appendix J**). Based on the information reviewed and observations made during a visual site inspection, it was concluded that the subject property is considered to have a low environmental hazard potential and no further investigation (e.g. Phase II ESA) is warranted.

- 13.3.3 (h) and 14.3.3 (h): According to the Heritage Conservation Branch at the Ministry of Parks Culture and Sport, the proposed development is not located in an area with any potential heritage sensitivity (query attached as **Appendix H**).

- 13.3.3 (i) and 14.3.3 (i): The proposed development is not located on significant wildlife habit lands (see habisask query attached as **Appendix I**).

- 13.3.3 (j) and 14.3.3 (j): The subject parcel is not in an area suitable for potential recreational development, given the proximity of Highway 41 and other surrounding land uses. Suitable land for recreational uses are identified on Schedule B: District Land Use within the P4G District Official Community Plan.

- 13.3.3(k) and 14.3.3 (k): A geotechnical study was undertaken in 2025 by P. Machibroda Engineering (see **Appendix K**). Design considerations are provided based on the existing subsurface soil and groundwater conditions for potential site development. It was noted that the subgrade soils are considered frost susceptible, and the potential depth of frost penetration could range from 1.7 m to 2.5 m, depending on a number of factors. While the groundwater table was greater than 4.6 m below existing grade, higher conditions should be expected during spring snowmelt and periods of precipitation. It was concluded that based on current conditions, conventional site preparation (scarifying, moisture conditioning, and re-compacting of soils) will suffice over the majority of sites. The use of geosynthetics and additional fill thicknesses may be required in the lower lying areas of the parcel. If fill is required, on-site clays are considered acceptable for use as general subgrade fill. The groundwater table is anticipated to be below the depth of typical excavations at the site, and as such, conventional open-cut excavations with sloped sidewalls are feasible. There is no standing surface water present on the subject parcel.

- 13.3.3 (l) and 14.3.3 (l): The proposed Varsity Valley development will minimize pressure to expand or upgrade services and infrastructure. One new internal road will be constructed to the RM of Corman Park's standards. Potable water will be provided by SaskWater (see **Appendix E**). Wastewater collection for the development is proposed to be undertaken individually on each lot through the installation of septic tanks or mounds will be determined by the end-user. Other utilities (SaskPower, SaskEnergy) already exist in the immediate vicinity and connections will be established upon subdivision of land. Loraas

Disposal has confirmed they can be contracted to provide waste and recycling removal services at the proposed development (see email attached in **Appendix G**).

- 13.3.4 and 14.3.5 (b): The proposed Varsity Valley development will be serviced to a rural standard, and as such, no agreement is required with an urban municipality.

Regional Servicing Policies (Section 23) – Section 23 of the P4G District Official Community Plan identifies the following Regional Servicing Policies that are pertinent to the proposed Varsity Valley Business Park Development.

- 23.3.1: The subject parcel has been designated as "Rural Commercial / Industrial". Potable water will be provided by SaskWater (see **Appendix E**). Wastewater management will be determined by each individual lot owner. Either holding tanks or Type II mounds will be employed on site, depending on the end user. Low intensity users may choose to employ holding tanks, or vice versa, but must be acceptable according to the Saskatchewan Health onsite wastewater treatment guidelines.

- 23.3.2: At the time of this report, there were no proposed extensions of infrastructure or regional servicing options are known or available.

- 23.3.3: The Developer will be responsible for costs associated with providing the necessary infrastructure and services for the proposed Varsity Valley development. It is anticipated that details of the required services and associated infrastructure will be outlined in the servicing agreement with the RM of Corman Park.

Potable Water Policies (Section 24) – Section 24 of the P4G District Official Community Plan identifies the following Potable Water Policies that are pertinent to the proposed Varsity Valley Development.

- 24.3.3: Potable water will be provided by SaskWater (see **Appendix E**).

- 24.3.4: Connections to the municipal potable water lines will be undertaken in accordance with applicable policies and bylaws, and as specified in the servicing agreement with the RM of Corman Park.

Wastewater Policies (Section 25)– Section 25 of the P4G District Official Community Plan identifies the following Wastewater Policies that are pertinent to the proposed Varsity Valley Development.

- 25.3.4: A subdivision application was submitted to Community Planning and referred to the Saskatchewan Health Authority for review/comment. It was concluded that there are two options that may be suitable for the site, including septic tanks or mounds, provided they are installed in accordance with the Saskatchewan Health onsite wastewater treatment guidelines.

Stormwater and Drainage Policies (Section 26)– Section 26 of the P4G District Official Community Plan identifies the following Stormwater and Drainage Policies that are pertinent to the proposed Varsity Valley Development.

- 26.3.2: Drainage will be directed through ditches along the backside of lots and the proposed road. To meet Water Security Agency standards, the drainage analysis considered the 1:100 year 24-hour storm event, plus an additional 1.5 factor freeboard. Pre-development and post-development conditions were calculated to ensure that post-development conditions do not exceed pre-development conditions. It was recommended that the high-water level of the pond should observe the Faith Alive Church entrance elevation, as provided within the City of Saskatoon Planning and Development Standards Manual. Upon review of the site plan, a 4.13 ha lot located north of Lot 1 will be adequate in size for the construction of the new storm pond. The active storage of 6,235 m^3 is required with an active storage depth of 0.887 m and a floor elevation of 514.055 m. To ensure proper drainage, an existing cross culvert along Township Road 3043 was recommended to be cleaned and maintained. Storm water pond sizing and site grading options were also provided. Design criteria that were applied to the pond included the following:
    - 5 m setback from property lines (to comply with the P4G Zoning Bylaw);
    - 3 m wide berms with 5:1 inner slopes and minimum 4:1 outer slopes; and,
    - 1.5 factor of safety for freeboard between top of berm and High Water Level.

- 26.3.6: A surface model was created to determine the drainage patterns, storage and resulting water elevations. The design criteria applied to the analysis included the 1:100 year, 24 hour rainfall of 90 mm based on IDF curves for the City of Saskatoon, with 25% added to calculations A pre-development runoff coefficient of 0.20 was applied, along with a post-development runoff coefficient of 0.46. Design criteria and site grading options applicable to the sizing of the storm water pond included a 5 m setback from the property line; 3 m wide berms with 5:1 inner slopes and minimum 4:12 outer slopes; and, a 1.5 factor of safety for freeboard between top of berm and high-water level. Additionally, the high-water level of the berm was recommended to observe the Faith Alive church entrance elevation. The active storage of 6,235 m^3 is was calculated with an active storage depth of 0.887 m and a floor elevation of 514.055 m. To ensure proper drainage, an existing cross culvert along Township Road 3043 was recommended to be cleaned and maintained.

Transportation Policies (Section 27)– Section 27 of the P4G District Official Community Plan identifies the following Transportation Policies that are pertinent to the proposed Varsity Valley Development.

- 27.3.3: The proposed Varsity Valley development will be accessed by one of two entrances to Odins Way located along Township Road 372. Odins Way will be constructed to the RM of Corman Park road construction standards.

- 27.3.4: The proposed road will be constructed to the RM of Corman Park road construction standards. Both entrances to Odins Way are located along Township Road 372, which will maximize existing roadway facilities.

- 27.3.5: All-weather legal and physical access to the development will be provided to the proposed Varsity Valley development, on a year-round basis. The access points are located on Township Road 372 Road, which is a municipally maintained roadway (see TIA in **Appendix C**).

- 27.3.6: The existing road network will not be significantly impacted by the proposed Varsity Valley development. A Traffic Impact Assessment was undertaken by KGS Group in June to August, 2025, which proved that little impact is expected on the road network (see **Appendix C**). Existing traffic volumes were collected in June, 2025. Turning movement counts captured the combined weekday morning peak period and the afternoon peak period for intersections at Highway 41 and Township Road 372 and at Highway 41 and Range Road 3043. Background 2040 traffic volumes without the development were calculated, followed by 2040 traffic volumes with full build-out of the proposed development. Several conclusions were provided within the TIA. The Highway 41 and Township Road 372 intersection and the Highway 41 and Range Road 3043 intersection are expected to operate well (LOS A) in the morning and afternoon peak hours after the full buildout of the project, as well as the proposed site access intersections. Following the build-out of the Saskatoon Freeway, the Highway 41 and Range Road 3043 intersection will be closed due to its proximity to the freeway. This will cause the Highway 41 and Township Road 372 intersection to operate with slightly more delay than it would without the freeway. Despite this, the Highway 41 and Township Road 372 intersection would still operate adequately (LOS A) in the morning and afternoon peak hours. In addition, a sensitivity analysis was conducted to determine how much additional land could be developed in the development area if the Saskatoon Freeway and its associated right-of-way and setback requirements were not realized. It was determined that an additional eight to eleven parcels of land could be developed before the intersection of Township Road 372 and Highway 41 reaches excessive delays on its west leg which provides access to the proposed development.

Servicing Agreements Policies (Section 29)– Section 29 of the P4G District Official Community Plan identifies the following Servicing Agreements Policies that are pertinent to the proposed Varsity Valley Development.

- 29.3.1: A servicing agreement between the Developer and the RM of Corman Park is expected to address, but is not necessarily limited to, the following:
    - Identify the proposed phasing, including the proposed construction timelines;
    - Identify roadway and approach specifications;
    - Identify the value of the required performance bond or letter of credit;
    - The RM of Corman Park has indicated that given the boundaries of this subdivision have not changed since the original subdivision in 2016, no new Subdivision Servicing Fees or Municipal Reserve fees are outstanding.

District Zoning Bylaw Policies (Section 31)– Section 31 of the P4G District Official Community Plan identifies the following District Zoning Bylaw Policies that are pertinent to the proposed Varsity Valley Business Park Development.

- 31.3.6: The proposed Varsity Valley development will require a rezoning to DC-2. This document provides information concerning how the development is consistent with the policies and intent of the P4G District Official Community Plan.

- 31.3.9: The Developer wishes to proceed with the rezoning and re-subdivision of the entire 12.86 ha (31.78 acres) of land Parcels D, E, F, G, H & J, Plan No. 102331639 in the NW ¼ Section 10, Township 37, Range 04, W3M. The developer wishes to rezone the entire parcel from DC-2 (contract) to DC-2 and wishes to re-subdivide the existing six (6) lots into a total of 10 smaller lots. Cash-in-lieu of Municipal Reserve (MR) was previously paid. Shallow utilities, drainage infrastructure, water lines, and other utilities will be installed following subdivision and rezoning approval.

- 31.3.16 (a) and (e): This document shall serve as the Comprehensive Development Review (CDR) as required by the P4G Planning District Commission and the RM of Corman Park for rezoning and subdivision applications.

- 31.3.17: This document shall serve as the Comprehensive Development Review (CDR) as required by the P4G Planning District Commission and the RM of Corman Park for rezoning and subdivision applications. This CDR addresses all matters of land use integration, environmental sustainability, public involvement and conflict mitigation, as well as to identify the provision of services to the development.

- 31.3.19: The Developer has consulted with the public utility companies, both verbally and through the Utility Declaration Form provided with the subdivision application submitted to the Community Planning Branch. SaskEnergy and SaskPower have existing lines in the immediate vicinity servicing Faith Alive Family Church and Prairie Christian Academy. Loraas Disposal has confirmed they can be contracted to provide waste and recycling removal services at the proposed development (see **Appendix G**).

- 31.3.20: A letter was distributed to all neighbours within 1.6 km of the proposed development in October 2025. No feedback was received at the time this report was submitted, other than one neighbouring resident who wished to verbalize their support.

5.2 P4G District Zoning Bylaw

The proposed development within the P4G District requires rezoning from DC-2 (Contract) to DC-2. Development standards and regulations are included within the P4G Zoning Bylaw and the minimum yard setbacks will be applied at the development permit application.

6 STAGING AND IMPLEMENTATION

A Plan of Proposed Subdivision has been attached as **Appendix A**, which details the extent of the proposed subdivision of land at the Varsity Valley Development.

This subdivision and bylaw amendment will need to be approved by the Community Planning Branch at the Ministry of Government Relations. The proposed development has been submitted for formal file review (File SUBD-005431-2025).

7 PUBLIC CONSULTATION

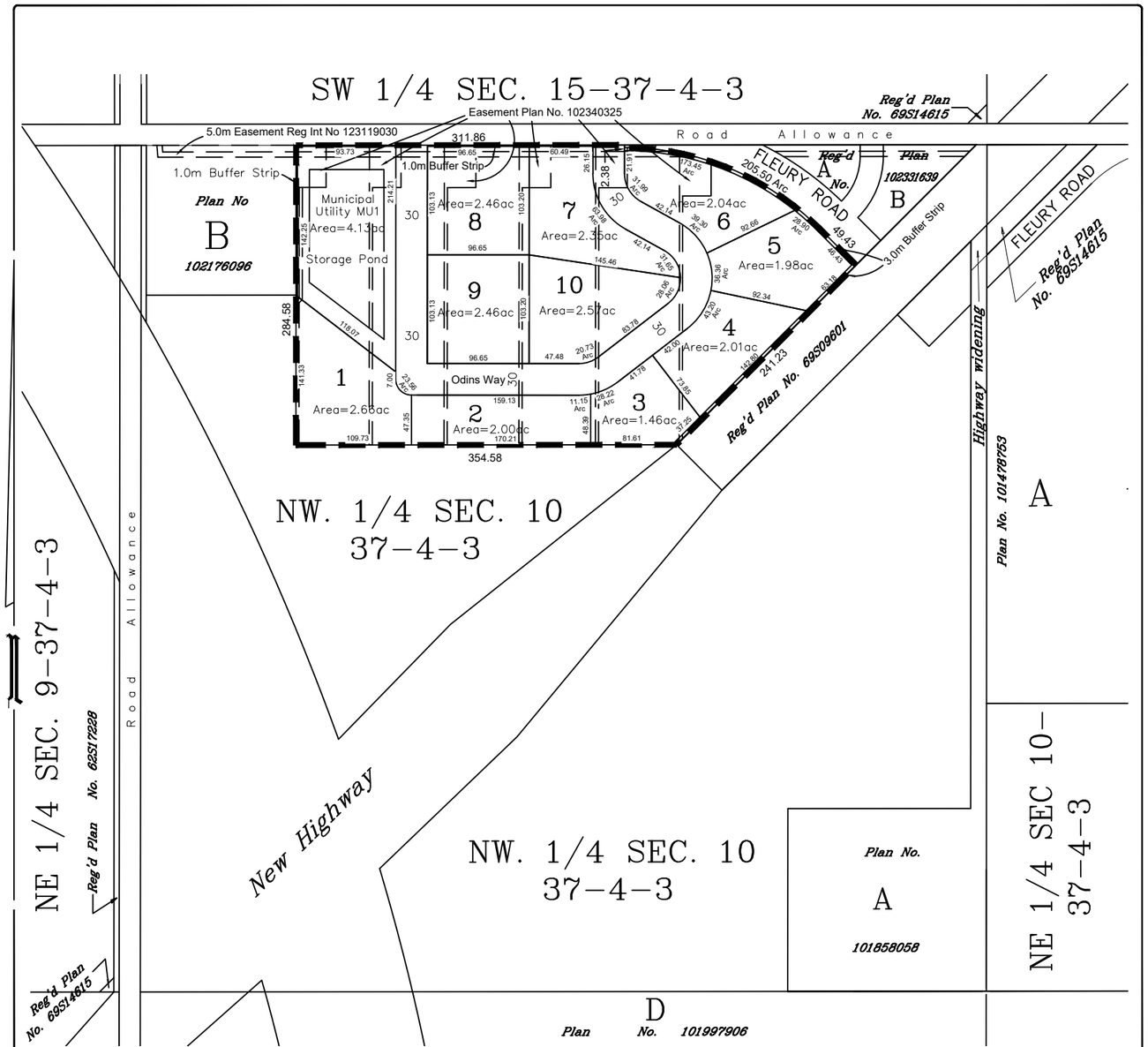
A letter was circulated to all neighbours within 1.6 km of the proposed development in October, 2025 (see **Appendix M**). One resident reached out with general questions via phone call, however, these were resolved and the resident wished to express their support for the development

APPENDICES

Appendix A

Plan of Proposed Subdivision

SILVER CREEK
Developments



PLAN SHOWING:

PLAN OF PROPOSED SUBDIVISION
OF ALL OF
PARCELS D, E, F, G, H & J, PLAN NO. 102331639
IN NW1/4 SEC 10, TWP 37, RGE 4, W03 Mer
IN THE
RM OF CORMAN PARK NO. 344,
SASKATCHEWAN
2024

KEY PLAN (NOT TO SCALE):

NOTES:

Measurements are in metres and decimals thereof.
Some distances are approximate and may differ from the final plan of survey by as much as 5.0m.
Area to be approved is outlined by a heavy dashed line and contains 12.86± ha (31.78± ac).
Spot Elevation:
Elevations based on static GNSS observations post processed by Natural Resources Canada in relation to the Canadian Spatial Reference System (CSRS).

100 80 60 40 20 0 100 200 SCALE 1:5000

SURVEYOR'S CERTIFICATION:

November 24, 2025
Date

Saskatchewan Land Surveyor

SASKATCHEWAN LAND SURVEYORS ASSOC. B.J. LUEY 338 SLS

LANDOWNERS:

LAND OWNER

APPROVAL AUTHORITY:

DATED THIS DAY OF A.D. 2024.

(affix seal here)

Webb Surveys
A DIVISION OF MIDWEST SURVEYS INC.
222 JESSOP AVE
SASKATOON, SK
S7N 1Y4
TEL: 306-955-5330

No.	DATE	REVISION / ISSUED	JOB No.
1	11/21/2024	REVISED PARCELS	SC-0152-19
2	04/02/2025	REVISED PARCELS	
3	08/25/2025	REVISED PARCELS	
4	11/05/2025	3.0m BUFFER STRIP ADDED	

Page 1 of 1
4 REVISION

SURVEYED BY: | CALC'D BY: | DRAWN BY: N.D. | SC-0152-19-J1-PPS

R:\2019\SC-0152-19\CADD\Nathans Drafting\SC-0152-19 Plan of Proposed Rev 4 November 2025.dwg

Appendix B

Detailed Planning Document

SILVER CREEK
Developments

DETAILED PLANNING DOCUMENT

BISON VALLEY BUSINESS PARK

Submitted to:

THE RM OF CORMAN PARK NO. 344

Prepared by:

MR. PAUL DEASON AND CROSBY HANNA & ASSOCIATES

MARCH 2023

CONTENTS

EXECUTIVE SUMMARY

Paul Deason (the Developer) is applying amend the Saskatoon North Partnership for Growth (P4G) District Official Community Plan. This document shall serve as the "Detailed Planning Document" that is required when applying for a land use map amendment to "Schedule B – District Land Use" Map. Mr. Deason is requesting a designation change from Future Urban Residential Neighbourhood to Future Rural Commercial / Industrial for a portion of the NW ¼ Section 10, Township 37, Range 04, W3M, situated on the northwest side of Highway #41.

The land in question is situated on lands located within the Saskatoon North Partnership Planning For Growth (P4G) region, immediately east of the City of Saskatoon and Llewellyn Road and south of Fleury Road. The area is mainly characterized by cropland, agricultural support and research services (Monsanto, DowAgro, and Pioneer Research Centre).

In 2022, Mr. Deason was successful in subdividing and rezoning six lots as a contract commercial zoning designation in a portion of the NW ¼ Section 10, Township 37, Range 04, W3M for a property identified as "Bison Valley Business Park". At the time of the initial subdivision, it was noted that the proposed development is in an area designated for "Future Urban Residential" on the P4G Interim Development Strategy and Draft Planning for Growth Regional Plan. Now that the District Plan has been adopted, Mr. Deason is seeking an amendment to the Future Land Use Concept.

The re-designation of a portion of the NW ¼ of Section 10, Township 37, Range 04, W3M to future rural commercial/industrial is further supported by the following reasons:

- There is a significant lack of designated commercial land in the area north and south of Highway 41, but a significant amount of designated country residential and urban residential land;
- This area is located adjacent to the future perimeter highway including a future interchange, making this location better suited for commercial development than an urban residential neighbourhood;
- The number of existing and proposed country residential developments in the area would complement the proposed re-designation of the subject site to accommodate commercial development, both as an employment centre, but also as a rural convenience commercial development;
- A market analysis undertaken by Colliers International concluded that the ideal parcel size to accommodate commercial development in this area ranges from 1.5 to 2.5 acres. More specifically, it was recommended that parcel sizes of 2 acres would be sufficient to comply with the P4GDistrict Zoning Bylaw, while also remaining competitive in the market and with the comparable City of Saskatoon land; and,
- Mr. Deason has already received offers to purchase two potential lots on the subject parcel, that are approximately 2 acres in size.

1 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide the P4G District Planning Commission with the necessary detailed planning document to request an amendment to the Future Land Use Concept, as per Section 31 of the District Plan.

The land is currently zoned as D-Arterial Commercial 2 (D-C2) District by contract, and D-Agricultural 1 (D-AG1) District.

The applicant of the project is Mr. Paul Deason and the land is identified as Bison Valley Business Park. Questions on the proposal or the material contained within this document should be directed to Jim Walters (306-665-3441) or Maggie Schwab (306-227-6617).

1.2 OVERVIEW

It is the intention of the Developer to ultimately rezone and re-subdivide the land to accommodate a multiple parcel commercial development oriented to serve the surrounding agricultural and country residential community. The subject parcel is on the NW ¼ of Section 10. Township 37, Range 4, W3M (see Map 1 below). Mr. Deason wishes to apply for a land use map amendment for the land on the northwest side of Highway #41.

The Developer was previously successful in rezoning a portion of the parcel to DC2-Arterial Commercial 2 District by contract. An amendment to the Future Land Use Map will be required to provide for any future subdivision and rezoning at this location.

Map 1. Location of subject parcel

2 INVENTORY AND ANALYSIS

2.1 REGIONAL TOPOGRAPHY

The local topography of the area ranges from near level to moderate slopes no greater than 11% moving towards the east to the Strawberry Hills.

The property and surrounding area are in the physiographic region known as the Saskatchewan Rivers Plain. The Saskatchewan Rivers Plain is characterized as gently undulating to rolling glacial lacustrine-alluvial plains (glacial lake plains), aeolian plains (dunes) and till plains.

The surficial soil deposits consist of variable textured lacustrine and alluvial sands, silts and clays, aeolian sands, glacial till and local bedrock exposures in the South Saskatchewan River. The bedrock deposits at this site consisted of approximately 92 m of glacial till and stratified drift (sand, silt and clay) underlain by the noncalcareous silt and clay of the Lea-Park Formation-Upper Colorado.

2.1 EXISTING LAND USE

The land base is located on the NW ¼ of Section 10, Township 37, Range 4, W3M. The site is currently characterized by relatively flat terrain, with a few small depressions susceptible to retaining water during spring runoff, higher intensity rainfalls and wet years.

Other land uses in the area consist of a mixture of multiple parcel country residential development, agricultural land (both grain farming and pastureland) in addition to Monsanto, DowAgro and the Pioneer Research Centre. The existing surrounding country residential developments include: Eagle Ridge Estates, Eagle Heights, Vista Ridge, Mission Ridge Estates, The Meadows, Bergheim Estates, Discovery Ridge, and Valley View. At the northwest corner of the subject parcel, there is an existing school/church (Faith Alive Family Church) which houses a Church, K-12 school, and Bible College. Undeveloped lands in the area include cultivated field crops, pasture lands and pockets of tree stands and low lying sloughs (see Map 2 on following page). Vista Ridge, which is not yet approved, but is proposed to feature 54 residential lots, is also identified on Map 2.

The closest highway to the subject parcel is Provincial Highway #41, which is adjacent to the southeastern boundary of the subject land, as illustrated on the Subdivision Sketch, attached as Appendix A. The subject land is south of Fleury Road and immediately west of Llewellyn Road, which marks the east boundary of the City of Saskatoon.

<u>The Existing Land Use Context of the Proposed Development is as Follows:</u>

North

- Agra Road / Fleury Road	Adjacent to north boundary
- Monsanto Research Farm	Immediately across Agra/Fleury Road
- Lafarge Canada	Approx. 400 m west of northwest corner
- Northeast Swale	Approx. 2.6 km northwest of north boundary
- Dow Agro	Approx. 1 km northwest of northwest corner

South

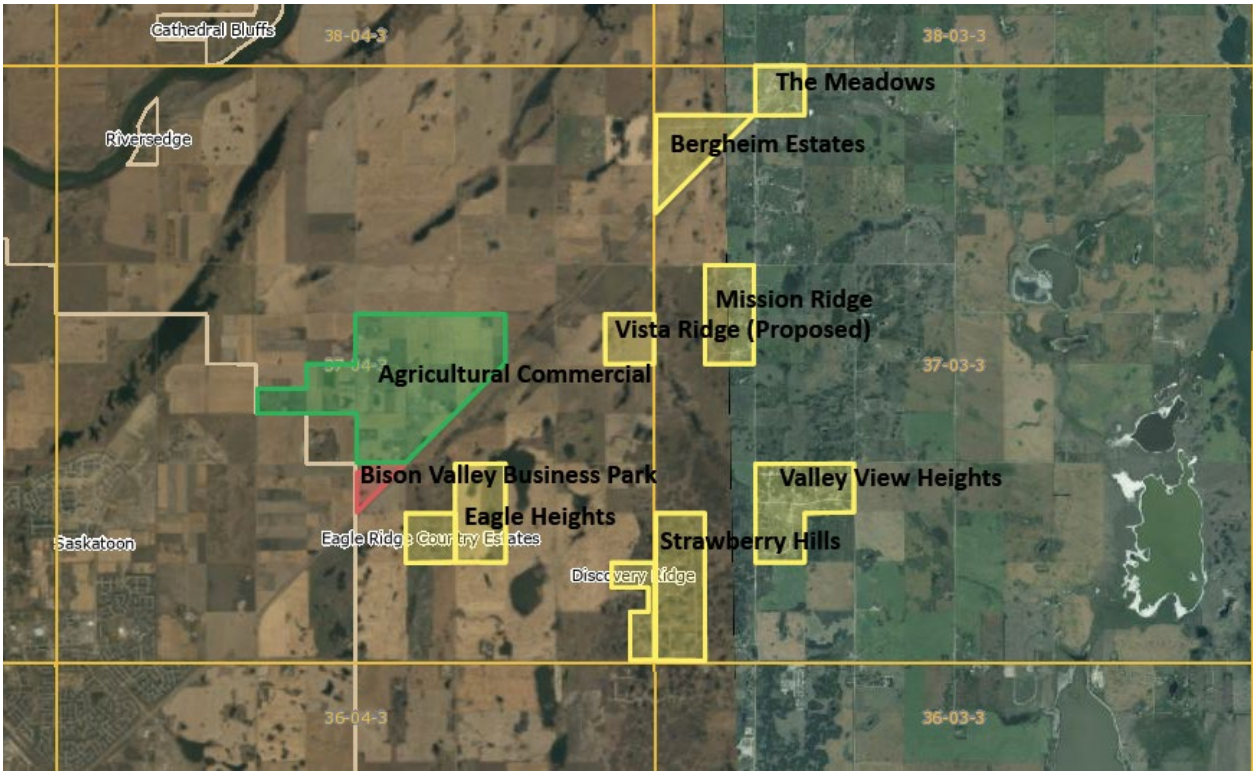
- Provincial Highway #41	Adjacent to south boundary
- Cultivated farmland	Adjacent to south boundary
- Eagle Ridge Estates	Approx. 800 m southeast of south boundary
- Provincial Highway #5	Approx. 3.0 km south of south boundary

West

- Faith Alive Family Church	Adjacent to west boundary
- Llewellyn Road	Adjacent to west boundary
- City of Saskatoon East Boundary	Immediately west of Llewellyn Road
- Willowgrove Neighbourhood	Approx. 3.2 km west of northwest corner

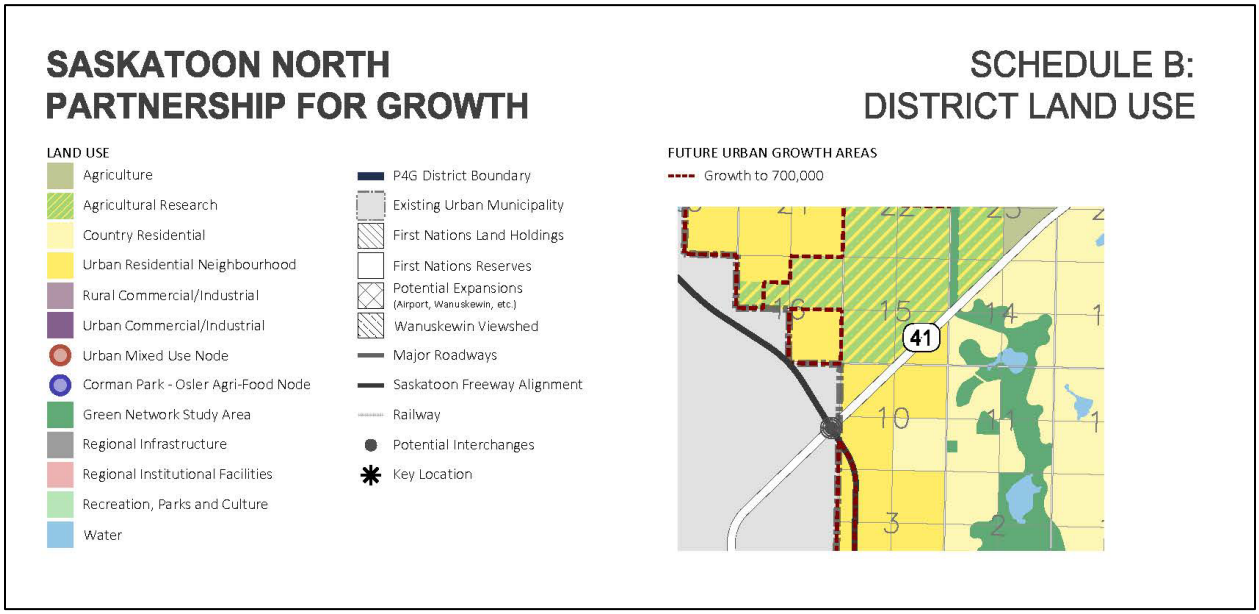
East

- Cultivated farmland	Adjacent to east boundary
- Farm	Approx. 1 km southeast of northeast corner
- Organized Hamlet of Discovery Ridge	Approx. 4.0 km southeast of northeast corner



Map 2. Existing Land Uses within proximity of Bison Valley Business Park

Previous correspondence with RM of Corman Park indicated that there are no gravel pits or ILOs in the area. There are known agricultural support/research services north of the subject parcel and Eagle Ridge Estates is located at the SE-10-37-4 W3M. The P4G Official Community Plan Future Land Use Map has designated the quarter section as "Urban Residential Neighbourhood" within the area that could accommodate growth to 1,000,000 people (see Map 3 below).



Map 3. Existing District Land Use Designation

2.2 PROPOSED LAND USE

The Developer previously rezoned six parcels on the subject parcel from D-Agriculture 1 (D-AG1) District to D-Arterial Commercial 2 (DC-2) District by contract. The intent is now to identify a portion of the quarter section as "Future Rural Commercial/Industrial" and ultimately rezone and subdivide the quarter into several parcels, approximately 2 acres in size (see subdivision sketch in Appendix A).

The subject parcel is compatible with the existing land uses currently in the surrounding area, as this area of the RM is characterized by agricultural land, in addition to the agricultural support services including Dow Agro, Pioneer Research Centre and the Monsanto Research Farm which are all located in the immediate vicinity of the proposed development. It is noted that the Future Land Use Concept identifies the land to the north of the subject parcel as "Agricultural Research".

There are some synergies for other Agricultural Commercial uses to be located within the proposed development (e.g. agricultural support services, and high tech agricultural uses).

The subject parcel is identified on land designated as "Future Urban Residential", according to Schedule B – District Land Use Map. However, to be economically viable, the area should include a mix of land uses in the future, including commercial uses. The number of existing and proposed country residential developments in the area would complement the proposed re-designation of the subject site to accommodate commercial development, both as an employment centre, but also as a rural convenience commercial development.

Existing country residential developments in the vicinity of the subject quarter are plentiful and are situated in both the RM of Corman Park, No. 344, the RM of Aberdeen, No. 373, and the RM

of Blucher No. 343. Between the three RM's, the following country residential developments have been developed:

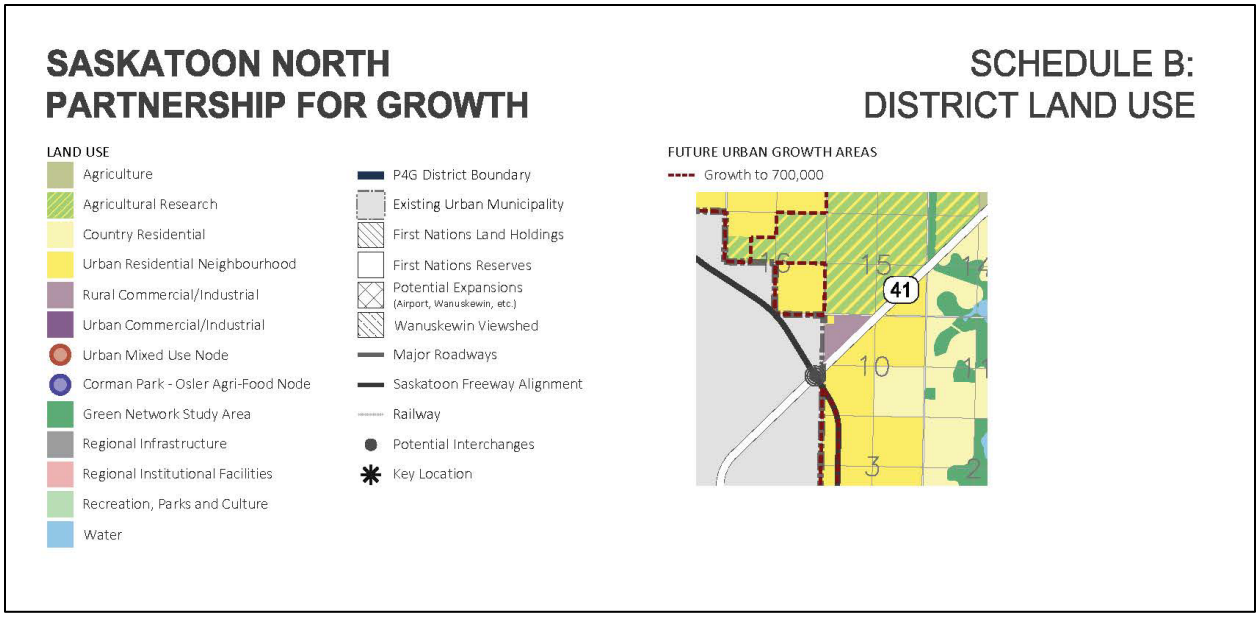
- Eagle Ridge Estates;
- Eagle Heights;
- Discovery Ridge Estates;
- Mission Ridge – Phases 1 and 2;
- Bergheim Estates – Phases 1 and 2;
- The Meadows;
- Valley View – Phases 1, 2, and 3;
- Prairie Rose Estates;
- Strawberry Hills; and,
- Vista Ridge (proposed).

A significant number of residents from these country residential developments would benefit from commercial development at the subject parcel, in the form of commercial uses (e.g. the uses provided in the DC2 – Arterial Commercial District), including but not limited to:

- Agricultural support services;
- Financial Institutions;
- Gas Bars;
- Convenience commercial services;
- Child care centres;
- Commercial complexes;
- Health care services;
- Offices;
- Retail stores; and,
- Personal services.

The uses above represent a selection of both permitted and discretionary uses available in the DC2 – Arterial Commercial District.

This subject parcel is also situated adjacent to the future perimeter highway and a future interchange, making the land much better suited for commercial development. The proposed amendment to the Future Land Use concept that will be required to accommodate the commercial development is provided in Map 4 on the following page.



Map 4. Proposed District Land Use Designation – Rural Commercial/Industrial

3 SERVICING

3.1 REGIONAL SERVICING

According to Schedule C: Future Urban Growth Areas in the P4G Official Community Plan, Bison Valley Business Park is located in the Future Urban Growth Area to 1,000,000 people.

3.2 REGIONAL TRANSPORTATION

In 2021, the Ministry of Highways provided the developer with the preferred highway concept for the Saskatoon Freeway. Phase 2 is the longest segment in the Saskatoon Freeway functional study, at roughly 27 km. It runs from Highway 11 near Grasswood and crosses Highway 16 East, Highway 5 and Highway 41. It continues across the South Saskatchewan River to the area south of Wanuskewin Heritage Park. It includes two high-speed connection points – Highway 11 near Grasswoods and Highway 16 East. This new conceptual alignment is provided in Figure 1 below.

Figure 1. Conceptual Saskatoon Freeway Alignment at Highway 41.

3.3 POTABLE WATER AND WASTEWATER MANAGEMENT

Options related to water supply for the region would generally include the Highway 41 water utility, although with growth and development of the City within 2.0km of this development, it is likely that full pressure water supply would be available to the area in the nearby future.

Advantages of a City water supply would allow the area to be serviced with not only potable supply but could include conventional fire protection measures. This would support high-occupancy buildings, research facilities, commercial operations, as necessary.

With respect to regional wastewater management, there are a variety of methods that could be considered including the following:

1. Local (Onsite) Sewage Disposal;
2. Gravity Sewer System; and,
3. Low Pressure Sewer System.

Option 1 - Local (onsite) Sewage Disposal: The surrounding region has typically handled sewage disposal through local (onsite systems). A sewage management method comprised of a small treatment system(s) and disposal field / mound(s) for effluent disposal is already being used. This is common in rural settings, and has been implemented in the developments surrounding this area. A few variations of this option could exist, including:

- Option 1A: Each lot would own and operate their treatment system, holding tanks and disposal field located within the lot boundaries.
- Option 1B: Each lot would own and operate a treatment system, with pumping to a communal type mound or pond system located within the development for effluent disposal. This could be situated on an area designated as municipal utility, jointly owned and operated by the development utility. Disposal methods could include infiltration mounds, evaporation ponds, or irrigation methods.
- Option 1C: Each lot could install a holding tank and pump system, pumping to a centrally located treatment system within the development. The treatment system could be owned and operated by a Utility, with effluent disposal by way of infiltration mounds, evaporation ponds, or irrigation methods.

Option 2 – Gravity Sewer System:
The topography of the surrounding area could allow full-service gravity collection to each property, collecting at a central lift station. The collected sewage could then be conveyed to the nearest wastewater treatment facility. Potential options at this time include the City of Saskatoon, the Town of Aberdeen, while a lagoon system is observed at a nearby agricultural facility which could provide a treatment option in the short term. The length of the force main to each of these potential connection points are 2.0 km, 33.0 km, and 5.0 km, respectively.

This option may become particularly beneficial as the development of the City is within a reasonable distance to the area, the gravity sewer system could be connected and would resemble that of a typical commercial development.

Option 3 – Low Pressure Sewer System (Modified System)
An alternative option to the gravity collection system would be a low-pressure sewer system. Low pressure sewer systems consist of an individual pump out tank for each household and a common pressurized force main connecting to the a nearby wastewater treatment facility. Nearby wastewater treatment systems are similar to those described for the gravity sewer main option. These systems are ideal where the topography of the area does not allow for the implementation

of a gravity sewer system and are generally lower capital cost compared to that of a gravity sewer system, due to less infrastructure requirements.

Regardless of the specific potable water and wastewater systems employed at Bison Valley Business Park, the area could be retrofitted and regionalized at a later date.

3.4 DRAINAGE AND STORMWATER MANAGEMENT

The region is considered well drained with no historical issues noted, particularly on the NW ¼ Section 10, Township 37, Range 04, W3M. The subject parcel has a well-defined drainage outlet to the South Saskatchewan River. There are very few concerns that this quarter section would experiencing any type of extreme flood event and can utilize the nearby ditching and defined drainage paths in the area.

Connection into the City's storm water system can become an option as the City development grows into the region.

4 MARKET ANALYSIS

4.1 RURAL COMMERCIAL DEVELOPMENT OPPORTUNITIES

In the winter of 2023, Colliers International undertook a review of the ideal parcel size for commercial development in the region of the subject parcel (see Appendix B).

In arriving at a recommended parcel size, the following items were considered:

- location;
- highway and road access;
- services available (water, sewer/septic, power, gas, fibre optic cable);
- RM of Corman Park and City of Saskatoon standard industrial parcel sizes of similar properties;
- demand for land in immediate area;
- listings and sales, comparatives;
- traffic; and,
- potential buyers including demographics.

Additionally, given the type of neighbouring properties to the north, it was concluded that the business park is ideally suited for high-tech agricultural companies.

Determining the best parcel size for the subject property was based upon comparable business parks both within the City of Saskatoon and the RM of Corman Park. Bison Valley Business Park, once completed, would be comparable to East Cory Industrial Park, Biz Hub, East Floral Industrial Park and Premier Business Park in the RM of Corman Park all of which have lots comprised of 2 acres (more or less). Similarly, the City of Saskatoon has recently released new industrial lots in the North Marquis Industrial area comprising 1.24 acres each.

Colliers International concluded that to achieve the best possible outcome for the subject property (the highest price and number of sales in the shortest possible time), it should be subdivided into 1.5 to 2.5 acre parcels. More specifically, it was recommended that parcel sizes of 2 acres would be sufficient to comply with the P4G zoning bylaw, while also remaining competitive in the market and with the comparable City land.

5 POLICY CONTEXT

The proposed Deason commercial development is located within the P4G District on land identified as "Future Urban Residential Neighbourhood". The policies below detail the rationale to amend the Future Land Use Plan.

5.1 DISTRICT OFFICIAL COMMUNITY PLAN

Implementation (Section 31) - Section 31 of the District Official Community Plan identifies the following Policies that are pertinent to the proposed commercial land use designation.

31.3.1 Rationale to Amendments

The re-designation of the portion of land north west of Highway #41 on the NW ¼ of Section 10, Township 37, Range 04, W3M to future rural commercial/industrial is further supported by the following reasons:

- There is a significant lack of designated commercial land in the area north and south of Highway 41, but a significant amount of designated country residential and urban residential land;
- This area is located adjacent to the future perimeter highway including a future interchange, making this location better suited for commercial development than an urban residential neighbourhood;
- The number of existing and proposed country residential developments in the area would complement the proposed re-designation of the subject site to accommodate commercial development, both as an employment centre, but also as a rural convenience commercial development;
- A market analysis undertaken by Colliers International concluded that the ideal parcel size to accommodate commercial development in this area ranges from 1.5 to 2.5 acres. More specifically, it was recommended that parcel sizes of 2 acres would be sufficient to comply with the District Zoning Bylaw, while also remaining competitive in the market and with the comparable City of Saskatoon land; and,
- Mr. Deason has already received offers to purchase two potential lots on the subject parcel, that are approximately 2 acres in size.

31.3.2 Detailed Planning Required

- This document shall serve as the detailed planning document that has been submitted to provide for an amendment to Schedule B – District Land Use Map.

31.3.3 Consideration of Impacts

- This document provides consideration towards the development of the subject parcel as a future commercial node. Currently, the NW-10-37-04-W3M can be serviced by potable water, and several means of wastewater treatment can be considered. A significant number of residents from surrounding country residential developments would also benefit from

commercial development at the subject parcel, in the form of commercial uses (e.g. the uses provided in the DC2 – Arterial Commercial District), including but not limited to:

- Agricultural support services;
- Financial Institutions;
- Gas Bars;
- Convenience commercial services;
- Child care centres;
- Commercial complexes;
- Health care services;
- Offices;
- Retail stores; and,
- Personal services.

This subject parcel is also situated adjacent to the future perimeter highway and a future interchange, making the land much better suited for commercial development.

6 IMPLEMENTATION

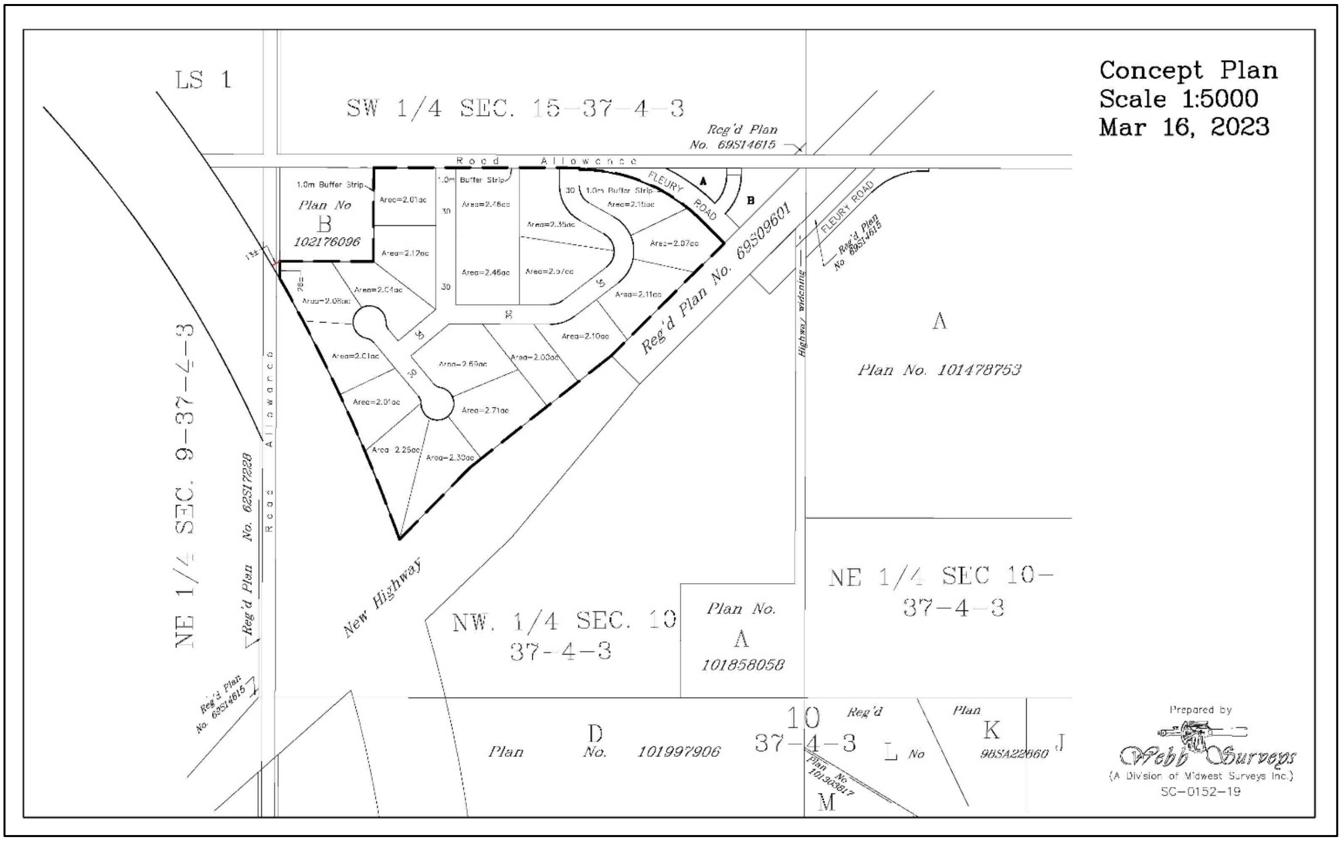
A Sketch of Proposed Subdivision, attached as Appendix A, details the possible layout of the envisioned future layout of land at the subject parcel.

If the amendment to the Future Land Use map is successful, it is understood that Mr. Deason will be required to submit a subdivision and rezoning application to the RM of Corman Park, as well as the Community Planning Branch at the Ministry of Government Relations.

APPENDICES

APPENDIX A

SKETCH OF PROPOSED SUBDIVISION



Concept Plan
Scale 1:5000
Mar 16, 2023
LS 1
SW 1/4 SEC. 15-37-4-3
Reg'd Plan
No. 69S14615
Road Allowance
1.0m Buffer Strip
Plan No
B
102176096
Area=2.01ac
Area=2.12ac
Area=2.46ac
Area=2.35ac
Area=2.15ac
Area=2.07ac
Area=2.11ac
Area=2.10ac
Area=2.00ac
Area=2.69ac
Area=2.71ac
Area=2.30ac
Area 2.25ac
Area=2.08ac
Area=2.01ac
FLEURY ROAD
A
B
Reg'd Plan No. 69S09601
Highway widening
A
Plan No. 101478753
NE 1/4 SEC. 9-37-4-3
Reg'd Plan No. 62S17228
Road Allowance
New Highway
NW. 1/4 SEC. 10
37-4-3
Plan No.
A
101858058
NE 1/4 SEC 10-
37-4-3
D
Plan No. 101997906
10
37-4-3
Reg'd
L
No
Plan
K
98SA22660
J
M
Prepared by
Webb Surveys
(A Division of Midwest Surveys Inc.)
SC-0152-19

APPENDIX B

MARKET STUDY

Opinion of Parcel Size

Bison Valley Business Park

Prepared for: Paul Deason

February 28, 2023

Dayne Baylis
Senior Sales Associate
+1 306 251 0992
dayne.baylis@colliers.com

Graham Cowles
Vice President | Sales Associate
+1 306 221 7464
graham.cowles@colliers.com

Colliers

Opinion of Parcel Size

In accordance with your request for a written recommendation of parcel size for Bison Valley Business Park's new plan of subdivision.

Overview:

Bison Valley Business Park located 4 kms east of Saskatoon along Highway 41. Neighbouring some of the largest agricultural companies in the world including Bayer, BASF, Bourgault, Pioneer and home to the University of Saskatchewan's Agricultural Research and Development test plots, Bison Valley Business Park is ideally suited for hi-tech agricultural companies.

The property has dry, level land, City of Saskatoon water, power and natural gas to site.

Methods:

In arriving at a recommended parcel size, the following items were considered:

- location;
- highway and road access;
- services available (water, sewer/septic, power, gas, fibre optic cable);
- RM of Corman Park and City of Saskatoon standard industrial parcel sizes of similar properties;
- demand for land in immediate area;
- listings and sales, comparatives;
- traffic;
- potential buyers including demographics

On-Market Comparables:

Determining the best parcel size for the subject property was based upon comparable business parks both within the City of Saskatoon and the RM of Corman Park. Bison Valley Business Park, once completed, will be comparable to East Cory Industrial Park, Biz Hub, East Floral Industrial Park and Premier Business Park in the RM of Corman Park all of which have lots comprised of 2 AC (more or less). Similarly, the City of Saskatoon has recently released new industrial lots in the North Marquis Industrial area comprising 1.24 AC each.

Parcel Size:

It is our opinion that in order to achieve the best possible outcome for the subject property (the highest price and number of sales in the shortest possible time), it should be subdivided into 1.5 – 2.5 acre parcels. More specifically we recommend parcel sizes of 2 ± acres to comply with the RM of Corman Park bylaws and also to be competitive in the market and with the comparable City land.

Our **Team**

Dayne Baylis
Senior Sales Associate

Dayne specializes in investment sales in Saskatoon and the surrounding rural municipalities. He has expertise in the sale of land, brown field sites, institutional assets, distressed assets and asset portfolios. Dayne and his sales partner have over 30 years of combined commercial real estate experience; he brings value to his clients with his extensive knowledge of property development, management and succession planning.

Graham Cowles
Vice President | Sales Associate

Graham specializes in industrial sales and leasing, development land sales, as well as the subdivision and redevelopment of land. Graham brings more than 30 years of Colliers brokerage experience to every client meeting, deal, and opportunity; thereby accelerating success.

Shari Fisher
Business Operations Specialist

With 18 years of real estate experience, including residential sales, leasing, construction and appraisal, Shari has spent much of her career with an award winning, local developer managing the quality assurance department. With her strong attention to detail, Shari provides senior-level support to Dayne Baylis and Graham Cowles, maximizing their efficiency and commitment to providing excellence.

Dayne Baylis
Senior Sales Associate
+1 306 251 0992
dayne.baylis@colliers.com

Graham Cowles
Vice President | Sales Associate
+1 306 221 7464
graham.cowles@colliers.com

Appendix C
Traffic Impact Assessment

SILVER CREEK
Developments

VIKING LAND CORP.

Viking Land

Transportation Impact Assessment

Revision:
Draft

KGS Group Project:
25-4526-001

Date:
August 1, 2025

PREPARED BY:

Luke Bonnet
Transportation Aide

APPROVED BY:

Nathan Gray, P.Eng., PTOE, PMP
Transportation Planning Practice Lead

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

STATEMENT OF LIMITATIONS AND CONDITIONS

Limitations

This report has been prepared for Viking Land Corp. in accordance with the agreement between KGS Group and Viking Land Corp. (the "Agreement"). This report represents KGS Group's professional judgment and exercising due care consistent with the preparation of similar reports. The information, data, recommendations and conclusions in this report are subject to the constraints and limitations in the Agreement and the qualifications in this report. This report must be read as a whole, and sections or parts should not be read out of context.

This report is based on information made available to KGS Group by Viking Land Corp. Unless stated otherwise, KGS Group has not verified the accuracy, completeness or validity of such information, makes no representation regarding its accuracy and hereby disclaims any liability in connection therewith. KGS Group shall not be responsible for conditions/issues it was not authorized or able to investigate or which were beyond the scope of its work. The information and conclusions provided in this report apply only as they existed at the time of KGS Group's work.

Third Party Use of Report

Any use a third party makes of this report or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party because of decisions made or actions undertaken based on this report.

1.0 INTRODUCTION

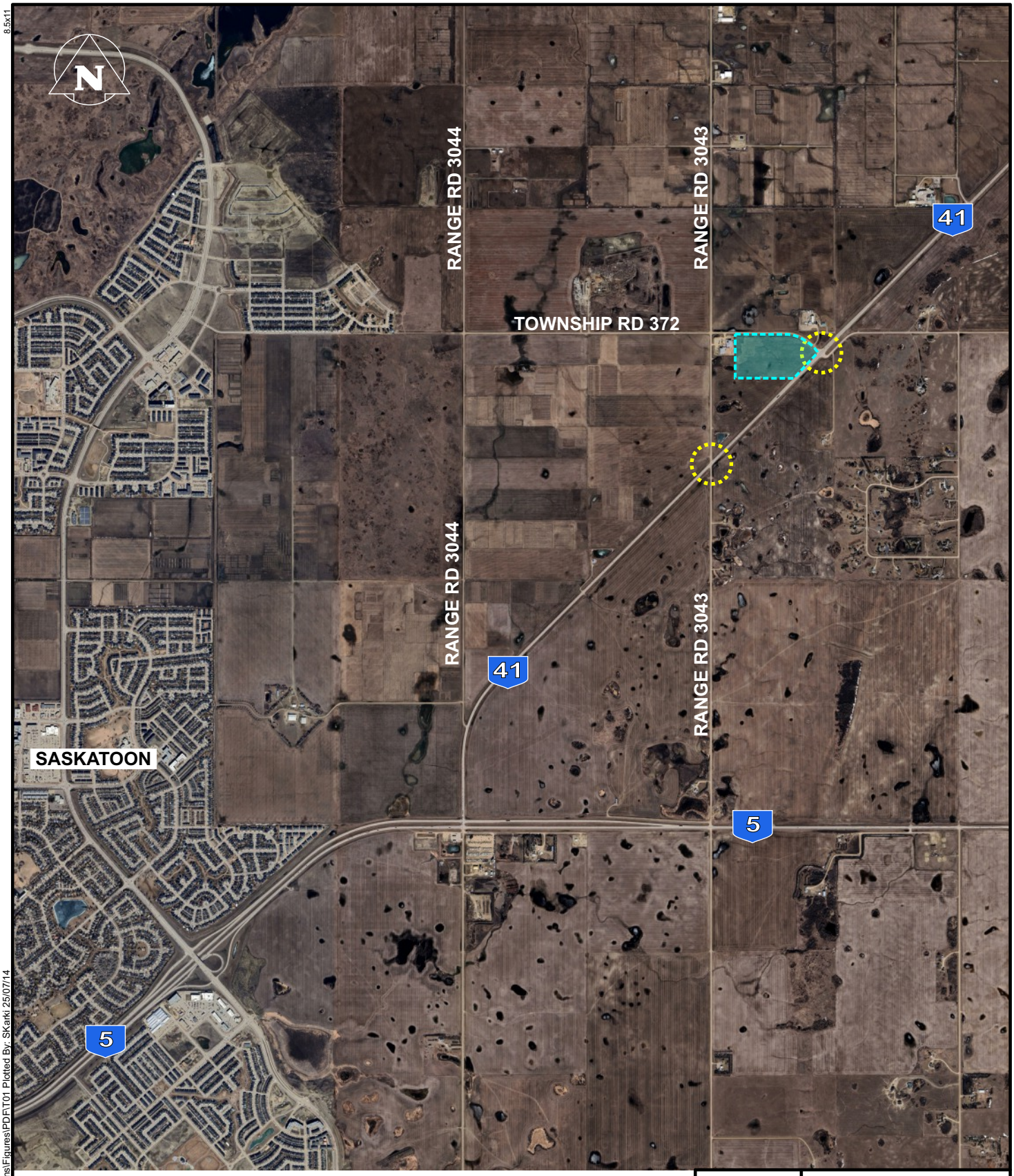
KGS Group has been commissioned by Viking Land Corp. to complete a Transportation Impact Assessment (TIA) for a commercial / light industrial development located along Township Road 372. The proposed development is located west of the Highway 41 and Township Road 371 intersection, and northeast of the Highway 41 and Range Road 3043 intersection. The proposed development includes approximately 10.7 ha of commercial / light industrial development. This study will identify any mitigation measures necessary to accommodate the site-generated traffic and analyze the impact of the construction of the proposed Saskatoon Freeway on the road network surrounding the development.

1.1 Purpose and Objectives

The purpose of the TIA is to identify the transportation impacts of the development and identify the required mitigation measures to support the proposed development. The study objectives include:

- Estimating the number of weekday morning and afternoon peak hour trips that will be generated by the proposed development at full build-out.
- Assessing the adjacent intersection operations and the proposed development's internal road network ten years after the full build-out of the development.
- Identifying mitigation measures on the surrounding road network necessary to accommodate the traffic volumes generated by this development.
- Assessing the impacts that the construction of the proposed Saskatoon Freeway will have on the development as well as the surrounding road network.

The location of the proposed development in relation to the City of Saskatoon is shown in **Figure 1.**



LEGEND:

PROJECT SITE

STUDY INTERSECTIONS

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

STUDY AREA

JULY_2025 | FIGURE 1 | 0

8.5x11

File Name: P:\Projects\2025\25-4526-001\Design\Trans\Figures\PDF\T01 Plotted By: SKarki 25/07/14

2.0 EXISTING SITE CONDITIONS

2.1 Study Area

The proposed development is located northeast of Saskatoon in the Rural Municipality of Corman Park No. 344. The development can be accessed via Highway 41 to the northeast and southwest.

The study intersections for this assessment include:

- Highway 41 and Township Road 372/ Fleury Road / Agra Road
- Highway 41 and Range Road 3043 / Llewellyn Road
- Site access intersections with the Development Access Road and Township Road 372

2.2 Existing Roadways

Highway 41 is a paved two-lane, undivided provincial highway with a rural cross-section and a posted speed limit of 100 km/h adjacent to the proposed site. Vehicles travelling on Highway 41 have the right-of-way throughout the entire study area. The Highway 41 and Township Road 372 intersection is currently stop-controlled with priority for Highway 41. There are dedicated northbound left- and right-turn lanes and a shared southbound left-turn/through lane and a dedicated southbound right-turn lane at the Highway 41 and Township Road 372 intersection. The Highway 41 and Range Road 3043 intersection is currently stop-controlled with priority for Highway 41. There are currently no auxiliary lanes at the Highway 41 and Range Road 3034 intersection.

Highway 41 provides access to Saskatoon via Highway 5 to the southwest of the study area, and to Aberdeen and several residential units that can be accessed by rural roads to the northeast of the study area.

Township Road 372 / Fleury Road / Agra Road is a grid road in the east-west direction with a gravel surface to the west of Highway 41 and a paved surface to the east of Highway 41. There is no posted speed limit, but it is assumed to be 80 km/h. It is classified as a secondary weight road and has a maximum weight limit of 20,000 kg. Township Road 372 provides access to a church, a Christian academy, and an agricultural research centre to the west of Highway 41 and several acreages as well as the residential development of Eagle Ridge to the east of Highway 41. Adjacent to the church and academy immediately west of the proposed development, the posted speed limit is reduced to 50 km/h - Monday to Friday, September to June from 8:00 a.m. to 5:00 p.m.

Range Road 3034 / Llewellyn Road is a grid road in the north-south direction with a gravel surface. There is no posted speed limit, but it is assumed to be 80 km/h. It is classified as a secondary weight road and has a maximum weight limit of 20,000 kg. Range Road 3034 also provides access to the church, the Christian academy, the residential unit, and several agricultural commercial/industrial offices to the north of Highway 41 and several residential units and Highway 5 to the south of Highway 41.

2.3 Existing Development

Currently the proposed Viking Land site is undeveloped, with the land primarily used for agriculture. There are a few dugouts at the very south end of the development which give a slight change in topography. The land immediately to the west of the proposed development is currently a church and a school. All other surrounding land is agricultural apart from the agricultural research facility located northeast of the proposed development.

The proposed development is within the study area for Phase 2 of the Saskatoon Freeway, a proposed 4-lane divided highway that would bypass Saskatoon. Starting at Highway 11 southeast of Saskatoon, the proposed highway goes north intersecting with Highway 11, Highway 12, and Highway 16 before ending southwest of the city at Highway 7. The preferred route concept for Phase 2 of the Saskatoon Freeway, which is from Highway 11 in the southeast to the crossing of the South Saskatchewan River northeast of the city, would be situated very close to the proposed development. The development is partially located in the buffer zone for the general route of Phase 2. The proposed route of the freeway passes directly through the current location of Range Road 3043 and would require the range road to be closed once the freeway is fully built.

2.4 Land Use and Zoning

The development is located within the Saskatoon North Partnership for Growth (P4G) Planning District. This district was created as a joint effort between the City of Saskatoon, City of Martensville, City of Warman, Town of Osler, and the RM of Corman Park as a long-term strategy for land zoning as the region continues its population growth. Following the P4G Plan, the development is zoned for rural commercial / industrial use.[1]

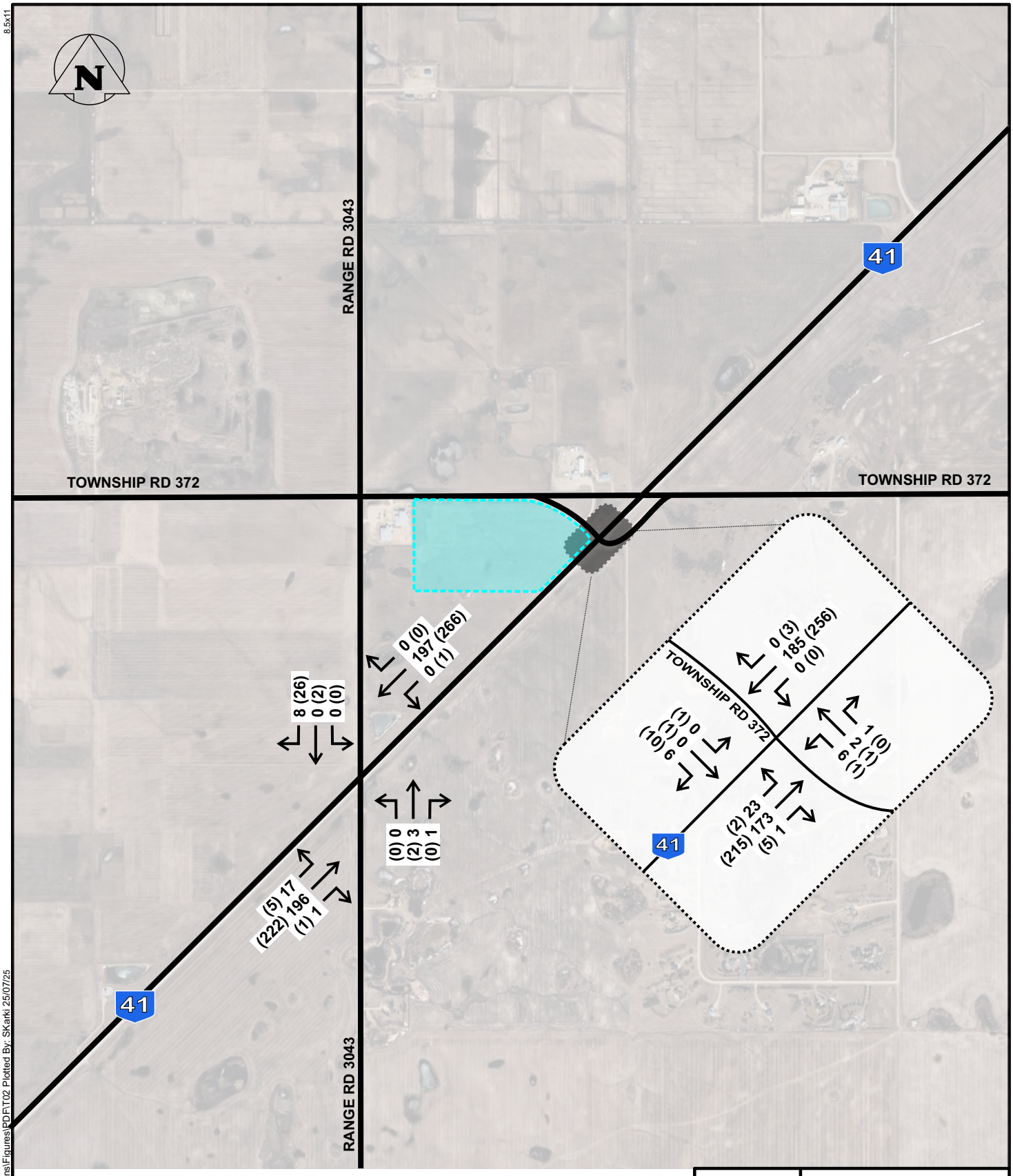
The area to the west of Range Road 3043 is part of the City of Saskatoon and is currently classified as Urban Holding, which is agricultural land that is designated for urban development in the future. The land to the north of the development is zoned in the P4G Plan as agricultural research land. Finally, the land to the south and east of the development are zoned for urban residential / neighbourhood development in the P4G Plan.

2.5 Existing Traffic Volumes

Existing traffic volumes were collected in June 2025. Data collection was done early in June to avoid the end of classes for elementary and high school students which would affect traffic patterns. Turning movement counts captured the combined weekday morning peak period (7:00 a.m. to 10:00 a.m.) and the afternoon peak period (3:00 p.m. to 6:00 p.m.) for both intersections, corresponding to the highest travel time periods. The traffic data was collected and divided into turning movements by cars, trucks, and buses.

Figure 2 summarizes the total vehicular turning movements recorded at the study intersections during both the morning and afternoon peak hours. The traffic count identified that the morning peak hour for the study intersections was from 7:45 a.m. to 8:45 a.m. and the afternoon peak hour was from 4:30 p.m. to 5:30 p.m.

[1] RM of Corman Park P4G District Land Use Map www.rmcormanpark.ca/302/Planning-District accessed on 06/24/2025



LEGEND:

PROJECT SITE

XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC VOLUMES

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

EXISTING (2025) PEAK HOUR
TRAFFIC VOLUMES

JULY_2025 | FIGURE 2 | 0

8.5x11

File Name: P:\Projects\2025\25-4526-001\Design\Trans\Figures\PDF\T02 Plotted By: SKarki 25/07/25

3.0 TRAFFIC ANALYSIS

The study area was analyzed under three different scenarios to identify how traffic moves throughout the development and surrounding area.

- Existing Traffic Volumes– How the intersection operates today
- Background 2040 Traffic Volumes – How the intersection would operate **without the proposed development**
- Total 2040 Traffic Volumes– How the intersection would operate **with the full build-out of the proposed development**

Synchro 11 was used to assess the study intersection during the weekday morning and afternoon peak hours, when traffic volumes are busiest. Synchro, which is based on the methodology outlined in the Highway Capacity Manual, produces two key measures to determine the operations of an intersection, The first is level of service (LOS) which is based on the average delay per vehicle, and the second is the volume-to-capacity (v/c) ratio, which indicates the available capacity for the intersection or movement. The level of service criteria for signalized and unsignalized (stop-controlled) intersections is presented in **Table 1**. A LOS A indicates good traffic flow with minimal delay and a LOS F indicates congested traffic operations with considerable delay. The v/c ratio identifies the intersection or individual movement's ability to accommodate fluctuations in traffic flow.

SimTraffic, a traffic simulation software program included in the Synchro Studio 11 suite, was used to perform a queuing analysis. SimTraffic can be used to help predict the length of vehicle queues that will form at an intersection. The results for the SimTraffic analysis were based on the average of ten 60-minute simulation runs for all scenarios. The queuing analyses have been conducted for the 95th percentile queues. The 95th percentile queue length provides the queue length that would only be exceeded five percent of the time. The 95th percentile queue represents the worst-case scenario, and they are used as an indicator to determine where further examination of storage length is required.

TABLE 1: LEVEL OF SERVICE CRITERIA

Level-of-Service	Signalized Intersections (seconds)	Unsignalized Intersections (seconds)
A	≤ 10	≤ 10
B	>10 – 20	>10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

Source: Highway Capacity Manual

3.1 Existing Traffic Operations

Both study intersections were analyzed using their existing road geometry, traffic control, and 2025 peak hour traffic volumes. The results of the existing morning and afternoon peak hour traffic operations analysis are summarized in **Table 2** and **Table 3**, respectively.

TABLE 2: 2025 EXISTING AM PEAK HOUR TRAFFIC OPERATIONS

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	B	A
	Delay (s)	8	0	0	0	0	12	9
	V/C ratio	0.02	--	--	--	--	0.02	0.01
	Queue (m)	5	0	0	0	0	8	3
	Overall LOS	***(1 s) A***						
Intersection	**Measure**	**Highway 41 Northeastbound**			**Highway 41 Southwestbound**		**RR 3043 Northbound**	**RR 3043 Southbound**
		LTR			***LTR***		**LTR**	**LTR**
Highway 41 and Range Road 3043	LOS	A			A		B	B
	Delay (s)	8			0		14	10
	V/C ratio	0.02			--		0.02	0.02
	Queue (m)	6			0		1	1
	Overall LOS	***(1 s) A***						

TABLE 3: 2025 EXISTING PM PEAK HOUR TRAFFIC OPERATIONS

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	B	B
	Delay (s)	8	0	0	0	0	13	11
	V/C ratio	0.01	--	--	--	--	0.01	0.02
	Queue (m)	2	0	0	0	0	4	7
	Overall LOS	***(1 s) A***						
Intersection	**Measure**	**Highway 41 Northeastbound**			**Highway 41 Southwestbound**		**RR 3043 Northbound**	**RR 3043 Southbound**
		LTR			***LTR***		**LTR**	**LTR**
Highway 41 and Range Road 3043	LOS	A			A		C	B
	Delay (s)	8			8		18	12
	V/C ratio	0.01			0.01		0.01	0.09
	Queue (m)	2			1		1	1
	Overall LOS	***(1 s) A***						

The morning peak hour capacity analysis demonstrates that the study intersections currently operate well in the morning with an LOS A overall, with no leg on either intersection having an average delay above 12 s. The afternoon peak hour capacity analysis returns similar results with very little delay for vehicles and LOS A.

3.2 Background (2040) Traffic Volumes

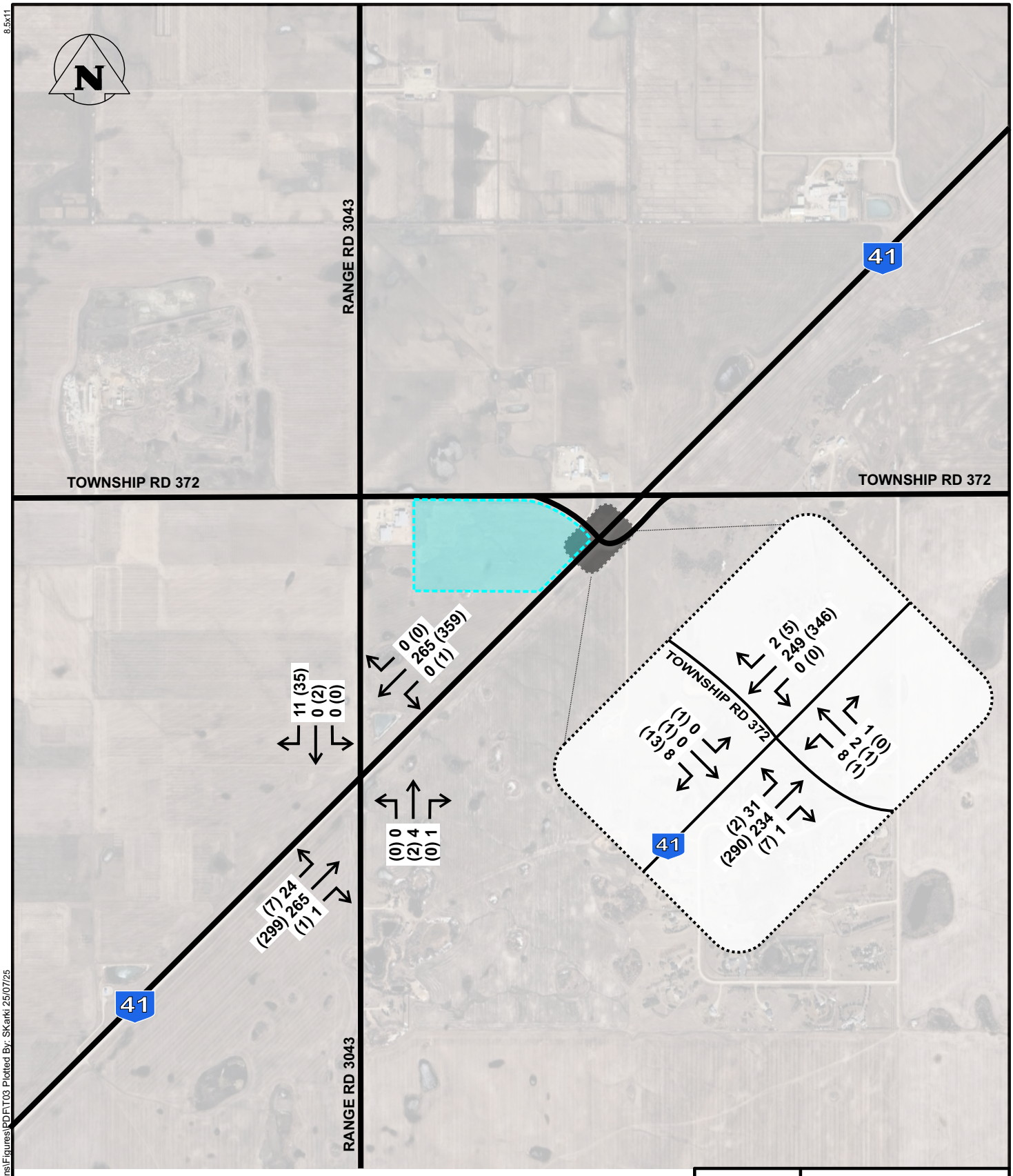
Background conditions provide a point of reference to understanding the relative impact of surrounding development and growth on the transportation network and how it is expected to operate, regardless of the proposed development.

3.2.1 BACKGROUND (2040) TRAFFIC FORECAST

The future background traffic volume projections were developed for the 2040 horizon, 10 years after full build-out.

The Ministry of Highway's 15-year growth rate for Highway 41, as received from the Ministry's Traffic Services branch, is 1.35, which represents a 35% increase in traffic volumes over the next 15 years. The 15-year growth rate was applied to all roads within the study area.

The estimated 2040 background traffic volumes for the study intersections are shown in **Figure 3.**



LEGEND:

PROJECT SITE

XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC VOLUMES

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

BACKGROUND (2040) PEAK HOUR
TRAFFIC VOLUMES

JULY_2025 | FIGURE 3 | 0

File Name: P:\Projects\2025\25-4526-001\Design\Trans\Figures\PDF\T03 Plotted By: SKarki 25/07/25

8.5x11

3.2.2 BACKGROUND TRAFFIC (2040) OPERATIONS

The study intersections were analyzed using the existing road geometry, traffic controls, and the estimated 2040 background traffic volumes. The results of the operations analysis for the 2040 background morning peak hour are summarized in **Table 4** below.

TABLE 4: 2040 BACKGROUND AM PEAK HOUR TRAFFIC OPERATIONS

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	B	A
	Delay (s)	8	0	0	0	0	14	10
	V/C ratio	0.03	--	--	--	--	0.03	0.01
	Queue (m)	6	0	0	0	0	9	4
	Overall LOS	***(1 s) A***						
Intersection	**Measure**	**Highway 41 Northeastbound**			**Highway 41 Southwestbound**		**RR 3043 Northbound**	**RR 3043 Southbound**
		LTR			***LTR***		**LTR**	**LTR**
Highway 41 and Range Road 3043	LOS	A			A		C	B
	Delay (s)	8			0		18	11
	V/C ratio	0.04			--		0.03	0.03
	Queue (m)	9			0		1	1
	Overall LOS	***(1 s) A***						

The capacity analysis shows that both intersections will perform with slightly more delay than existing conditions with the addition of the background traffic volumes. There is negligible difference in delay at the Highway 41 and Township Road 372 intersection during the morning peak hour. The northbound approach at the Highway 41 and Range Road 3043 intersection is anticipated to operates at a LOS C with the background traffic growth. Vehicles on the northbound approach will experience an average delay of 18 s during the morning peak hour. The intersection itself continues to operate at a LOS A overall.

The results of the traffic operations analysis for the 2040 background afternoon peak hour are summarized in **Table 5** below.

TABLE 5: 2040 BACKGROUND PM PEAK HOUR TRAFFIC OPERATIONS

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	C	B
	Delay (s)	8	0	0	0	0	15	11
	V/C ratio	0.01	--	--	--	--	0.01	0.03
	Queue (m)	1	0	0	0	0	4	6
	Overall LOS	***(1 s) A***						
Intersection	**Measure**	**Highway 41 Northeastbound**			**Highway 41 Southwestbound**		**RR 3043 Northbound**	**RR 3043 Southbound**
		LTR			***LTR***		**LTR**	**LTR**
Highway 41 and Range Road 3043	LOS	A			A		C	B
	Delay (s)	9			8		24	14
	V/C ratio	0.01			0.01		0.02	0.14
	Queue (m)	5			2		1	4
	Overall LOS	***(1 s) A***						

The afternoon peak hour is similarly affected by the background traffic volume growth. The capacity analysis shows that both intersections will continue to operate at a LOS A overall. The westbound approach at the Highway 41 and Township Road and 372 intersection, and the northbound approach at the Highway 41 and Range Road 3043 intersection, are anticipated to operate at a LOS C during the afternoon peak hour. The queueing analysis for both approaches indicated approximately one vehicle waiting during the afternoon peak hour.

3.3 Site-Generated Traffic Volumes

3.3.1 TRIP GENERATION

The proposed Viking Land development includes approximately 10.7 ha of commercial / light industrial development. The proposed development is expected to reach full build-out by 2030. The proposed subdivision plan is shown in **Appendix A**.

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, was used to estimate traffic generating potential for the proposed Viking Land development for both weekday morning and afternoon peak hours. The following assumptions were used in development the trip generating potential for the site:

- ITE Land-use Code 770 Business Park was selected to estimate the trips for Viking Land. A business park is defined a a group of one or two-story buildings served by a common road system. The tenant space is flexible and typically includes both commercial and industrial land uses.

- A floor-to-area ratio of 15% was used to estimate the amount of Gross Floor Area (GFA) that will result from the development. The floor-to-area ratio was estimated by looking at other light-industrial developments in the area. The GFA is estimated at approximately 172, 900 sq. ft.
- Truck traffic was estimated using the average rate equation provided by the ITE Trip Generation Manual (T = 0.04X).

Table 6 summarizes the land use codes, trip rates, and directional distribution proposed for the weekday morning and weekday afternoon peak hours.

TABLE 6: TRIP GENERATION RATES

Land Use	ITE Code	Peak Hour	Trip Equation	Directional Distribution	
				Enter	Exit
Business Park (All Trips)	770	AM Peak Hour	Ln(T) = 0.94Ln(X)+0.59	85%	15%
		PM Peak Hour	Ln(T) = 0.94Ln(X)+0.93	26%	74%
Business Park (Truck Trips Only)	770	AM Peak Hour	T = 0.04(X)	45%	55%
		PM Peak Hour	T = 0.04(X)	38%	63%

Notes: T = Average Vehicle Trips X = 1000 sq. ft. of GFA

Table 7 presents the total number of site-generated trips and the directional allocation (entering/exiting) for the proposed industrial development for each peak hour.

TABLE 7: SITE-GENERATED TRIPS

	AM Peak Hour			PM Peak Hour		
	Trip In	Trips Out	Total Trips	Trips In	Trips Out	Total Trips
Passenger Vehicle	190	30	220	55	170	225
Truck Trips	5	5	10	5	5	10
Total Trips	***195***	***35***	***230***	***60***	***175***	***235***

Note: Vehicles rounded to the nearest five (5).

TRIP REDUCTIONS

Most data in the ITE Trip Generation Manual are vehicle-based and have been collected at low-density, single-use, suburban developments with little to no transit service, limited bicycle access, and little to no convenient pedestrian access. These are considered baseline sites and the resulting trips need to be adjusted for complementary land uses, trip type, and modal choice of patrons.

- **Primary Trips** are made for the specific purpose of visiting the site for which the given traffic generator is the primary reason for the trip. The proposed Viking Land is expected to generate predominantly primary trips.

- **Pass-by Trips** are intercepted from the stream of traffic passing the site or diverted from adjacent routes. While they do contribute to traffic volumes at site accesses, they do not create new traffic loading on the adjacent street system. This development is not expected to generate pass-by trips.
- **Internal trips** are made from one generator on a particular site to another generator on the same site, reducing the total number of trips generated by the site as a whole. This development is not expected to generate internal trips as it is a single-use site.
- **Modal Split** is the portion of people visiting the site by distinct travel modes such as driving, transit, cycling or by walking. **As this site is located adjacent to a highway,** it is assumed that all trips arrive or depart by driving.

The estimated number of vehicle trips generated by the proposed development at full build-out includes **230 new vehicle trips (195 entering, 35 exiting)** during the morning peak hour, and **235 new vehicle trips (60 entering, 175 exiting)** during the afternoon peak hour.

3.3.2 TRIP DISTRIBUTION AND ASSIGNMENT

The traffic forecast was completed by distributing the site-related trips and assigning them to the road network, based on current traffic distribution as well as an assessment of the population of communities in the surrounding area. Distribution refers to the origins and destinations of the site-generated trips. The trip assignment assesses the actual route that the vehicle will take between the origin and the destination. The assignment process assumes that motorists will use the most efficient route.

The trip distribution estimates are as follows:

- 10% will travel to / from the north via Highway 41
- 10% will travel to /from the west via Township Road 372
- 75% will travel to / from the south via Highway 41
- 5% will travel to / from the east via Township Road 372

The new vehicle trips were then assigned to the road network based on the distribution estimates. The vehicle assignment accounts for the routes that drivers take to reach the site, and the access points that they will use. The following assumptions were made for the vehicle assignment:

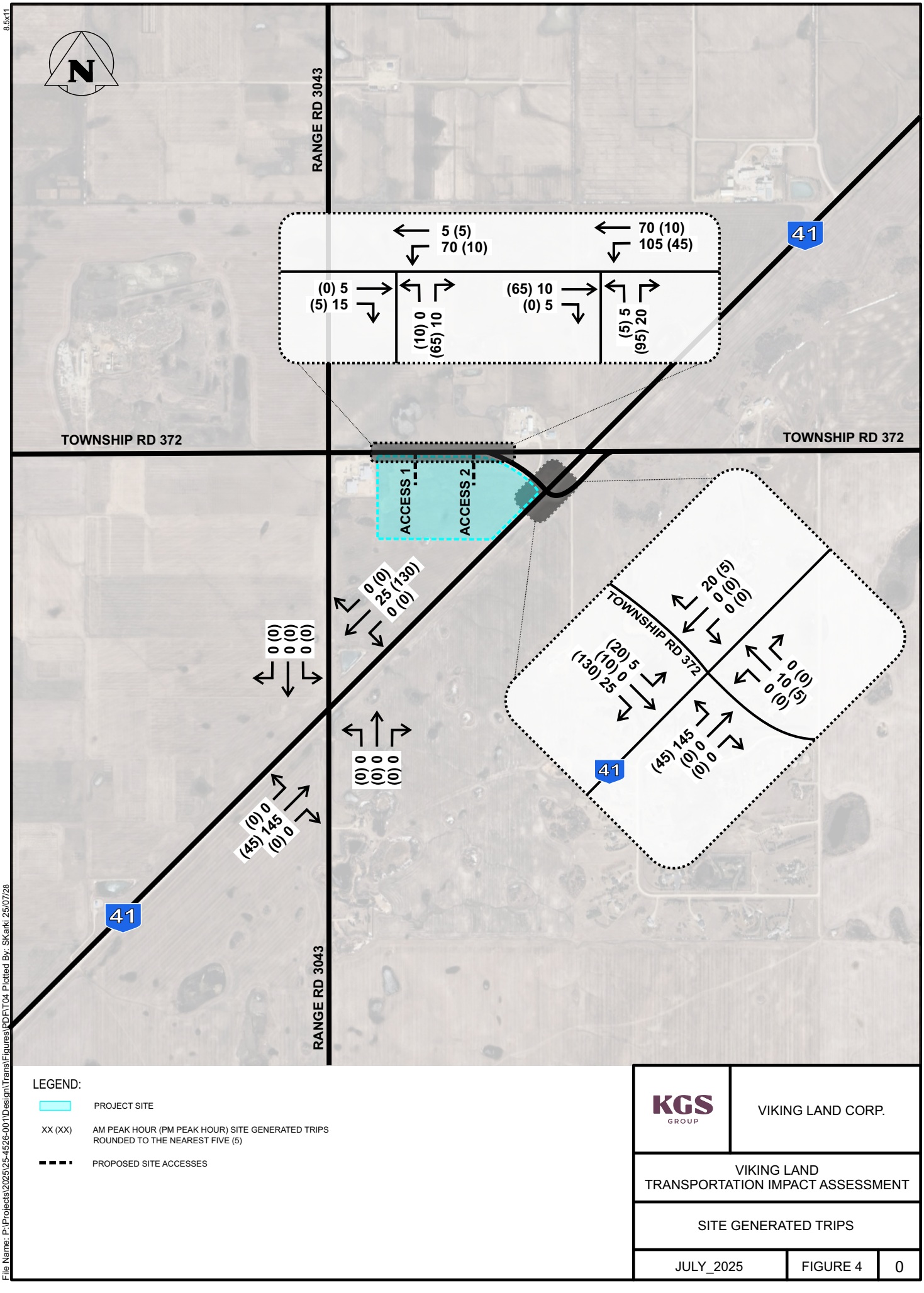
- The Township Road 372 and Access Road #1 intersection is assumed to be a T intersection
- The Township Road 372 and Access Road #2 intersection is assumed to be a T intersection
- The Highway 41 and Township Road 372 intersection is assumed to be an all-movements intersection.

Assigned site-generated vehicle trips are illustrated in **Figure 4.**

3.4 Total (2040) Traffic Volumes

3.4.1 TOTAL (2040) TRAFFIC VOLUMES

The total volumes analysis is based on what the traffic volumes would look like after the full build-out of the Viking Lands. The site-generated trips were added to the background traffic forecast to obtain the full build-out plus 10 years traffic forecast, illustrated in **Figure 5.**



LEGEND:

- PROJECT SITE
- XX (XX) AM PEAK HOUR (PM PEAK HOUR) SITE GENERATED TRIPS ROUNDED TO THE NEAREST FIVE (5)
- PROPOSED SITE ACCESSES

KGS GROUP

VIKING LAND CORP.

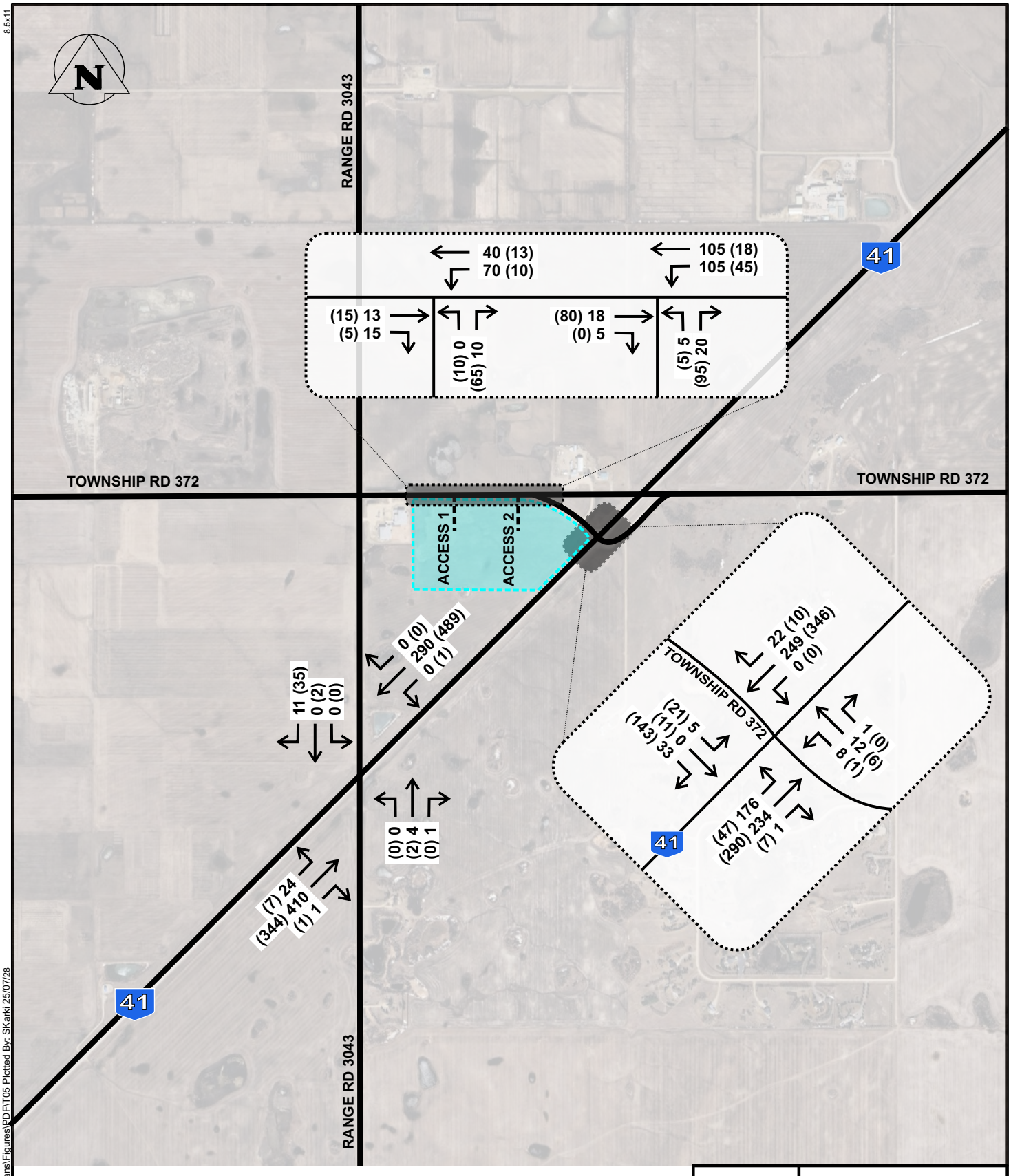
VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

SITE GENERATED TRIPS

JULY_2025 | FIGURE 4 | 0

8.5x11

File Name: P:\Projects\2025\25-4526-001\Design\Trans\Figures\PDF\T04 Plotted By: SKarki 25/07/28



LEGEND:

- PROJECT SITE
- XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC FORECAST
- PROPOSED SITE ACCESSES

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

TOTAL (2040) PEAK
HOUR TRAFFIC FORECAST

JULY_2025 | FIGURE 5 | 0

8.5x11

File Name: P:\Projects\2025\25-4526-001\Design\Trans\Figures\PDF\T05 Plotted By: SKarki 25/07/28

3.4.2 TOTAL (2040) TRAFFIC OPERATIONS

The total operations assessment evaluates the traffic conditions in the area that would occur with the development of the Viking Land site. The study area was analyzed using the existing traffic control, the new access intersection points and the estimated 2040 full build-out traffic volumes.

Table 8 summarizes the traffic operations during the full build-out morning peak hour traffic conditions. The capacity analysis indicates that the Highway 41 and Township Road 372 intersection will have slightly additional delay in comparison to the background traffic conditions.

The new proposed access intersections are anticipated to operate well (LOS A overall) with individual movements operating at a LOS A during the morning peak hour.

Table 9 summarizes the traffic operations during the full build-out afternoon peak hour volumes. The capacity analysis indicates that the Highway 41 and Township Road 372 intersection and the Highway 41 and Range Road 3034 intersection will continue to operate at a LOS A overall. The south leg at the Highway 41 and Range Road 3043 intersection is anticipated to operate at LOS D during the afternoon peak hour. Due to the very small amount of traffic from that direction, the poor performance of that leg does not majorly affect the overall operation of the intersection which remains a LOS A.

The new proposed access intersections are shown to function effectively with minimal delay and LOS A is present at the access intersections with only slightly more delay than the morning peak hour forecast.

TABLE 8: 2040 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	C	B
	Delay (s)	8	0	0	0	0	24	12
	V/C ratio	0.16	--	--	0.01	0.01	0.11	0.08
	Queue (m)	18	0	0	0	1	11	8
	Overall LOS	***(3 s) A***						

Intersection	Measure	Highway 41 Northeastbound	Highway 41 Southwestbound	RR 3043 Northbound	RR 3043 Southbound
		LTR	*LTR*	LTR	LTR
Highway 41 and Range Road 3043	LOS	A	A	C	B
	Delay (s)	8	0	24	11
	V/C ratio	0.04	0.01	0.04	0.03
	Queue (m)	14	0	1	2
	Overall LOS	***(1 s) A***			

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #1 Northbound	Access #1 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #1	LOS	A	A	A	
	Delay (s)	7	0	8	
	V/C ratio	0.05	0.01	0.01	
	Queue (m)	4	1	9	
	Overall LOS	***(4 s) A***			

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #2 Northbound	Access #2 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #2	LOS	A	A	A	
	Delay (s)	7	0	9	
	V/C ratio	0.07	0.01	0.03	
	Queue (m)	6	0	13	
	Overall LOS	***(4 s) A***			

TABLE 9: 2040 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	C	C
	Delay (s)	8	0	0	0	0	18	17
	V/C ratio	0.04	--	--	0.01	--	0.03	0.38
	Queue (m)	12	0	0	0	0	8	38
	Overall LOS	***(4 s) A***						

Intersection	Measure	Highway 41 Northeastbound	Highway 41 Southwestbound	RR 3043 Northbound	RR 3043 Southbound
		LTR	*LTR*	LTR	LTR
Highway 41 and Range Road 3043	LOS	A	A	D	C
	Delay (s)	10	9	34	19
	V/C ratio	0.02	0.01	0.03	0.19
	Queue (m)	7	2	1	4
	Overall LOS	***(1 s) A***			

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #1 Northbound	Access #1 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #1	LOS	A	A	A	
	Delay (s)	7	0	9	
	V/C ratio	0.01	0.01	0.08	
	Queue (m)	1	0	15	
	Overall LOS	***(6 s) A***			

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #2 Northbound	Access #2 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #2	LOS	A	A	A	
	Delay (s)	7	0	9	
	V/C ratio	0.03	0.01	0.11	
	Queue (m)	6	1	16	
	Overall LOS	***(5 s) A***			

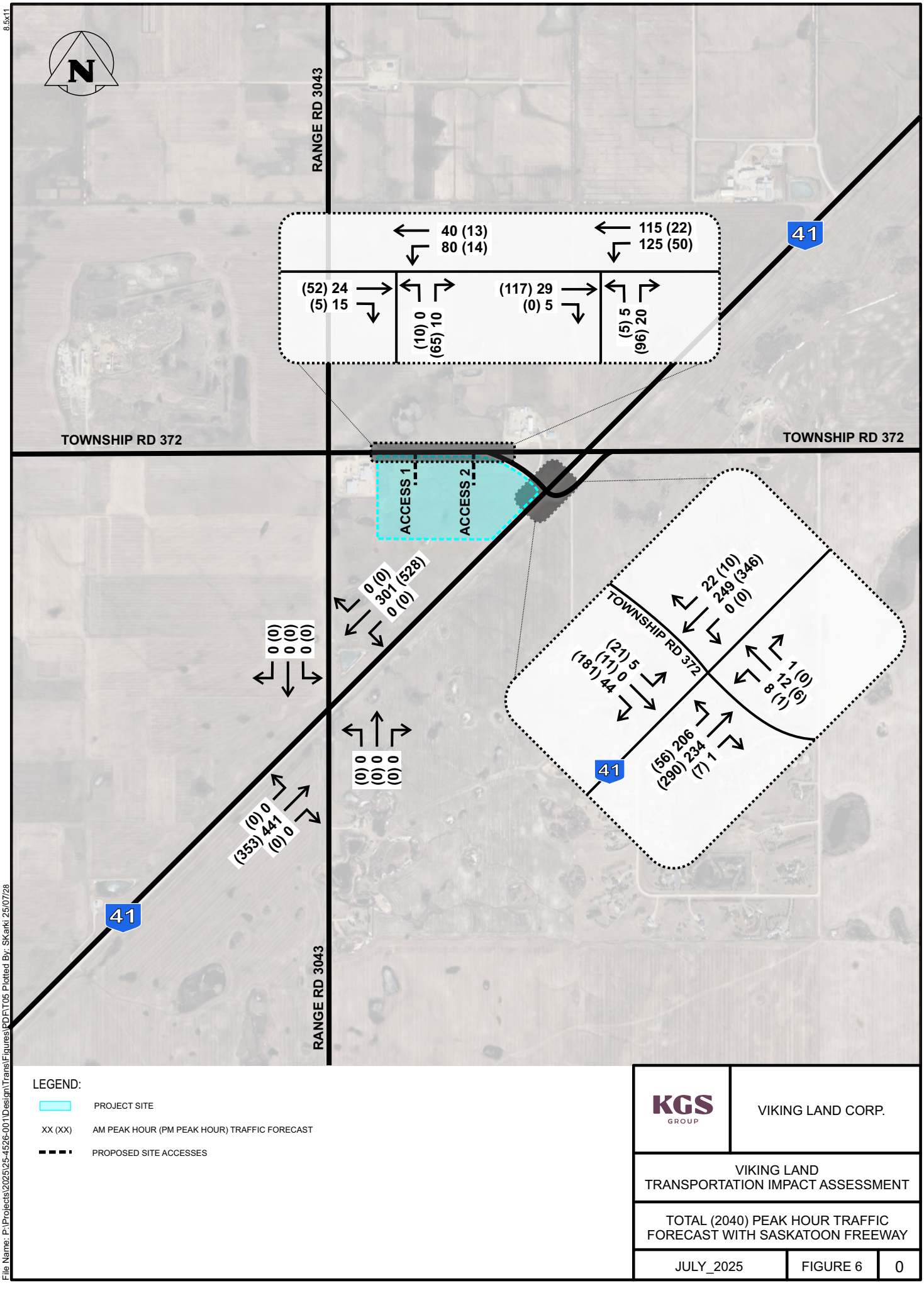
4.0 SASKATOON FREEWAY IMPACT

This section of the report analyzes the impact that the proposed Saskatoon Freeway will have on the development once constructed. The Saskatoon Freeway is a proposed 4-lane highway used to bypass Saskatoon. The proposed Phase 2 freeway route passes directly southwest of the development. This will result in changes to how vehicles will access the development, and changes to how much land will be permitted to develop, as well as and how close land is able to be developed to the freeway. All these potential changes are included in this section of the report.

4.1 Traffic Forecast with Freeway

4.1.1 TOTAL (2040) TRAFFIC VOLUMES WITH SASKATOON FREEWAY

The study area was analyzed assuming full buildout of the proposed development and assuming the Saskatoon Freeway is fully operational. This requires closing the Highway 41 and Range Road 3043 intersection and redirecting the volumes to the Highway 41 and Township Road 372 intersection. Volumes at Range Road 3043 were reassigned so that they would start and end at the same places as they did in the Total 2040 Forecast, just taking a different route to get there. The total volumes with the freeway buildout are illustrated in **Figure 6.**



LEGEND:

- PROJECT SITE
- XX (XX) AM PEAK HOUR (PM PEAK HOUR) TRAFFIC FORECAST
- PROPOSED SITE ACCESSES

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

TOTAL (2040) PEAK HOUR TRAFFIC
FORECAST WITH SASKATOON FREEWAY

JULY_2025	FIGURE 6	0

8.5x11

File Name: P:\Projects\2025\25-4526-001\Design\Trans\Figures\PDF\T05 Plotted By: SKarki 25/07/28

4.1.2 TOTAL (2040) TRAFFIC OPERATIONS WITH SASKATOON FREEWAY

The total operations assessment evaluates the traffic conditions in the area that would occur with the development of the Viking Land and the Saskatoon Freeway. The study area was analyzed assuming the closure of the Highway 41 and Range Road 3043 intersection and the estimated revised 2040 full build-out traffic volumes.

Table 10 summarizes the traffic operations during the 2040 full build-out traffic conditions with the Saskatoon Freeway during the morning peak hour. The east leg of the Highway 41 and Township Road 372 intersection is now operating at a LOS D with an average of 27 seconds of delay. Both access intersections continue to operate at a LOS A overall.

TABLE 10: 2040 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS W/ SASKATOON FREEWAY

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	D	B
	Delay (s)	8	0	0	0	0	27	12
	V/C ratio	0.18	--	--	0.01	--	0.13	0.10
	Queue (m)	19	0	0	0	0	14	10
	Overall LOS	***(4 s) A***						

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #1 Northbound	Access #1 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #1	LOS	A	A	A	
	Delay (s)	7	0	9	
	V/C ratio	0.06	0.01	0.01	
	Queue (m)	4	0	9	
	Overall LOS	***(4 s) A***			

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #2 Northbound	Access #2 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #2	LOS	A	A	A	
	Delay (s)	8	0	9	
	V/C ratio	0.09	0.01	0.03	
	Queue (m)	9	0	12	
	Overall LOS	***(4 s) A***			

Table 11 summarizes the traffic operations during the 2040 full build-out traffic conditions with the Saskatoon Freeway during the afternoon peak hour. The east leg of the Highway 41 and Township Road 372 intersection performs slightly better than the morning peak hour at a LOS C and 19 seconds of average delay. Both access intersections continue to operate at a LOS A.

TABLE 11: 2040 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS W/ SASKATOON FREEWAY

Intersection	Measure	Highway 41 Northeastbound			Highway 41 Southwestbound		TWS Rd 372 Westbound	TWS Rd 372 Eastbound
		L	T	R	LT	R	LTR	LTR
Highway 41 and Township Road 372	*LOS*	A	A	A	A	A	C	C
	Delay (s)	8	0	0	0	0	19	18
	V/C ratio	0.05	--	--	0.01	--	0.03	0.45
	Queue (m)	12	0	0	1	1	7	47
	Overall LOS	***(5 s) A***						

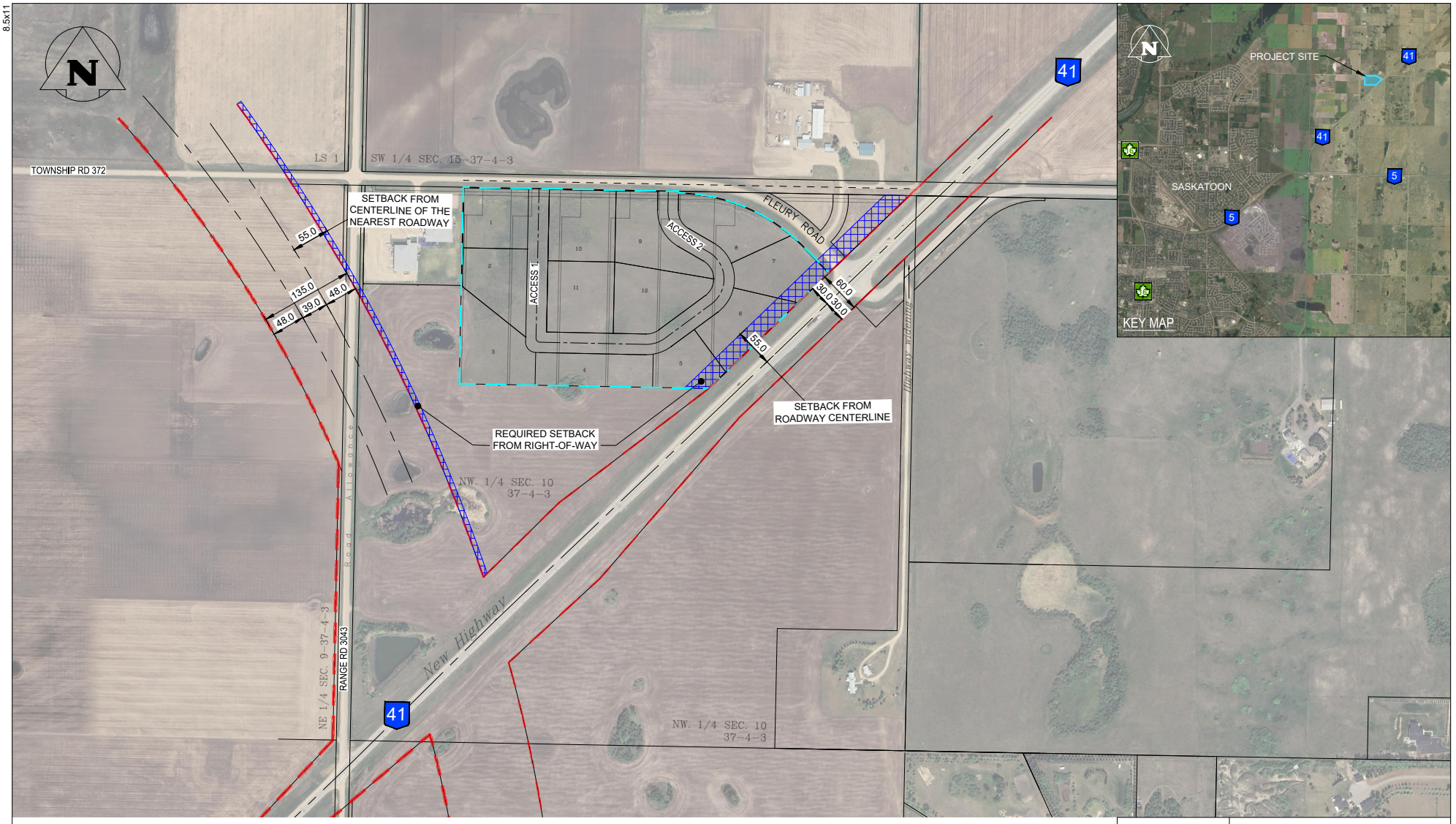
Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #1 Northbound	Access #1 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #1	LOS	A	A	A	
	Delay (s)	7	0	9	
	V/C ratio	0.01	0.01	0.08	
	Queue (m)	2	0	14	
	Overall LOS	***(5 s) A***			

Intersection	Measure	TWP Rd 372 Westbound	TWP Rd 372 Eastbound	Access #2 Northbound	Access #2 Southbound
		LT	*TR*	LR	LTR
Township Road 372 and Proposed Access #2	LOS	A	A	A	
	Delay (s)	8	0	10	
	V/C ratio	0.04	0.01	0.12	
	Queue (m)	8	3	17	
	Overall LOS	***(5 s) A***			

4.2 Development Standards and Setbacks

The study area was analyzed for any development standards or setbacks that would result from the existing highway configuration and the proposed Saskatoon Freeway. Setbacks are set by the Ministry of Highways in the Roadside Management Manual (RSMM 550-10). Setbacks along provincial highways are regulated to protect right-of-way for widening in the future, to control snow drifts, to provide a safe driving environment, as well as to protect the integrity of the highway and public investment. Setback requirements vary depending on the access management level of the highway, the type of development, if the highway has a frontage road, as well as the stage of development of the highway.

Access Management Levels are outlined in the Roadside Management Manual (RSMM 430-30). The Ministry of Highways determines access management levels based on a rural highway's proximity to major urban centres, traffic volumes, as well as if it passes through expected areas of future growth and development. Highway 41 is currently designated as a R-3 Access Management Level Highway. The Saskatoon Freeway will be a R-1 Access Management Level Highway once fully constructed. Both highways' setback lines were analyzed for commercial developments. **Figure 7** shows the minimum setback distances from the proposed Saskatoon Freeway and from Highway 41 and the effect they have on the quantity of developable land in the proposed development. These setback areas prohibit the placement of any new buildings, structures, and trees within the setback area.



LEGEND:

- RIGHT-OF-WAY
- PROJECT SITE BOUNDARY
- ROADWAY CENTERLINE
- SETBACK FROM RIGHT-OF-WAY

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

SETBACK FROM HIGHWAY

JULY_2025 | FIGURE 7 | REV: 0

8.5x11

File Name: C:\Users\skarki\OneDrive - KGS Group_KGS_Transportation\2025\1. Projects\25-4526-001 Viking Lands TIA\Figures.dwg - Tab: Setback Plotted By: SKarki 25/07/23 [Wed 10:31am]

8.5"x11" PLOT SCALE: 1:2

4.3 Additional Development Potential

This section of the report examines the additional development within the Viking Land that could be accommodated at the study intersection if construction of the Saskatoon Freeway did not occur or occurred at a different proximity to the proposed site. This analysis examines how many trips could be added to the intersection prior to excessive delay occurring on the west leg (i.e. LOS D / LOS E). The trips turning into and out of Township Road 372 from Highway 42 were increased to until a LOS D or LOS was achieved.

A LOS D occurred when an additional 60% of traffic was added to the turning movements and LOS E occurred when the an additional 90% of traffic was added to the 2040 total traffic volumes. The number of additional trips as compared to the original 2040 total forecast was determined and used to find the amount of Gross Floor Area that would create the number of additional trips.

The Gross Floor Area was reverted to acres of additional developable land using the same process that was used to complete trip generation in reverse order. By using the site plan, the average size of parcel was determined. Without the development setbacks and right-of-way requirements for the Saskatoon Freeway, an additional 8 parcels of land would be developable without a LOS D occurring at the study intersection of Highway 41 and Township Road 372. An additional 11 parcels of land would be developable without a LOS E occurring at the study intersection of Highway 41 and Township Road 372. Therefore, the Highway 41 and Township Road 372 intersection has sufficient capacity to accommodate 20 to 23 lots compared to the proposed 12 lots in the proposed site plan.

5.0 MITIGATION MEASURES

5.1 Intersection Lighting Warrants

The study intersections were reviewed for both delineation lighting and area lighting.

- **Delineation Lighting** is the illumination of key decision areas that demand full driver care and alertness by the placement of a limited number of streetlights. Typically, one or two streetlights are located on the minor roadway.
- **Area Lighting** is the illumination of the entire intersection and adjacent through and auxiliary lanes of the through highway.

The Highway 41 and Township Road 372 intersection has area lighting already in place. No additional lighting is required.

The lighting warrants were evaluated at the Township Road 372 and site access intersections. It is worth noting that the Ministry of Highways warrants used were developed for highways with a higher posted speed limit than Township Road 372 but were used in the analysis as an indication of potential appropriateness of lights to improve visibility at night.

A review of the warrants indicated the following:

- Delineation Lighting would be warranted at both access intersections of the Viking Land site if Township Road 372 was a provincial highway. A streetlight at each access point would improve visibility for drivers at the intersection during evenings. However, there are no street lights provided along this roadway for accesses to the school or the business on the north side of the road.

5.2 Turning Lane Warrants

Currently, there is a channelized northbound left-turn lane and a southbound right-turn lane at the intersection of Highway 41 and Township Road 372. There are currently no auxiliary lanes at the Highway 41 and Range Road 3043 intersection.

No additional turn lanes are warranted at the Highway 41 and Township Road 372 intersection nor the Highway 41 and Range Road 3043 intersection.

The intersection treatment warrants outlined by the Ministry of Highways Design Manual were completed for the proposed access intersections to the Viking Land site.

The warrants identified that a westbound flared left-turn lane is warranted at both proposed access intersections under 2040 total forecast conditions. It is worth noting that the warrants outlined by the Ministry are applied to provincial highways and not typically used for rural roads such as Township Road 372. However, the warrants can still be an indication of a potential need for left-turn lanes if the delay for through movements is excessive.

5.3 Sight Triangles

Sight triangles were analyzed at the proposed access road intersections with Township Road 372 using the Transportation Association of Canada (TAC)'s Geometric Design Guide for Canadian Roads. Sight triangles are specified areas along intersection approach legs that should be clear of obstructions that could obstruct a driver's view of potentially conflicting vehicles. It is important that no obstructions are present in these sight triangles to ensure a driver's view of oncoming vehicles. These potential obstructions include utility boxes, billboards/advertisements, trees or other vegetation, among other objects.

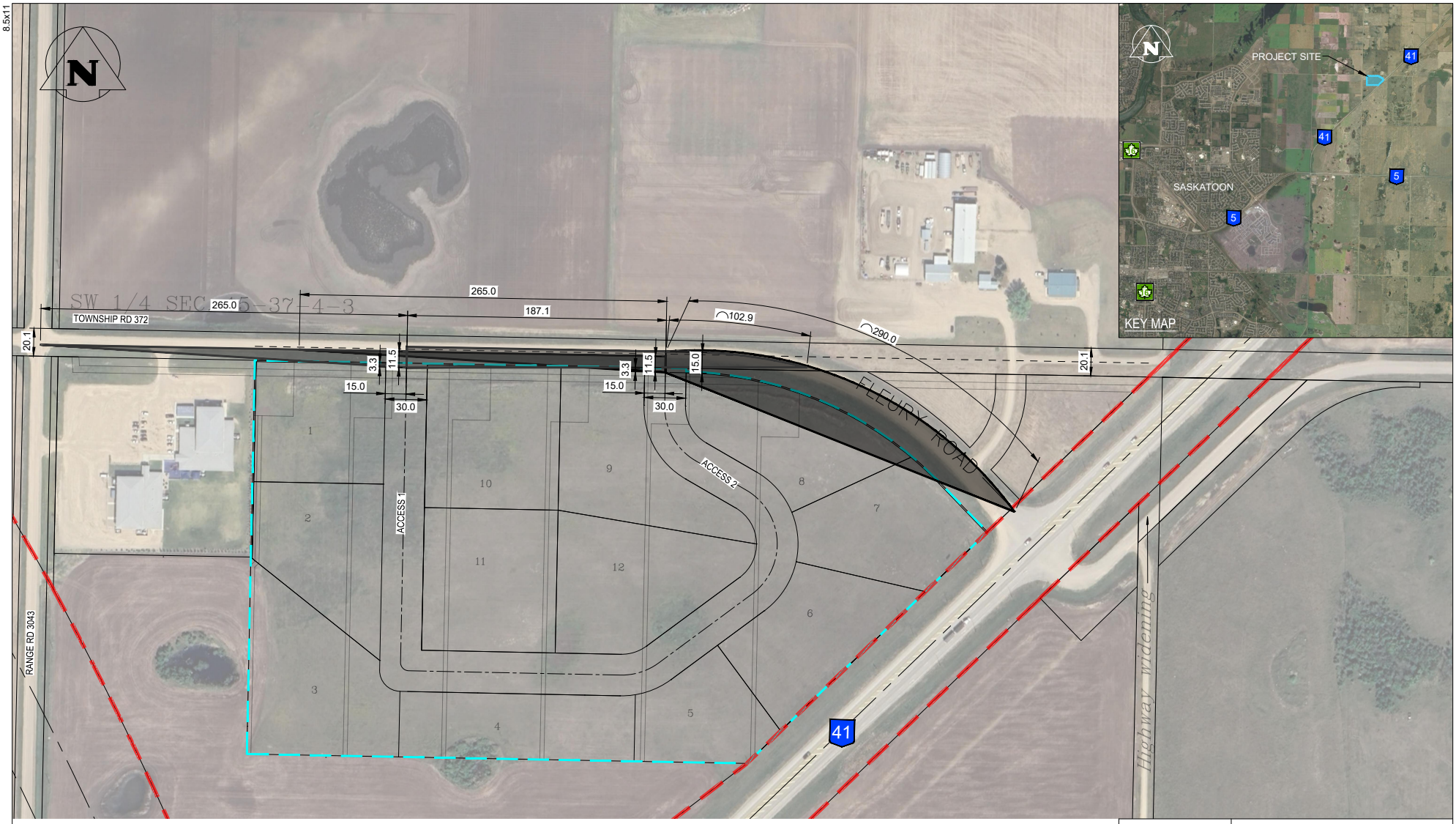
Based on the expected traffic control of a stop sign at the access intersections, departure sight triangles were identified to be the type to be determined. This is since our access intersections will stop drivers on a minor road that need to view vehicles travelling on a major road so that they can safely enter the major road. Departure sight triangles are determined by the design speed of the major roadway, the expected time-gap for the vehicle to enter the major roadway, and the width of the major roadway lanes.

Figure 8 shows the sight triangles for the access intersections for vehicles trying to make a left-turn or right-turn out of the proposed development.

5.4 Speed Limits

Currently, the speed limit on Township Road 372 is not posted and is assumed to be at 80 km/h as is outlined in the RM of Corman Park Traffic Bylaws[2]. Due to the number of driveways and access roads that are already present and proposed on Township Road 372, it is recommended that the speed limit is reduced from 80 km/h to a posted speed limit of 60 km/h. The two access intersections are 185 m apart so reducing the speed limit will make it so that drivers can enter and exit the development in a safe and controlled manner.

[2] RM of Corman Park. Traffic Bylaw 09/25 (A Bylaw to Regulate the Operation & Parking of Vehicles, Uncontrolled Intersections and the Use of the Highways) Website:https://rmcormanpark.ca/DocumentCenter/View/1562/Traffic-Bylaw-09-25?bidId=



LEGEND:

- HIGHWAY RIGHT-OF-WAY
- PROJECT SITE BOUNDARY
- ROADWAY CENTERLINE
- SIGHT TRIANGLES

KGS GROUP

VIKING LAND CORP.

VIKING LAND
TRANSPORTATION IMPACT ASSESSMENT

SIGHT TRIANGLES FROM SITE ACCESSES

JULY_2025	FIGURE 8	REV: 0

8.5x11

File Name: C:\Users\skarki\OneDrive - KGS Group_KGS_Transportation\2025\1. Projects\25-4526-001 Viking Lands TIA\Figures.dwg - Tab: Sight Triangles Plotted By: SKarki 25/07/23 [Wed 1:34pm]

8.5"x11" PLOT SCALE: 1:2

6.0 CONCLUSIONS AND RECOMMENDATIONS

A Transportation Impact Assessment (TIA) was conducted to evaluate potential transportation impacts when developing the Viking Land site, potential impacts from the Saskatoon Freeway being constructed as well as to identify any future mitigation measures necessary to accommodate site-generated vehicles.

The following conclusions and recommendations are made for the proposed industrial development, based on the results of the transportation analysis.

- The proposed development includes approximately 10.7 hectares of commercial / light industrial development.
- The proposed development will be accessed via Township Road 372, which connects to Highway 41.
- The estimated number of new trips generated at full buildout, includes 230 new vehicle trips (195 entering, 35 exiting) during the morning peak hour, and 235 new vehicle trips (60 entering, 175 exiting) during the afternoon peak hour.
- The Highway 41 and Township Road 372 intersection and the Highway 41 and Range Road 3043 intersection are expected to operate well (LOS A) in the morning and afternoon peak hours after the full buildout of the project, as well as the proposed site access intersections.
- Following the build-out of the Saskatoon Freeway, the Highway 41 and Range Road 3043 intersection will be closed due to its proximity to the freeway. This will cause the Highway 41 and Township Road 372 intersection to operate with slightly more dealy than it would without the freeway. Despite this, the Highway 41 and Township Road 372 intersection would still operate adequately (LOS A) in the morning and afternoon peak hours.
- A sensitivity analysis was conducted to determine how much additional land could be developed in the development area if the Saskatoon Freeway and its associated right-of-way and setback requirements were not realized. It was determined that an additional eight to eleven parcels of land could be developed before the intersection of Township Road 372 and Highway 41 reaches excessive delays on its west leg which provides access to the proposed development.
- Turning lane warrant analysis was completed for the study intersections along Highway 41 as well as at the proposed access intersections to the development. It was found that westbound flared would be warranted at the access intersections if Township Road 372 was a provincial highway and may be a possible solution should the through movements on Township Road 372 experience significant delay, although this is not common along similar roads within the rural municipality.
- Intersection area lighting is already present at the Highway 41 and Township Road 372 intersection. Additionally, delineation lighting would be warranted at the access intersections to the proposed Viking Land site if Township Road 372 was a provincial highway.

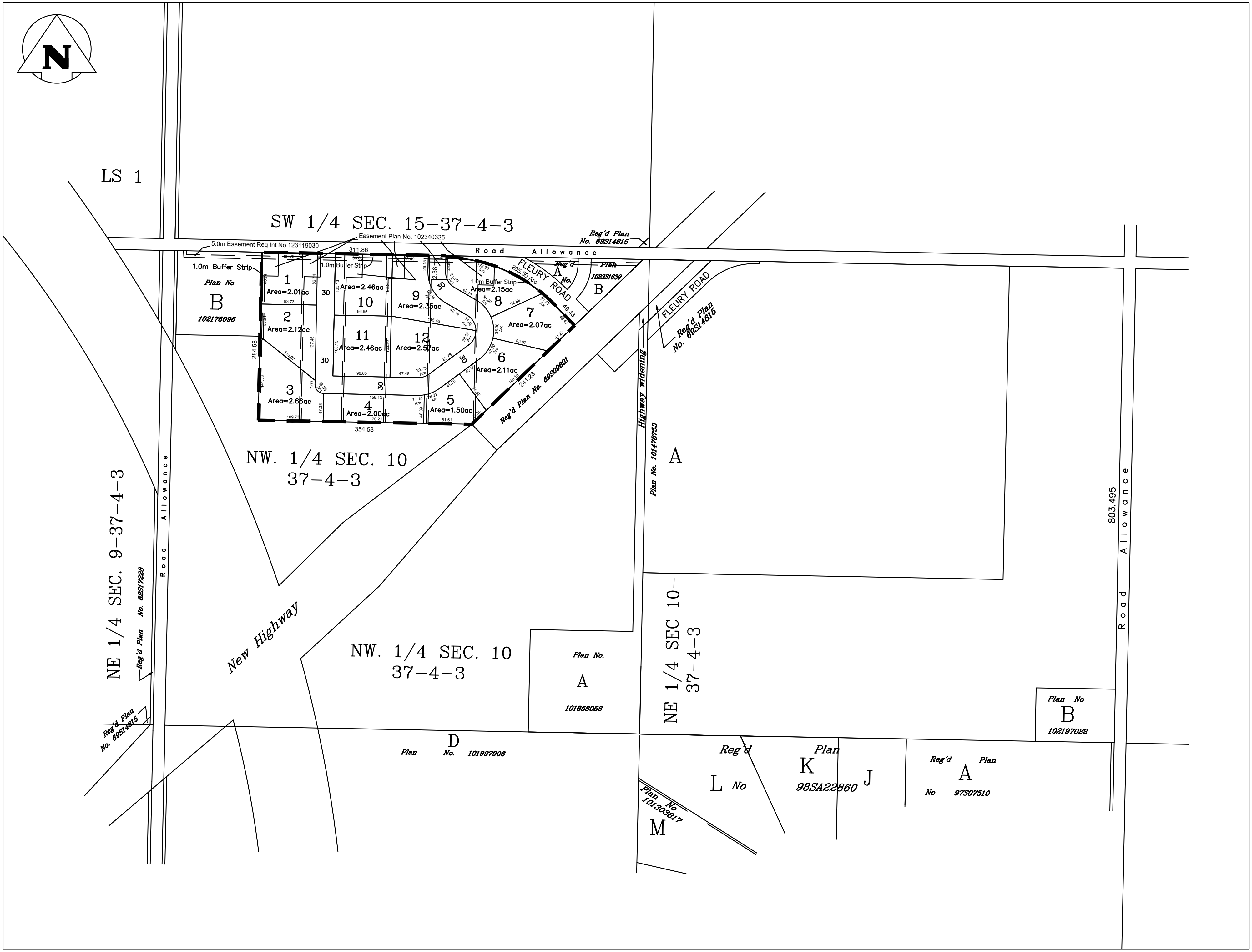
Recommendations

- Analyze the possibility of lowering the speed limit on Township Road 372 from 80 km/h to 60 km/h due to the amount of access roads present as there proximity to each other.

- Consider implementing intersection delineation lighting at the site accesses if lighting along this roadway is agreeable to the rural municipality as there are not street lights at the school access or the business on the north side of the road.
- Although not required for capacity reasons and not common for similar roads within the rural municipality, delay caused by left-turning vehicles entering the site accesses along Township Road 372 could be minimized by implementing flared left-turn lanes on the east legs of the access intersections. This road modification could be implemented in the future, and it is recommended that the need for it be monitored as development occurs within the area.
- Sightlines at all intersections and accesses should be kept free of obstructions (i.e. utility boxes, landscaping, etc.).

APPENDIX A

Site Plan


N
LS 1
SW 1/4 SEC. 15-37-4-3
Road Allowance
5.0m Easement Reg Int No 123119030
Easement Plan No. 102340325
Reg'd Plan No. 69S14615
1.0m Buffer Strip
Plan No
B
102176096
FLEURY ROAD
Reg'd Plan No. 102331639
A
B
Area=2.01ac
Area=2.12ac
Area=2.66ac
Area=2.00ac
Area=1.50ac
Area=2.11ac
Area=2.07ac
Area=2.15ac
Area=2.35ac
Area=2.46ac
Area=2.46ac
Area=2.57ac
311.86
354.58
284.58
205.50 Arc
241.23
49.43
Reg'd Plan No. 69S09601
Highway widening
Plan No. 101478753
NW. 1/4 SEC. 10
37-4-3
NE 1/4 SEC. 9-37-4-3
Reg'd Plan No. 62S17228
New Highway
NW. 1/4 SEC. 10
37-4-3
NE 1/4 SEC 10-
37-4-3
Plan No.
A
101858058
803.495
Plan No
B
102197022
D
Plan No. 101997906
Reg'd Plan No
L
K
98SA22860
J
Reg'd Plan
A
No 97S07510
Plan No
101303817
M

APPENDIX B

Synchro Reports

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	0	8	8	2	1	30	226	1	0	241	2
Future Vol, veh/h	0	0	8	8	2	1	30	226	1	0	241	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	100	0	11	0	0	5	0
Mvmt Flow	0	0	9	9	2	1	34	254	1	0	271	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	595	594	271	599	595	254	273	0	0	255	0	0
Stage 1	271	271	-	322	322	-	-	-	-	-	-	-
Stage 2	324	323	-	277	273	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	419	421	773	416	420	596	1302	-	-	1322	-	-
Stage 1	739	689	-	694	655	-	-	-	-	-	-	-
Stage 2	692	654	-	734	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	408	410	773	403	409	596	1302	-	-	1322	-	-
Mov Cap-2 Maneuver	408	410	-	403	409	-	-	-	-	-	-	-
Stage 1	720	689	-	676	638	-	-	-	-	-	-	-
Stage 2	670	637	-	725	688	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	9.7	13.9	0.9	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1302	-	-	416	773	1322	-	-
HCM Lane V/C Ratio	0.026	-	-	0.03	0.012	-	-	-
HCM Control Delay (s)	7.8	-	-	13.9	9.7	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	3	1	0	0	10	23	256	1	0	257	0
Future Vol, veh/h	0	3	1	0	0	10	23	256	1	0	257	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	61	61	61	61	61	61	61	61	61
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	5	2	0	0	16	38	420	2	0	421	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	926	918	421	922	919	421	421	0	0	422	0	0
Stage 1	497	497	-	421	421	-	-	-	-	-	-	-
Stage 2	429	421	-	501	498	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	251	274	637	253	273	637	1149	-	-	1148	-	-
Stage 1	559	548	-	614	592	-	-	-	-	-	-	-
Stage 2	608	592	-	556	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	236	262	637	241	261	637	1149	-	-	1148	-	-
Mov Cap-2 Maneuver	236	262	-	241	261	-	-	-	-	-	-	-
Stage 1	535	524	-	588	592	-	-	-	-	-	-	-
Stage 2	592	592	-	526	524	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	17	10.8	0.7	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1149	-	-	307	637	1148	-	-
HCM Lane V/C Ratio	0.033	-	-	0.021	0.026	-	-	-
HCM Control Delay (s)	8.2	0	-	17	10.8	0	-	-
HCM Lane LOS	A	A	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	1	13	1	1	0	2	281	7	0	335	5
Future Vol, veh/h	1	1	13	1	1	0	2	281	7	0	335	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	0	0	0	0	0	0	5	0	0	5	0
Mvmt Flow	1	1	14	1	1	0	2	305	8	0	364	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	678	681	364	683	678	305	369	0	0	313	0	0
Stage 1	364	364	-	309	309	-	-	-	-	-	-	-
Stage 2	314	317	-	374	369	-	-	-	-	-	-	-
Critical Hdwy	8.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	262	375	685	366	377	740	1201	-	-	1259	-	-
Stage 1	494	627	-	705	663	-	-	-	-	-	-	-
Stage 2	530	658	-	651	624	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	261	374	685	357	376	740	1201	-	-	1259	-	-
Mov Cap-2 Maneuver	261	374	-	357	376	-	-	-	-	-	-	-
Stage 1	493	627	-	704	662	-	-	-	-	-	-	-
Stage 2	528	657	-	636	624	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11.3	14.9	0.1	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1201	-	-	366	589	1259	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.028	-	-	-
HCM Control Delay (s)	8	-	-	14.9	11.3	0	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	0	2	34	7	290	1	1	348	0
Future Vol, veh/h	0	2	0	0	2	34	7	290	1	1	348	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	58	58	58	58	58	58	58	58	58
Heavy Vehicles, %	1	1	1	1	1	1	1	5	1	1	5	1
Mvmt Flow	0	3	0	0	3	59	12	500	2	2	600	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1160	1129	501	1131	1130	600	600	0	0	502	0	0
Stage 1	525	525	-	604	604	-	-	-	-	-	-	-
Stage 2	635	604	-	527	526	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	173	205	572	181	205	503	982	-	-	1068	-	-
Stage 1	538	531	-	487	489	-	-	-	-	-	-	-
Stage 2	468	489	-	536	530	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	149	201	572	176	201	503	982	-	-	1068	-	-
Mov Cap-2 Maneuver	149	201	-	176	201	-	-	-	-	-	-	-
Stage 1	529	522	-	479	488	-	-	-	-	-	-	-
Stage 2	409	488	-	523	521	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	23.2	14	0.2	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	982	-	-	201	464	1068	-	-
HCM Lane V/C Ratio	0.012	-	-	0.017	0.134	0.002	-	-
HCM Control Delay (s)	8.7	0	-	23.2	14	8.4	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	0	8	8	2	1	31	234	1	0	249	2
Future Vol, veh/h	0	0	8	8	2	1	31	234	1	0	249	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	100	0	11	0	0	5	0
Mvmt Flow	0	0	9	9	2	1	35	263	1	0	280	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	615	614	280	619	615	263	282	0	0	264	0	0
Stage 1	280	280	-	333	333	-	-	-	-	-	-	-
Stage 2	335	334	-	286	282	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	406	410	764	404	409	588	1292	-	-	1312	-	-
Stage 1	731	683	-	685	647	-	-	-	-	-	-	-
Stage 2	683	647	-	726	681	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	395	399	764	391	398	588	1292	-	-	1312	-	-
Mov Cap-2 Maneuver	395	399	-	391	398	-	-	-	-	-	-	-
Stage 1	711	683	-	667	630	-	-	-	-	-	-	-
Stage 2	661	630	-	717	681	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	9.8	14.2	0.9	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1292	-	-	405	764	1312	-	-
HCM Lane V/C Ratio	0.027	-	-	0.031	0.012	-	-	-
HCM Control Delay (s)	7.9	-	-	14.2	9.8	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	4	1	0	0	11	24	265	1	0	265	0
Future Vol, veh/h	0	4	1	0	0	11	24	265	1	0	265	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	61	61	61	61	61	61	61	61	61
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	7	2	0	0	18	39	434	2	0	434	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	956	947	435	952	948	434	434	0	0	436	0	0
Stage 1	513	513	-	434	434	-	-	-	-	-	-	-
Stage 2	443	434	-	518	514	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	240	263	625	241	263	626	1136	-	-	1134	-	-
Stage 1	548	539	-	604	585	-	-	-	-	-	-	-
Stage 2	598	585	-	544	539	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	225	251	625	228	251	626	1136	-	-	1134	-	-
Mov Cap-2 Maneuver	225	251	-	228	251	-	-	-	-	-	-	-
Stage 1	523	515	-	577	585	-	-	-	-	-	-	-
Stage 2	581	585	-	512	515	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	18	10.9	0.7	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1136	-	-	285	626	1134	-	-
HCM Lane V/C Ratio	0.035	-	-	0.029	0.029	-	-	-
HCM Control Delay (s)	8.3	0	-	18	10.9	0	-	-
HCM Lane LOS	A	A	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	1	13	1	1	0	2	290	7	0	346	5
Future Vol, veh/h	1	1	13	1	1	0	2	290	7	0	346	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	0	0	0	0	0	0	5	0	0	5	0
Mvmt Flow	1	1	14	1	1	0	2	315	8	0	376	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	700	703	376	705	700	315	381	0	0	323	0	0
Stage 1	376	376	-	319	319	-	-	-	-	-	-	-
Stage 2	324	327	-	386	381	-	-	-	-	-	-	-
Critical Hdwy	8.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	252	364	675	354	366	730	1189	-	-	1248	-	-
Stage 1	486	620	-	697	657	-	-	-	-	-	-	-
Stage 2	523	651	-	641	617	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	251	363	675	346	365	730	1189	-	-	1248	-	-
Mov Cap-2 Maneuver	251	363	-	346	365	-	-	-	-	-	-	-
Stage 1	485	620	-	696	656	-	-	-	-	-	-	-
Stage 2	521	650	-	626	617	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11.4	15.2	0.1	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1189	-	-	355	577	1248	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.028	-	-	-
HCM Control Delay (s)	8	-	-	15.2	11.4	0	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	0	2	35	7	299	1	1	359	0
Future Vol, veh/h	0	2	0	0	2	35	7	299	1	1	359	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	58	58	58	58	58	58	58	58	58
Heavy Vehicles, %	1	1	1	1	1	1	1	5	1	1	5	1
Mvmt Flow	0	3	0	0	3	60	12	516	2	2	619	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1196	1164	517	1166	1165	619	619	0	0	518	0	0
Stage 1	541	541	-	623	623	-	-	-	-	-	-	-
Stage 2	655	623	-	543	542	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	164	195	560	172	195	490	966	-	-	1053	-	-
Stage 1	527	522	-	475	480	-	-	-	-	-	-	-
Stage 2	457	480	-	526	522	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	140	191	560	167	191	490	966	-	-	1053	-	-
Mov Cap-2 Maneuver	140	191	-	167	191	-	-	-	-	-	-	-
Stage 1	518	513	-	467	479	-	-	-	-	-	-	-
Stage 2	397	479	-	514	513	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	24.2	14.3	0.2	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	966	-	-	191	452	1053	-	-
HCM Lane V/C Ratio	0.012	-	-	0.018	0.141	0.002	-	-
HCM Control Delay (s)	8.8	0	-	24.2	14.3	8.4	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	5	0	33	8	12	1	176	234	1	0	249	22
Future Vol, veh/h	5	0	33	8	12	1	176	234	1	0	249	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	100	0	11	0	0	5	0
Mvmt Flow	6	0	37	9	13	1	198	263	1	0	280	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	947	940	280	970	964	263	305	0	0	264	0	0
Stage 1	280	280	-	659	659	-	-	-	-	-	-	-
Stage 2	667	660	-	311	305	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	243	266	764	235	257	588	1267	-	-	1312	-	-
Stage 1	731	683	-	456	464	-	-	-	-	-	-	-
Stage 2	451	463	-	704	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	204	225	764	197	217	588	1267	-	-	1312	-	-
Mov Cap-2 Maneuver	204	225	-	197	217	-	-	-	-	-	-	-
Stage 1	617	683	-	385	392	-	-	-	-	-	-	-
Stage 2	367	391	-	670	666	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11.9	23.8	3.6	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1267	-	-	215	561	1312	-	-
HCM Lane V/C Ratio	0.156	-	-	0.11	0.076	-	-	-
HCM Control Delay (s)	8.4	-	-	23.8	11.9	0	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.4	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	4	1	0	0	11	24	410	1	0	290	0
Future Vol, veh/h	0	4	1	0	0	11	24	410	1	0	290	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	61	61	61	61	61	61	61	61	61
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	7	2	0	0	18	39	672	2	0	475	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1235	1226	673	1231	1227	475	475	0	0	674	0	0
Stage 1	751	751	-	475	475	-	-	-	-	-	-	-
Stage 2	484	475	-	756	752	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	155	180	459	156	180	594	1098	-	-	927	-	-
Stage 1	406	421	-	574	561	-	-	-	-	-	-	-
Stage 2	568	561	-	403	421	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	170	459	144	170	594	1098	-	-	927	-	-
Mov Cap-2 Maneuver	144	170	-	144	170	-	-	-	-	-	-	-
Stage 1	383	397	-	541	561	-	-	-	-	-	-	-
Stage 2	551	561	-	372	397	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	24.4	11.3	0.5	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1098	-	-	194	594	927	-	-
HCM Lane V/C Ratio	0.036	-	-	0.042	0.03	-	-	-
HCM Control Delay (s)	8.4	0	-	24.4	11.3	0	-	-
HCM Lane LOS	A	A	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	15	70	40	0	10
Future Vol, veh/h	13	15	70	40	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	16	76	43	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	217	22
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1583	-	771	1055
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	733	1055
Mov Cap-2 Maneuver	-	-	-	-	733	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	797	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.7	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1055	-	-	1583	-
HCM Lane V/C Ratio	0.01	-	-	0.048	-
HCM Control Delay (s)	8.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	5	105	105	5	20
Future Vol, veh/h	18	5	105	105	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	5	114	114	5	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	25	0	365	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1589	-	635	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1589	-	586	1054
Mov Cap-2 Maneuver	-	-	-	-	586	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	664	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	909	-	-	1589	-
HCM Lane V/C Ratio	0.03	-	-	0.072	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	21	11	143	1	6	0	47	290	7	0	346	10
Future Vol, veh/h	21	11	143	1	6	0	47	290	7	0	346	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	0	0	0	0	0	0	5	0	0	5	0
Mvmt Flow	23	12	155	1	7	0	51	315	8	0	376	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	801	801	376	882	804	315	387	0	0	323	0	0
Stage 1	376	376	-	417	417	-	-	-	-	-	-	-
Stage 2	425	425	-	465	387	-	-	-	-	-	-	-
Critical Hdwy	8.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	212	320	675	269	319	730	1183	-	-	1248	-	-
Stage 1	486	620	-	617	595	-	-	-	-	-	-	-
Stage 2	454	590	-	581	613	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	202	306	675	194	305	730	1183	-	-	1248	-	-
Mov Cap-2 Maneuver	202	306	-	194	305	-	-	-	-	-	-	-
Stage 1	465	620	-	590	569	-	-	-	-	-	-	-
Stage 2	429	565	-	439	613	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	16.7	18.1	1.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1183	-	-	282	497	1248	-	-
HCM Lane V/C Ratio	0.043	-	-	0.027	0.383	-	-	-
HCM Control Delay (s)	8.2	-	-	18.1	16.7	0	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	1.8	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	0	2	35	7	344	1	1	489	0
Future Vol, veh/h	0	2	0	0	2	35	7	344	1	1	489	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	58	58	58	58	58	58	58	58	58
Heavy Vehicles, %	1	1	1	1	1	1	1	5	1	1	5	1
Mvmt Flow	0	3	0	0	3	60	12	593	2	2	843	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1497	1465	594	1467	1466	843	843	0	0	595	0	0
Stage 1	618	618	-	847	847	-	-	-	-	-	-	-
Stage 2	879	847	-	620	619	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	101	129	507	106	129	365	797	-	-	986	-	-
Stage 1	478	482	-	358	379	-	-	-	-	-	-	-
Stage 2	344	379	-	477	482	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	81	126	507	102	126	365	797	-	-	986	-	-
Mov Cap-2 Maneuver	81	126	-	102	126	-	-	-	-	-	-	-
Stage 1	467	471	-	350	377	-	-	-	-	-	-	-
Stage 2	283	377	-	463	471	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	34.4	18.5	0.2	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	797	-	-	126	331	986	-	-
HCM Lane V/C Ratio	0.015	-	-	0.027	0.193	0.002	-	-
HCM Control Delay (s)	9.6	0	-	34.4	18.5	8.7	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0	-	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	5	10	13	10	65
Future Vol, veh/h	15	5	10	13	10	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	5	11	14	11	71

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	21	0	55	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	36	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1595	-	953	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	986	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1595	-	946	1059
Mov Cap-2 Maneuver	-	-	-	-	946	-
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	979	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1042	-	-	1595	-
HCM Lane V/C Ratio	0.078	-	-	0.007	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	0	45	18	5	95
Future Vol, veh/h	80	0	45	18	5	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	0	49	20	5	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	87	0	205	87
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	118	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1509	-	783	971
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1509	-	757	971
Mov Cap-2 Maneuver	-	-	-	-	757	-
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	877	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	957	-	-	1509	-
HCM Lane V/C Ratio	0.114	-	-	0.032	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	5	0	44	8	12	1	206	234	1	0	249	22
Future Vol, veh/h	5	0	44	8	12	1	206	234	1	0	249	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	100	0	11	0	0	5	0
Mvmt Flow	6	0	49	9	13	1	231	263	1	0	280	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1013	1006	280	1042	1030	263	305	0	0	264	0	0
Stage 1	280	280	-	725	725	-	-	-	-	-	-	-
Stage 2	733	726	-	317	305	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	219	243	764	210	235	588	1267	-	-	1312	-	-
Stage 1	731	683	-	420	433	-	-	-	-	-	-	-
Stage 2	415	433	-	698	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	199	764	169	192	588	1267	-	-	1312	-	-
Mov Cap-2 Maneuver	178	199	-	169	192	-	-	-	-	-	-	-
Stage 1	598	683	-	344	354	-	-	-	-	-	-	-
Stage 2	326	354	-	653	666	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	12	26.9	4	0
HCM LOS	B	D		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1267	-	-	188	572	1312	-	-
HCM Lane V/C Ratio	0.183	-	-	0.126	0.096	-	-	-
HCM Control Delay (s)	8.5	-	-	26.9	12	0	-	-
HCM Lane LOS	A	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0.7	-	-	0.4	0.3	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	0	0	440	0	0	301	0
Future Vol, veh/h	0	0	0	0	0	0	0	440	0	0	301	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	61	61	61	61	61	61	61	61	61
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	0	0	0	0	0	0	721	0	0	493	0

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1214	1214	721	1214	1214	493	493	0	0	721	0	0
Stage 1	721	721	-	493	493	-	-	-	-	-	-	-
Stage 2	493	493	-	721	721	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	160	183	431	160	183	580	1081	-	-	890	-	-
Stage 1	422	435	-	562	550	-	-	-	-	-	-	-
Stage 2	562	550	-	422	435	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	160	183	431	160	183	580	1081	-	-	890	-	-
Mov Cap-2 Maneuver	160	183	-	160	183	-	-	-	-	-	-	-
Stage 1	422	435	-	562	550	-	-	-	-	-	-	-
Stage 2	562	550	-	422	435	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1081	-	-	-	-	890	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	15	80	40	0	10
Future Vol, veh/h	24	15	80	40	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	16	87	43	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	42	0	251	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	217	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1567	-	738	1039
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	819	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1567	-	696	1039
Mov Cap-2 Maneuver	-	-	-	-	696	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1039	-	-	1567	-
HCM Lane V/C Ratio	0.01	-	-	0.055	-
HCM Control Delay (s)	8.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	29	5	125	115	5	20
Future Vol, veh/h	29	5	125	115	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	5	136	125	5	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	37	0	432	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	397	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1574	-	581	1038
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	679	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1574	-	527	1038
Mov Cap-2 Maneuver	-	-	-	-	527	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	616	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.9	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	869	-	-	1574	-
HCM Lane V/C Ratio	0.031	-	-	0.086	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.3	-

Intersection	
Int Delay, s/veh	4.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	21	11	181	1	6	0	56	290	7	0	346	10
Future Vol, veh/h	21	11	181	1	6	0	56	290	7	0	346	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	115	-	-	115
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	0	0	0	0	0	0	5	0	0	5	0
Mvmt Flow	23	12	197	1	7	0	61	315	8	0	376	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	821	821	376	923	824	315	387	0	0	323	0	0
Stage 1	376	376	-	437	437	-	-	-	-	-	-	-
Stage 2	445	445	-	486	387	-	-	-	-	-	-	-
Critical Hdwy	8.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	204	312	675	252	310	730	1183	-	-	1248	-	-
Stage 1	486	620	-	602	583	-	-	-	-	-	-	-
Stage 2	441	578	-	566	613	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	193	296	675	166	294	730	1183	-	-	1248	-	-
Mov Cap-2 Maneuver	193	296	-	166	294	-	-	-	-	-	-	-
Stage 1	461	620	-	571	553	-	-	-	-	-	-	-
Stage 2	413	548	-	393	613	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	17.6	19	1.3	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1183	-	-	265	514	1248	-	-
HCM Lane V/C Ratio	0.051	-	-	0.029	0.45	-	-	-
HCM Control Delay (s)	8.2	-	-	19	17.6	0	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	2.3	0	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	5	14	13	10	65
Future Vol, veh/h	52	5	14	13	10	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	5	15	14	11	71

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	62	0	104	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	44	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1541	-	894	1005
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-			-	
Mov Cap-1 Maneuver	-	-	1541	-	885	1005
Mov Cap-2 Maneuver	-	-	-	-	885	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	987	-	-	1541	-
HCM Lane V/C Ratio	0.083	-	-	0.01	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	117	0	50	22	5	96
Future Vol, veh/h	117	0	50	22	5	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	0	54	24	5	104

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	127	0	259	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	132	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1459	-	730	923
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	894	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1459	-	702	923
Mov Cap-2 Maneuver	-	-	-	-	702	-
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	860	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	909	-	-	1459	-
HCM Lane V/C Ratio	0.121	-	-	0.037	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

KGS
GROUP

Experience in Action

Appendix D

On-Site Wastewater Analysis

SILVER CREEK
Developments

IMAGINEI contracting

449 Haviland Crescent
Saskatoon, SK S7L 5B3
639-471-0063

Septic System Design

for

Paul Deason

Parcel:

NW-10-37-04-W3M

Title Holder(s):

101050918 Saskatchewan Ltd.

Site & Soils Analysis completed by:

Aleena Pawlik
Imagine Contracting
September 25, 2017

System Sizing Estimate completed by:

Aleena Pawlik
Imagine Contracting Inc.
October 19, 2017

October 19, 2017

I, Aleena Pawlik, of Imagine Contracting Inc. certify that all information included in this report are accurate per my findings during my evaluation on September 25, 2017, and the subsequent lab report from Down to Earth Labs.

_____ October 19, 2017

Signature

The information contained in this Report has been provided by Imagine Contracting Inc. for informational purposes only. This information does not constitute legal, professional or commercial advice. While every care has been taken to ensure that the content is useful and accurate, Imagine Contracting Inc. gives no guarantees, undertakings or warranties in this regard, and does not accept any legal liability or responsibility for the content or the accuracy of the information so provided, or, for any loss or damage caused arising directly or indirectly in connection with reliance on the use of such information. Any errors or omissions brought to the attention of Imagine Contracting Inc. will be corrected upon request.

IMAGINEI contracting

A site and soils evaluation was completed at NW-10-37-04-W3M on September 25, 2017. Below are the findings of Imagine Contracting Inc., and the recommendations made per those findings.

Findings

Two test pits were excavated on the North and Northwestern regions of the proposed lots. Both pits were excavated to a depth of approximately 7', and all horizons within the pits were evaluated. Water table was not located during the investigation, however, indications of seasonal water table were found in both pits at depths of between 50" and 66". The indication found was mottling, which is a rust-coloured inclusion showing that water has at times been present, after which, it has drained and oxygen has re-entered the soil.

The Saskatchewan Onsite Wastewater Disposal Guide, 2009 (SOWDG) requires that all sites require a minimum of 12" of in situ soil with the capacity to host a system, and a minimum of 36" of total vertical separation for a Type II Mound or Package Treatment Plant.

It was found that both Test Pits had approximately 19-20" of in situ soils with the capacity to host an onsite wastewater treatment system (septic system). In the case of the 101050918 SK Ltd. site; in order to host a septic system, a minimum of 16-17" of ASTM C33 Sand would need to be imported to build the vertical separation to 36", and System Sand would be required on top of that. As well, the berms of the system would need to be adjusted to achieve a 4:1 slope as required by the SOWDG.

Complete soil logs and results from samples submitted to an accredited lab are appended.

Recommendations

Based on the current conditions of this site, it is my recommendation that properties with limited space availability (lots that will have more than 85-90% of their space developed, not including the septic system), select a Holding Tank as opposed to an Onsite Wastewater Disposal System. If a septic system is selected, it is recommended that space be set aside for future expansion or replacement. This space must be uncompacted, un-filled and left in it's native condition.

An onsite wastewater treatment system for each lot is feasible, however, it will have a larger than average footprint due to the clay conditions below 19-20". The area selected to host the septic system must not be modified, damaged, or compacted by vehicular/ equipment traffic at any point in time, and no fill aside from ASTM C33 Sand may be used in the area.

Consideration of Advanced Treatment is recommended when designing septic systems for this location. The use of Advanced Treatment reduces the "workload" of the native soils, reducing the potential for plugging up of the pore spaces over the long term.

In addition to building up the vertical separation of the system, in order to ensure maximum treatment, it is recommended that the system be installed utilizing linear loading, per the appended system layout example. The use of linear loading increases the overall treatment area, while maintaining the same size sand layer as a traditional layout. The use of linear loading will reduce the workload of each linear foot of the native soils by up to 50%.

Finally, it is recommended that the system utilize timed dosing. Timed dosing reduces the size of each dose by spreading doses over a full 24-hour day / 7 day week, which is especially beneficial for businesses with a standard 5 day work week. Generally, systems are set up on a demand-dose schedule, which loads the system with larger doses over a shorter timeframe, reducing the level of treatment the system can provide. Timed dosing uses a 168 hour week to treat the wastewater instead of condensing it into a 45 hour work week.

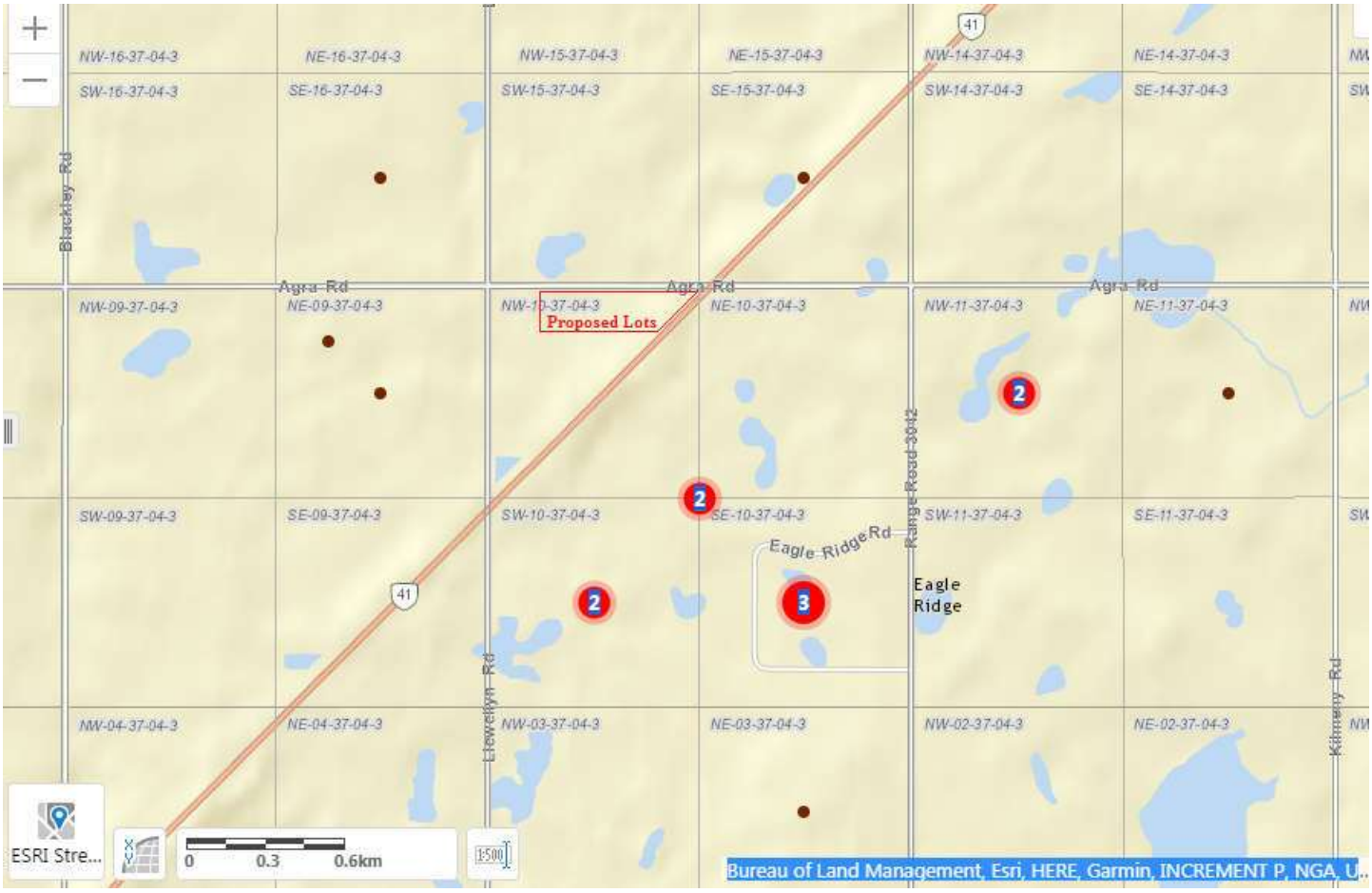
Floor drains, sumps, and grease traps should never be evacuated into the septic system. Inclusion of these flows in a septic design is potentially hazardous to the environment, and will have a negative impact on any septic system.

Environmental Impact

The proposed 7 parcels are located on a quarter section of land which is mainly agricultural. In addition, it is surrounded by Agricultural Land with the exception of one commercial facility on the North side of Fleury Road. The closest higher density development is Eagle Ridge Estates to the South East, which is considered a medium density development.

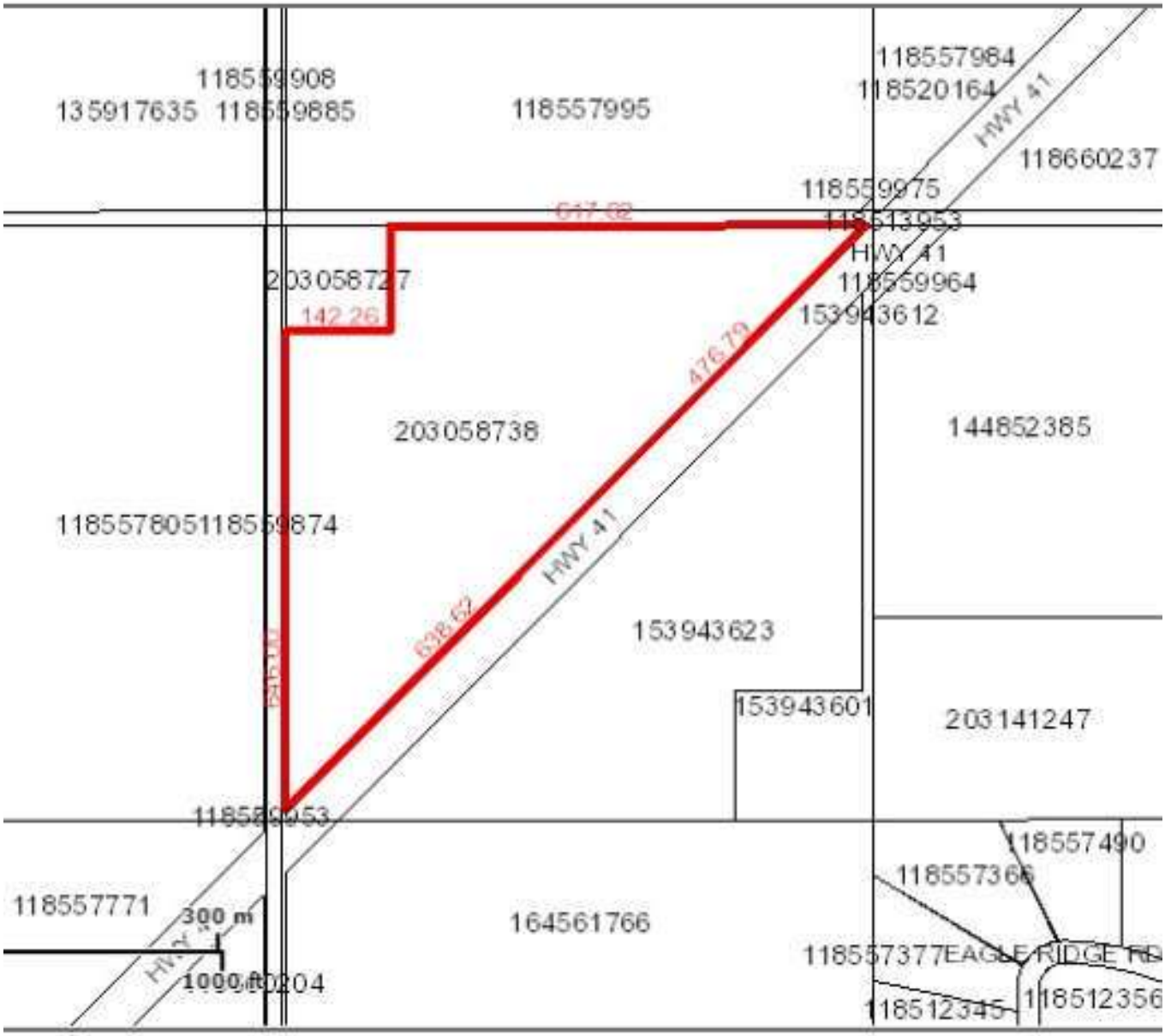
There are approximately 5 wells within a 1km perimeter of the proposed sites, none of which is closer than approximately 600 metres.

Based on the water table level, and the population density surrounding the proposed development area, there are no indications that, provided the Lot Owners have suitable Onsite Wastewater Treatment Systems designed and installed, there will be any negative impact on the environment or surrounding community.



IMAGINEI contracting

REQUEST DATE: Thu Oct 19 22:00:10 GMT-0600 2017



ale: 1:18056

wner Name(s): 101050918 SASKATCHEWAN LTD.

unicipality: RM OF CORMAN PARK NO. 344

le Number(s): 146098682

rcel Class: Parcel (Generic)

nd Description: NW 10-37-04-3 Ext 4

urce Quarter Section: NW-10-37-04-3

mmodity/Unit: Not Applicable

Area: 29.047 hectares (71.78 acres)

Converted Title Number: 86S50919

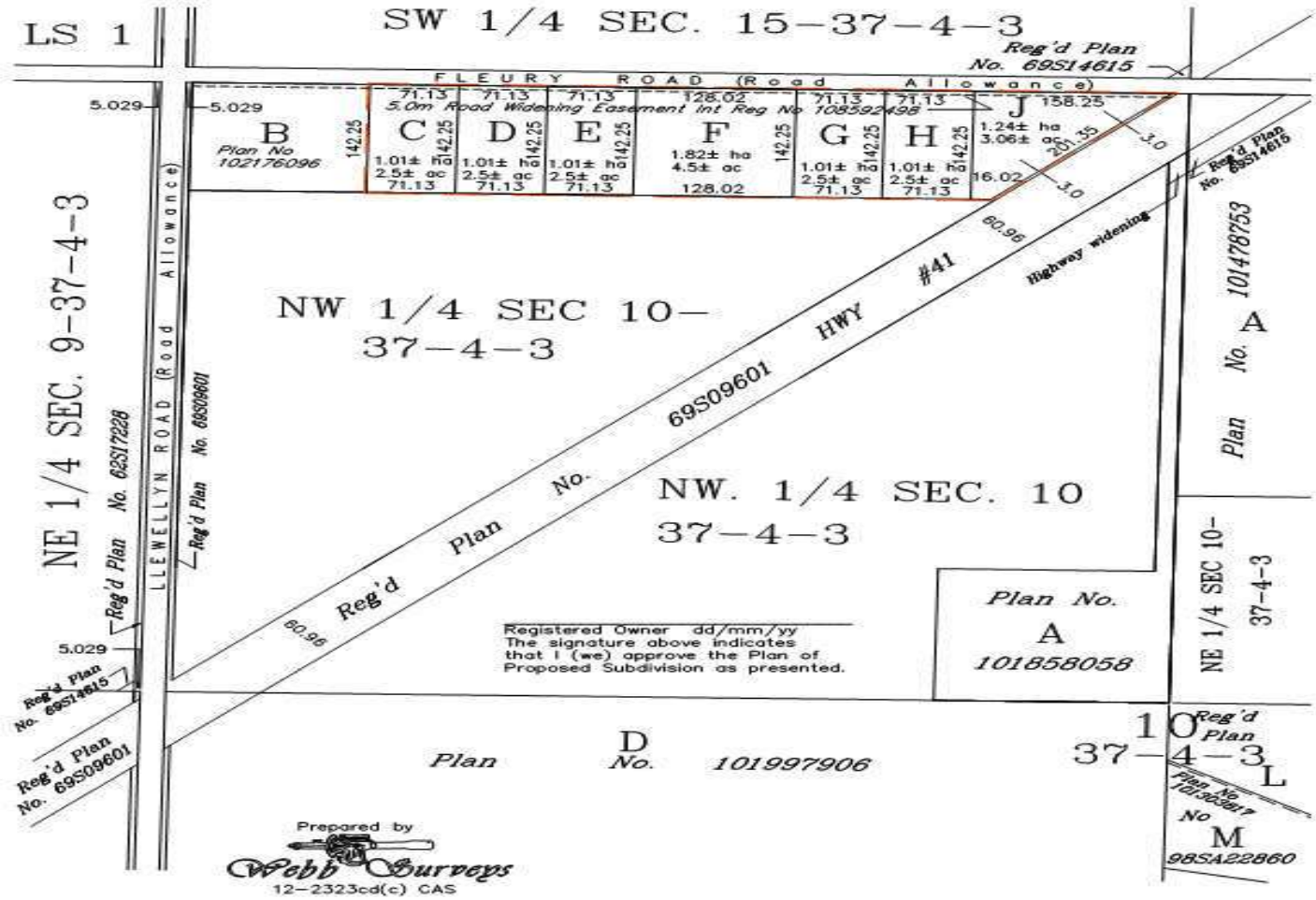
Ownership Share: 1:1

PLAN OF PROPOSED SUBDIVISION OF PART OF NW 1/4 SEC 10– TWP 37–RGE 4– W 3RD MER RM OF CORMAN PARK NO 344 SASKATCHEWAN SCALE 1:5000

Dimensions shown are in metres and decimals thereof.
Portion of this plan to be subdivided is outlined in red with a bold, dashed line and contains 8.12± ha (20.06± ac.)
Distances are approximate and may vary by ±5 metres.

I.R. Webb, July 18 , 2017
Saskatchewan Land Surveyor

Seal



101050918 SK Ltd.
NW-10-37-04-W3M
Site & Soils Evaluation

IMAGINEI contracting

Site Name	101050918 Saskatchewn Ltd.
Site Location	NW-10-37-04-W3M
Date Completed	September 25, 2017
Weather Conditions	Clear
	5° - 10° C
	No precipitation in several days

Test Pit #1	GPS COORDINATES:	52° 10’21.44"N	-106°29'55.31"W			
Horizon	**A**	**B**	**C**	**D**	**E**	**F**
Status			**Limiting**	**Restrictive**		
Sample				**Lab Tested**	**Lab Tested**	
Depth (Inches)	0 - 9	9 - 19	19 - 33	33 - 50	50 - 74	74 - 86
Texture	Loam	Silty Clay (SiC)	Clay (C)	Heavy Clay (HC)	Clay (C)	Clay (C)
Grade	2	2/3	2	2/3	2	1
Primary Loading Rate	0.45	0.14	0.14	0.00	0.14	0.00
Secondary Loading Rate	0.63	0.20	0.20	0.00	0.20	0.00
Roots	Some/Medium	Few/Medium	None	None	None	None
Moisture	Dry	Dry	Dry/Damp	Damp	Damp	Damp
Structure	Granular/Blocky	Blocky	Blocky	Sub-Angular	Angular Blocky	Angular Blocky
Ped Size	Medium	Medium	Medium	Small	Medium	Medium
Consistence	Loose/Soft	Friable/Hard/	Friable/Sticky	Friable/Sticky	Loose	Soft/Loose
Effervescence	Weak	Strong	Strong	Strong	Strong	Strong
Coarse Fragments	0 - 1%	0 - 1%	0 - 1%	0 - 1%	0 - 1%	0 - 1%
Inclusions	None	None	None	None	None	None
Mottling	None	None	None	None	Many, Med., Distinct	Many, Medium, Distinct
Gleying	None	None	None	None	None	None
Colour	10YR3/1	10YR4/3	2.5Y4/3	2.5Y4/4	5Y3/2	5Y3/2
Notes						

Test Pit # 1, restrictive layer beginning at 50”.

Soil from different horizons separated during excavation.

IMAGINEI contracting

Site Name	101050918 Saskatchewn Ltd.
Site Location	NW-10-37-04-W3M
Date Completed	September 25, 2017
Weather Conditions	Clear
	5° - 10° C
	No precipitation in several days

Test Pit #2	GPS COORDINATES: 52° 10'18.87"N	-106°29'40.29"W			
Horizon	**A**	**B**	**C**	**D**	**E**	**F**
Status		**Limiting Layer**	**Restrictive Layer**			
Sample		**Lab Tested**		**Lab Tested**	**Lab Tested**	
Depth (Inches)	0 - 10	10– 20	20 - 36	36 - 46	46 - 66	66 - 88
Texture	Loam (L)/Silt Loam (SiL)	Clay Loam (CL)	Heavy Clay (HC)	Heavy Clay	Clay (C)	Clay (C)
Grade	2	1/2	2/3	2	2	2
Primary Loading Rate	0.45	0.18	0.00	0.00	0.14	0.14
Secondary Loading Rate	0.63	0.27	0.00	0.00	0.20	0.20
Roots	Some/Fine	None	None	None	None	None
Moisture	Dry	Dry	Dry/Damp	Damp	Damp	Damp
Structure	Sub-Angular Blocky	Blocky	Sub-Angular Blocky	Blocky	Amgular Blocky	Blocky
Ped Size	Med/Large	Medium/Large	Small/Medium	Small	Medium	Medium/Large
Consistence	Soft./Friable	Soft/Friable/Sticky	Loose / Sticky	Loose/Sticky	Friable / Sticky	Friable/Sticky
Effervescence	None	Strong	Strong	Strong	Strong	Strong
Coarse Fragments (%)	0 - 1%	0 - 1%	0 - 1%	0 - 1%	0 - 1%	0 - 1%
Inclusions	N/A	N/A	N/A	N/A	N/A	
Mottling	None	None	None	None	Many, Medium, Moderate	Many, Medium, Moderate
Gleying	None	None	None	None	None	None
Colour	5Y3/1	5Y4/3	5Y4/2	5Y3/2	2.5Y4/3	2.5Y4/3
Notes						

TP #2 - Visible Horizons

TP #2, Excavation to 88”

IMAGINEI contracting

Down To Earth Labs Inc.

The Science of Higher Yields

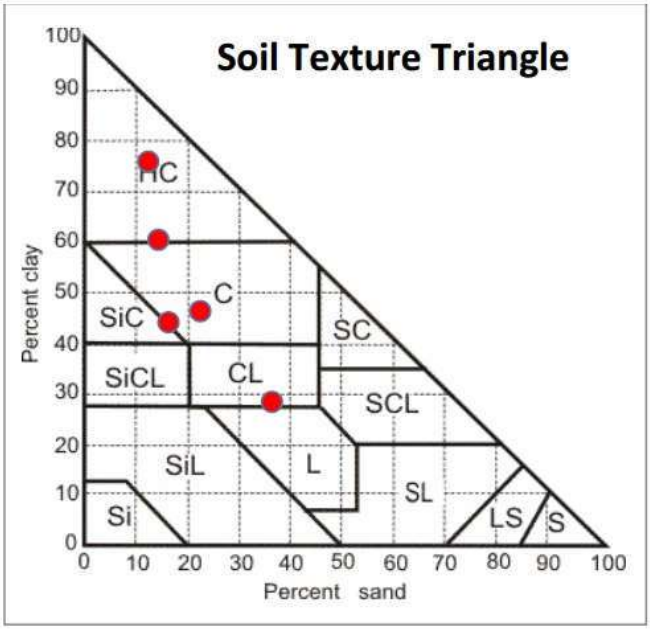
Imagine Contracting Inc
449 Haviland Crescent
Saskatoon, Saskatchewan
S7L 5B3

Report #: 43828
Report Date: 10/18/2017
Received: 10/16/2017
Completed: 10/18/2017
Test Done: ST

Project : Fleury Rd
PO:

3510 6th Ave North
Lethbridge, AB T1H 5C3
403-328-1133
www.downtoearthlabs.com
info@downtoearthlabs.com

Analyte	Units	Limit	Sample ID: 171016O042 Cust. Sample ID: TP1 HOR D	171016O043 TP1 HOR E	171016O044 TP2 HOR B	171016O045 TP2 HOR E	171016O046 TP2 HOR D
Sand	%	0.1	12.4	16.4	36.6	22.6	14.4
Silt	%	0.1	11.6	39.6	35.2	31.2	25.2
Clay	%	0.1	76.0	44.0	28.2	46.2	60.4
Soil Texture	-	1	Heavy Clay	Clay	Clay Loam	Clay	Heavy Clay



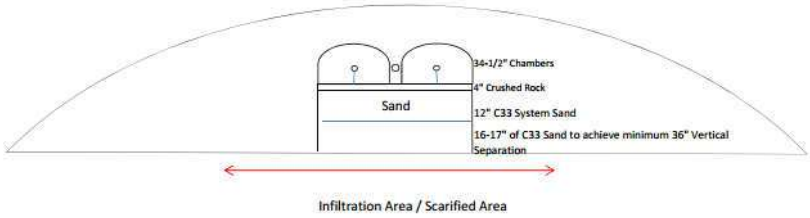
Raygan Boyce - Chemist


101050918 SK Ltd.
372
Deason - TP1
Deason - TP2
Legend
Deason -
Saskatchewan Skies Forev
Lewellyn Rd
41
106°30'18"
W106°29'42"
3043
Approx. 5040 sq.ft
N52°10'3.36"
Google Earth
©2017 Google
300 m

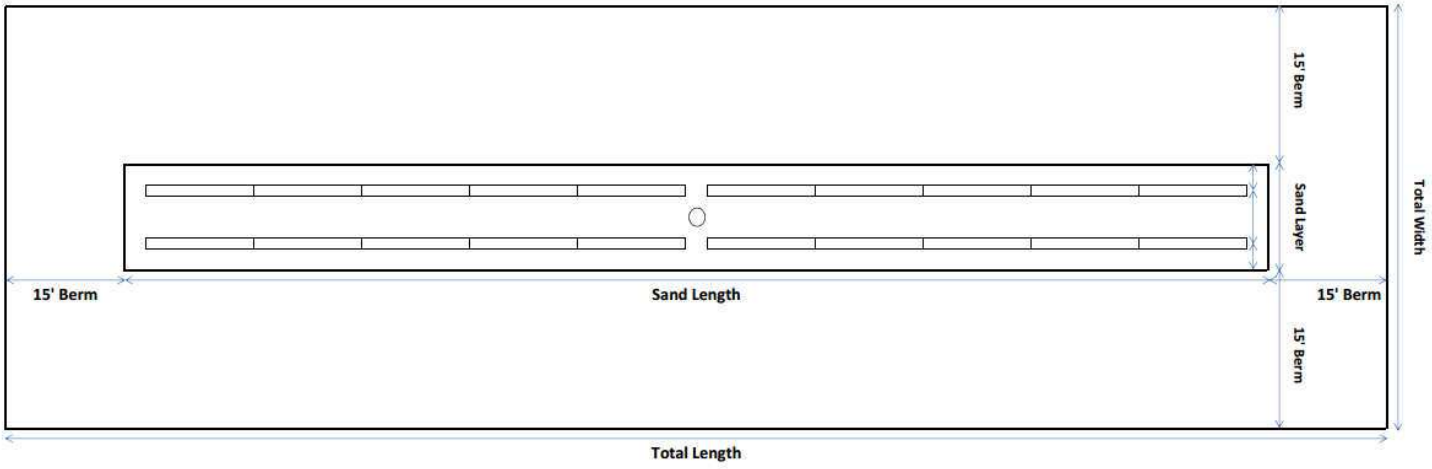
Linear Loading—Recommended

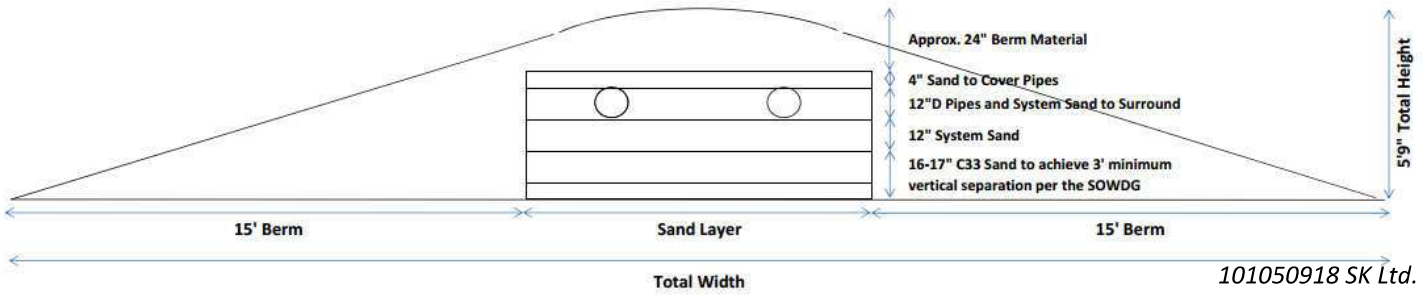
Design examples below are for demonstration purposes only. Each property/facility will require it's own system design based on site constraints and the requirements of it's own facility type/capacity.

Type II Mound



Advanced Enviro-Septic





IMAGINEI contracting

APPENDIX 20 - MINIMUM PARCEL/LOT SIZES AND SET BACK REQUIREMENTS

The following tables are for general information only, please refer to Section 4 - Private Sewage Works in Sensitive Areas, when considering any system. In addition, The Shoreland Pollution Control Regulations, 1976, and local municipal bylaws may further restrict the type of system permitted. Please consult your local Public Health Inspector for more information.

Minimum Parcel / Lot Sizes

	TYPE OF SEWAGE DISPOSAL SYSTEM							
Parcel / Lot Size	**Holding Tank**	**Chamber**	**Absorption Field**	**Mound I**	**Mound II**	**Jet**	**Lagoon**	**Package Treatment Plant**
10 acres or >	yes	yes	yes	yes	yes	yes	yes	yes
< 10 acres > 465 m^3 (5000 ft^2)	yes	yes	yes	yes	yes	no	no	yes
≤ 465 m^3 (5000 ft^2)	yes	*	*	*	*	no	no	consult PHI

** consult your local Public Health Inspector*

Set Back Requirements

	TYPE OF SEWAGE DISPOSAL SYSTEM								
Set Back Requirements	**Holding Tank**	**Septic Tank**	**Chamber**	**Absorption Field**	**Mound I**	**Mound II**	**Jet**	**Lagoon**	**Package Treatment Plant**
Basement / Building	1m (3 ft)	1m (3 ft)	9m (30 ft)	9m (30 ft)	9m (30 ft)	9m (30 ft)	60m (200 ft)	60m (200 ft)	1m (3 ft)
Cistern	3m (10 ft)	3m (10 ft)	....	....	....	....	....	....	....
City, Town, Village	....	....	....	....	....	....	1km (0.6 mile)	....	....
Cut / Embankment	3m (10 ft)	3m (10 ft)	3m (10 ft)	3m (10 ft)	3m (10 ft)	3m (10 ft)	30m (100 ft)	30m (100 ft)	3m (10 ft)
Ground Water Table	0m (0 ft)	0m (0 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)
Large Tree	3m (10 ft)	3m (10 ft)	....	....	....	....	....	....	....
Property Boundary	3m (10 ft)	3m (10 ft)	3m (10 ft)	3m (10 ft)	3m (10 ft)	3m (10 ft)	60m (200 ft)	30m (100 ft)	3m (10 ft)
Rec. Area	....	....	60m (200 ft)	60m (200 ft)	60m (200 ft)	60m (200 ft)	60m (200 ft)	60m (200 ft)	....
Roadway	....	....	....	....	....	....	....	90m (300 ft)	....
Walk / Driveway	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	1.5m (5 ft)	30m (100 ft)	....	1.5m (5 ft)
Water Course	9m (30 ft)	9m (30 ft)	15m (50 ft)	15m (50 ft)	15m (50 ft)	15m (50 ft)	45m (150 ft)	90m (300 ft)	9m (30 ft)
Water Source	9m (30 ft)	9m (30 ft)	15m (50 ft)	15m (50 ft)	15m (50 ft)	15m (50 ft)	45m (150 ft)	90m (300 ft)	9m (30 ft)

Unless otherwise approved by a Public Health Inspector, (through consultation with Saskatchewan Environment officials), the set back distance from a well that is used as a water source for a municipal waterworks - should be at least 75 (250 ft) in the case of a small municipality (less than 1,000 population) and at least 225m (750 ft) in the case of a large municipality (1,000 or more population).

Appendix E

SaskWater Letter

SILVER CREEK
Developments

Via Email: paul@vikingland.ca

July 29, 2025 (306) 694-3588

Mr. Paul Deason
Viking Land Corporation
BOX 75, SITE 600 RR6
SASKATOON SK S7K 3J9

File: BisonValleyBusinessPark

Dear Mr. Deason:

Re: SaskWater Confidential – Conditional Approval for Bison Valley Business Park

Thank you for your request for the request for an updated Conditional Approval letter and for letting us know about the project delays. Reminder, the conditional approval is for potable water for a total peak flow of 10 imperial gallons per minute (igpm) for the proposed 19 lots at NW 10-37-04 W3M in the RM of Corman Park. SaskWater initially provided conditional approval for the 10igpm flow allocation August 29, 2024.

As per the new master water supply agreement signed between the City of Saskatoon (City) and SaskWater, SaskWater requires the City's approval to provide potable water on requests within the P4G Planning District. As the proposed development is within the P4G Planning District, the City of Saskatoon's approval is required. The City had indicated that full approval of this water allocation will be provided once the development application process has been completed through the RM of Corman Park and the land uses have been formally verified with the P4G Planning Group, through their process.

Please note that SaskWater will hold the above conditional allocation until the end of 2026. Once final approval has been received, SaskWater will execute an agreement with you or amend the water supply agreement with an existing water utility supplied by SaskWater.

If you require any additional information regarding the above, please contact me at the above number or call 1-888-230-1111, press 2 for Customer Services.

Yours truly,

F: Nish Prasad
Manager, Customer Service

NP/sm

Appendix F

Engineered Drainage Report

SILVER CREEK

Developments

BCL ENGINEERING LTD.

September 4, 2025
File #260.32-4

R. M. of Corman Park
111 Pinehouse Drive
Saskatoon, SK
S7K 5W1

Dear Sir / Madam:

Re: Viking Land Corp.
Commercial Subdivision Development (Highway 41)

We have reviewed the site plan for a commercial subdivision located along Highway 41 and Township Road 372. The site plan was developed by Webb Surveys for Viking Land Corp. and includes ten commercial lots and a municipal utility lot. This review will discuss the location and terrain of the existing site, as well as stormwater requirements and proposed grading plan.

Site Background
The proposed subdivision is located east of Faith Alive Family Church and Prairie Christian Academy, and southwest of Bayer Crop Sciences. Topographical surveys of the site were completed by BCL, and data indicates a flat topography with elevations of 520.50 m to 514.25 m. The natural drainage direction is to the west towards the South Saskatchewan River.

Within the site boundary are two small natural basins. One basin is located directly south of the church, and the other is 300 m further south. Outside of the boundary, there is one storm pond within the church lot. Along Township Rd 372, there are culverts that drain west toward a cross culvert on Township Rd 3043. During site inspection, the culverts were observed to be in working condition, but the cross culvert was blocked and may require maintenance.

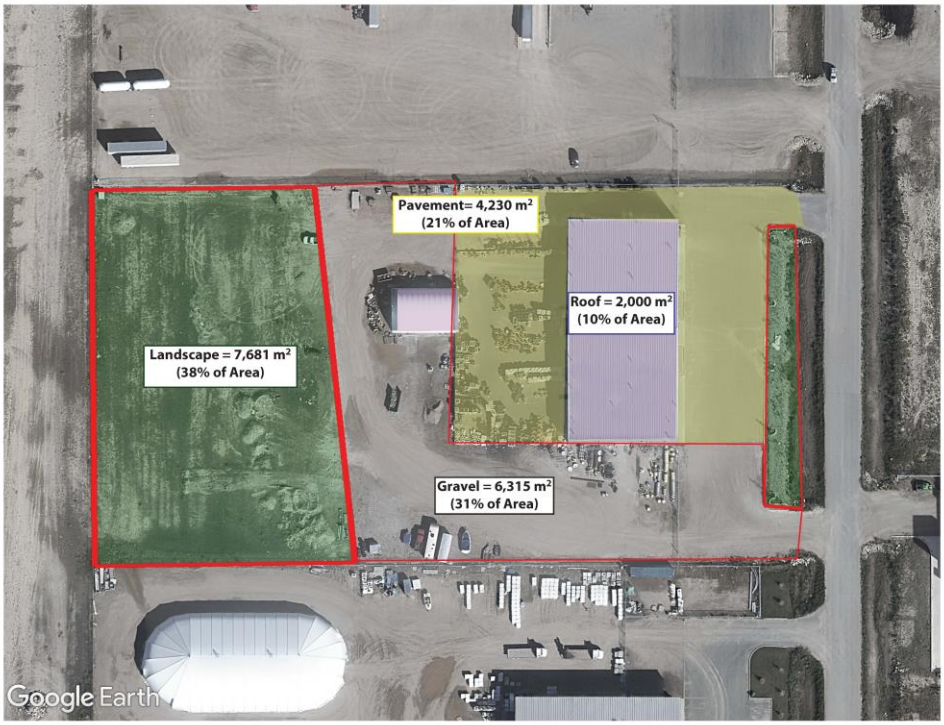
Runoff Analysis
The Rational Method was used to derive pre-development and post-development runoff conditions. Some key assumptions are as follows:

- outside areas will not contribute additional runoff volume inside the area of study;
- the development will not increase the runoff received by the existing storm pond;
- storage capability of natural basins can be excluded from pre-development study.

The subdivision is expected to have similar runoff coefficient as the Biz Hub Industrial Park, which is located north of Saskatoon. The subdivision will feature paved roads; concrete pads; areas of grass; graveled yards; and large buildings. As such, the as-built conditions within Biz Hub were analyzed to determine an expected runoff coefficient of 0.46. Three examples of light industrial sites with delineation of development areas are shown below.

Site No. 1

Site No. 2



Site No. 3

Item	Site No. 1		Site No. 2		Site No. 3	
	Area (m^2)	C Factor	Area (m^2)	C Factor	Area (m^2)	C Factor
Total Lot Area	20,558	0.2	20,608	0.2	20,226	0.2
Roof	1,465	0.95	1,353	0.95	2,000	0.95
Pavement	323	0.95	94	0.95	4,230	0.95
Gravel	8,043	0.5	15,926	0.5	6,315	0.5
Grass / Landscaping	10,727	0.2	3,235	0.2	7,681	0.2
Post-Development C Factor		0.38		0.48		0.52

To meet Water Security Agency standards, all developments must provide storage features to accommodate the 1:100 year rainfall event, with additional factors of safety for recurring events and changes in conditions

The design criteria used for analysis are as follows:

- 1:100 year, 24 hour rainfall of 90 mm based on IDF curves for the City of Saskatoon, with 25% added to calculations;
- pre-development runoff coefficient of 0.20;
- post-development runoff coefficient of 0.46.

The proposed subdivision has an approximate area of 12.8 ha. However, the available total space for commercial development is 21.35 ha, with potential for a second phase of development. The larger area was used in the analysis, and the required storm water pond active storage is 6,250 m^3.

Storm Water Pond Sizing and Site Grading Options

There were several design criteria applicable to the sizing of the pond, as follows:

- 5 m setback from property line *(Corman Park-Saskatoon Planning District Zoning Bylaw)*;
- 3 m wide berms with 5:1 inner slopes and minimum 4:1 outer slopes;
- 1.5 factory of safety for freeboard between top of berm and HWL.

Additionally, the high water level of the pond should observe the Faith Alive Church entrance elevation, as indicated by *City of Saskatoon Planning and Development Standards Manua*l.

Upon review of the site plan, the 4.13 ha lot located north of Lot 1 will be adequate in size for the construction of the storm pond. The pond would have a composite shape and an active storage of 6,250 m^3. The active storage depth would be 0.887 m, and the pond would have a floor elevation of 514.055 m.

Overall, the grading plan maintains the natural drainage path and has a low spot at the northwest corner, where the storm pond is proposed. The drainage system includes ditching along the backside of lots and along the road. The pond would have two inlet locations, and the discharge location would be on the northwest corner of the pond where the existing road ditches are located. The discharged water will flow through existing culverts along the R. M. road allowance.

Conclusion

We have discussed the grading plan for the proposed commercial subdivision and conclude that the 4.13 ha lot in the site plan is adequate for the construction of a storm pond. The pond was sized for the completion of ten commercial lots and should meet the additional requirements set if the developer pursues expansion. To ensure proper drainage, an existing cross culvert along Township Road 3043 should be cleaned and maintained.

We trust this meets your requirements at this time. Should you have any questions in this regard, please do not hesitate to contact our office.

Yours truly,

BCL ENGINEERING LTD.

K. J. Traves, P.Eng.

LS 1

SW 1/4 SEC. 15-37-4-3

EXISTING 350 DIA. CSP CULVERT
W. INV. = 513.774
E. INV. = 514.005

EXISTING 600 DIA. CSP CULVERT
W. INV. = 513.868
E. INV. = 513.915

EXISTING 400 DIA. CSP CULVERT
W. INV. = 514.008
E. INV. = 514.275

PROPOSED 34.0m - 500 DIA. CSP CULVERT
N. INV. = 514.164
SE. INV. = 514.355

EXISTING 400 DIA. CSP CULVERT
W. INV. = 513.683
E. INV. = 513.711

EXISTING 600 DIA. CSP CULVERT
N. INV. = 513.811
S. INV. = 513.841

EXISTING 400 DIA. CSP CULVERT
N. INV. = 513.923
S. INV. = 514.017

PROPOSED 14.0m - 500 DIA. CSP CULVERT
E. INV. = 514.998
W. INV. = 514.942

PROPOSED 14.0m - 500 DIA. CSP CULVERT
E. INV. = 516.238
W. INV. = 516.182

STORAGE POND
TOB = 515.142
HWL = 514.942
FLOOR = 514.055
VOL 6250 cu.m

EXISTING BUILDING ELEV. 514.984

EXISTING BUILDING ELEV. 514.942

PROPOSED 11.0m - 500 DIA. CSP CULVERT
E. INV. = 514.505
W. INV. = 514.355

PROPOSED 11.0m - 500 DIA. CSP CULVERT
NE. INV. = 514.355
SW. INV. = 514.705

PROP. 14.0m - 500 DIA. CSP CULVERT
NW. INV. = 515.983
SE. INV. = 516.039

PROP. 14.0m - 500 DIA. CSP CULVERT
NW. INV. = 515.194
SE. INV. = 515.260

EXISTING SLOUGH
REMOVE EXISTING TREES

EXISTING SLOUGH
REMOVE EXISTING TREES

EXISTING SLOUGH
REMOVE EXISTING TREES

RANGE ROAD 3043

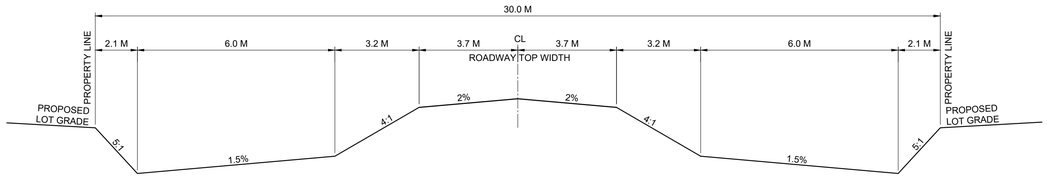
FLEURY ROAD

HIGHWAY 41

EXISTING TREES

EXISTING SLOUGH

NW 1/4 SEC. 10-37-4-3



TYPICAL ROAD CROSS SECTION - DETAIL

SCALE N.T.S.

LEGEND

	EXISTING	PROPOSED	FUTURE
SUBDIVISION			
ROADWAY			
DITCH			
POWER POLE			
LIGHT POLE			
WELL			
CULVERT			
LOT ELEVATION		466.000	466.000
LOT CORNER ELEVATION	466.000	466.000	466.000
ROAD ELEVATION	466.000	466.000	466.000

T:\dgn\260 MISCELLANEOUS DEVELOPERS\32 PAUL DEASON SUBDIVISION\CIVIL 3D DESIGN\260_32 - OVERALL DESIGN FILE.dwg
2025/6/09 9:00:17 AM

ASSOCIATION OF PROFESSIONAL ENGINEERS & GEOSCIENTISTS OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
BCL ENGINEERING LTD.
NUMBER C312
PERMISSION TO CONSULT HELD BY:

DISCIPLINE	SASK. REG. No.	SIGNATURE
MUNICIPAL	13963	

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

0 100 200 Meters

SCALES SHOWN REFER TO ANSI D PAPER SIZE.
SCALES TO BE DOUBLED FOR ANSI B PAPER SIZES.

No.	REVISION	DATE	BY
A	ISSUED FOR REVIEW	2025/06/25	M.J.R.

STAMP

BCL ENGINEERING LTD.

JOB No.	260.32
DATE:	2025/06/25
DRAWN:	M.J.R.
CHECKED:	K.J.T.
DESIGNED:	G.M.H.

DEASON SUBDIVISON

DRAINAGE STUDY
EXISTING CONTOURS
SITE PLAN

SCALE:	REV. No.	DRAWING No.	SHEET:
1:2000	A		01 OF 02

Appendix G

Solid Waste Letter

SILVER CREEK
Developments

NOV 5, 2025

RE: DISPOSAL SERVICES SILVER CREEK DEVELOPEMENTS
ATTN: DEVIN CLARKE

To whom it may concern:

Please use this letter to verify that Loraas Disposal would be capable to service all commercial waste, recycle and organics steel front end service; all residential cart service including waste, recycle and organics, and all construction roll off bins located at Legal Land description NW 10-37-04 W3.

Do not hesitate to reach out with any questions or concerns you may have.

Sincerely,

Tim Morse
Sales Representative
(306) 221-4885
tim.morse@loraas.ca

Appendix H

Heritage Screening

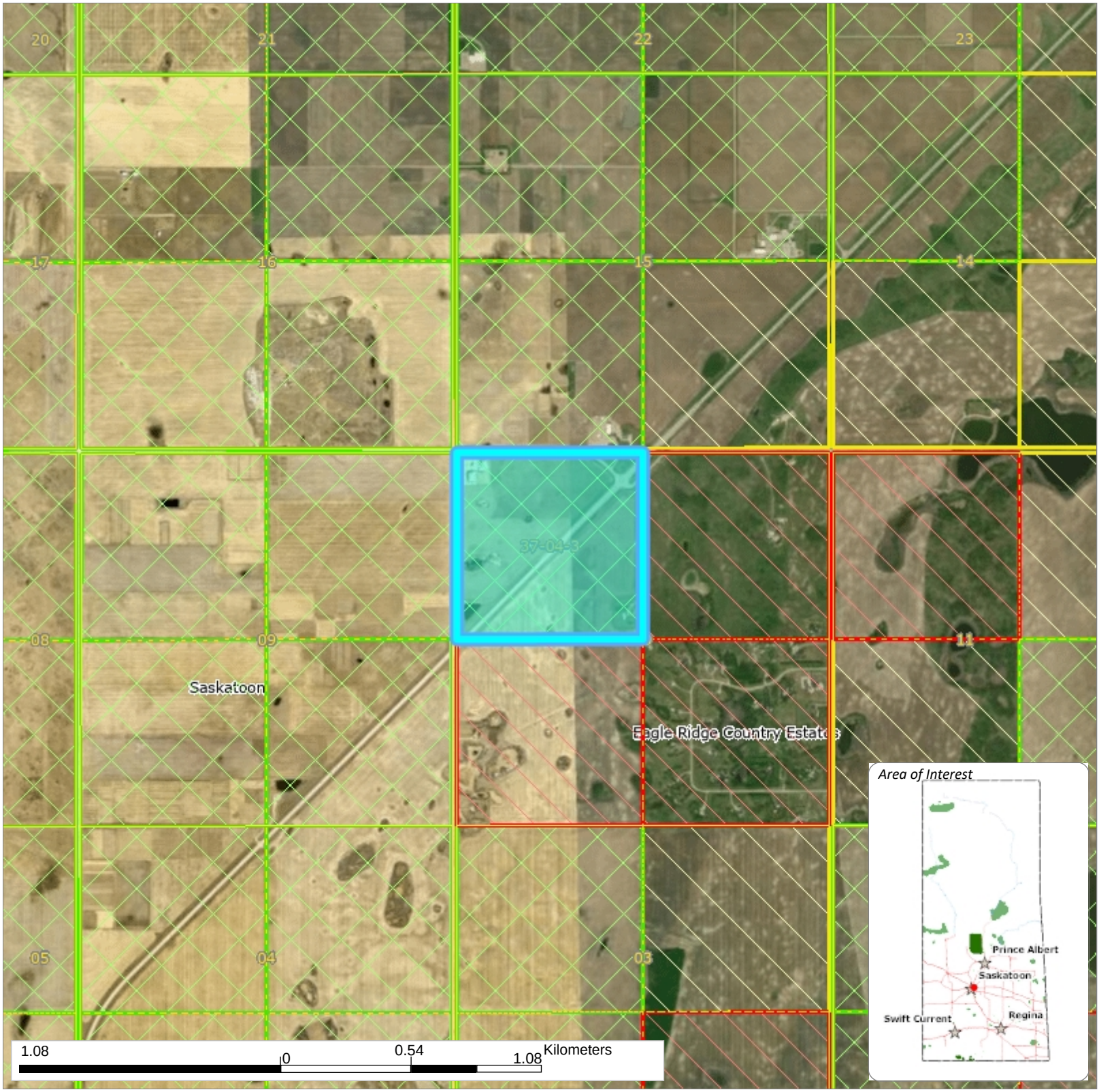
SILVER CREEK
Developments

Heritage Sensitivity Screening Report

Sensitivity:

Heritage Conservation Branch Query

Report Generated
Oct/28/2025 1:38 PM



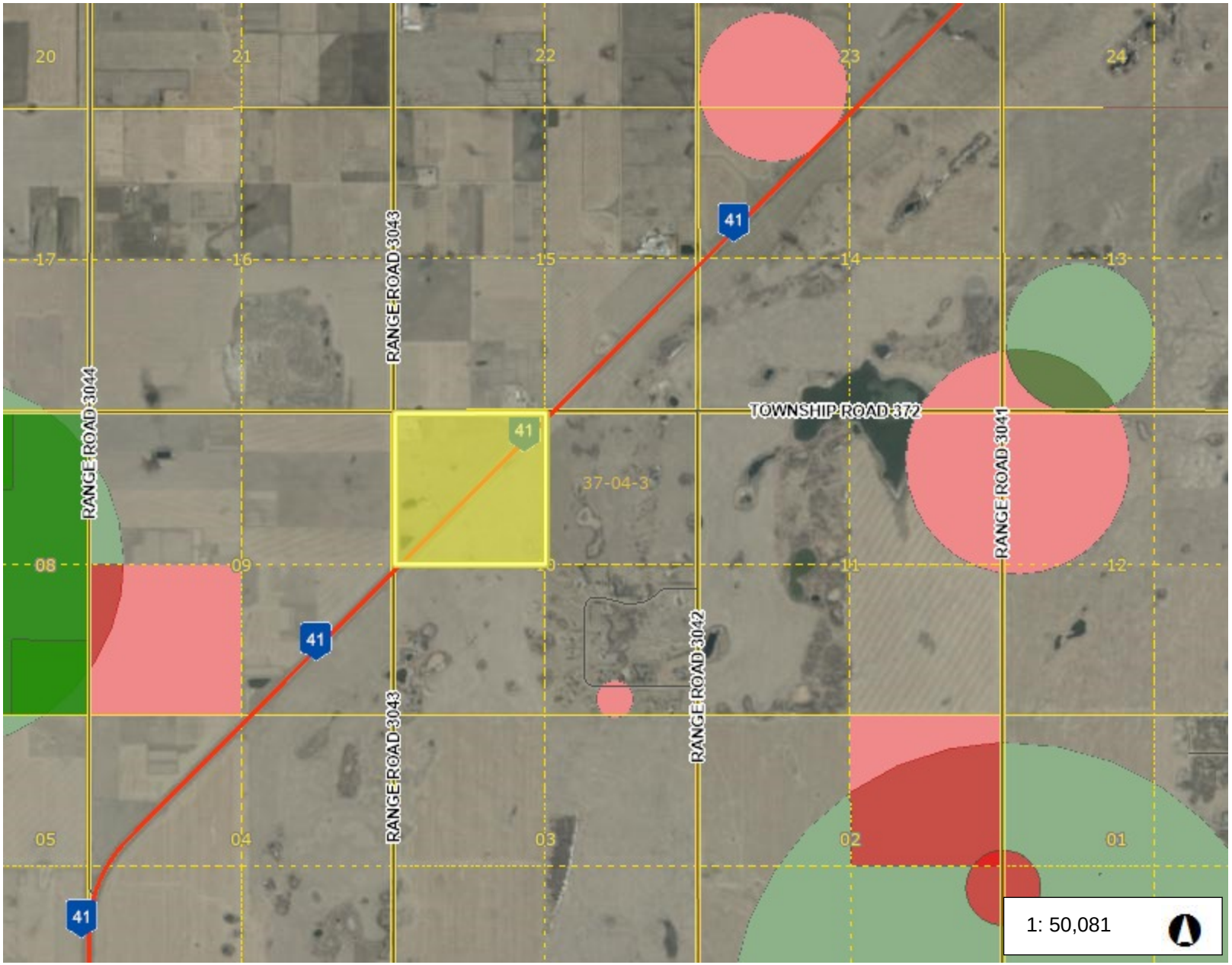
Appendix I

Environmentally Sensitive Areas Screening

SILVER CREEK
Developments

HABISask
hunting | angling | biodiversity

Environmental Screening



Legend

- Provincial Boundary
- Primary Highway (1-199)
  - Paved
  - Unpaved
- Secondary Highway (200-399) (900-999)
  - Paved
  - Unpaved
- Municipal Highway (600-799)
  - Paved
  - Unpaved
- Winter
- Ramps
- Resource/Recreation
  - Collector
  - Resource/Recreation
- Local
  - Local Street
  - Service Lane
- Township
- Section
- Quarter Section
- Rare and Endangered Specie (General)

Notes

2.5 0 1.27 2.5 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere

Appendix J

Phase 1 Environmental Site Assessment

SILVER CREEK
Developments

P. MACHIBRODA ENGINEERING LTD.

CONSULTING
GEOTECHNICAL
GEOENVIRONMENTAL
ENGINEERS AND
GEOSCIENTISTS

SASKATOON
806-48TH STREET EAST
SASKATOON, SK
S7K 3Y4

PHONE:
(306) 665-8444

FAX:
(306) 652-2092

E-MAIL:
pmel.sk@machibroda.com

WEB:
www.machibroda.com

- Geotechnical Engineering
- Foundation Design Recommendations
- Inspection Services
- Earthwork Structures
- Slope Stability
- Pavement Design
- Hydrogeological Studies
- Environmental Site Assessments
- Site Decommissioning and Clean-up
- Test Drilling Services
- Piezocone (CPTu) Testing
- Soils Testing
- Concrete Testing
- Asphalt Testing

PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B, PLAN 102176096; AND
NW-10-37-4-W3M EXT.4
RM OF CORMAN PARK NO. 344, SASKATCHEWAN
PMEL FILE NO. 11351
DECEMBER 31, 2015

PREPARED FOR:

101050918 SASKATCHEWAN LTD.
BOX 75, RR6
SASKATOON, SASKATCHEWAN
S7K 3J9

ATTENTION: MR. PAUL DEASON

PRIVILEGED AND CONFIDENTIAL

EXECUTIVE SUMMARY

A Phase I Environmental Site Assessment (ESA) was conducted for the properties (i.e., subject property) legally described as:

- *Parcel B, Plan 102176096 and Surface Parcel No. 203058738 in the NW-10-37-04-W3M, Rural Municipality (R.M.) of Corman Park No. 344, Saskatchewan.*

The subject property is located at the southeast intersection of Llewellyn Road and Agra Road, along Highway No 41 in the R.M. of Corman Park No. 344.

In accordance with the Canadian Standards Association (CSA Z768-01 (R2012)) Standards for Phase I Environmental Site Assessments, the Phase I ESA consisted of a review of available background and historical information; a visual site review; and a report of our findings. The purpose of the Phase I ESA was to determine the potential existence of contaminants and/or environmental concerns on the subject property.

Site History/Description

The subject property is currently undeveloped (no buildings) cultivated farmland which has a total area of approximately 31 hectares (77 acres). It is bound by a gravel road (Agra Road) followed by Monsanto Canada Inc. (research farm)/cultivated farmland to the north. A gravel road (Llewellyn Road) followed by cultivated farmland is located to the west, while Highway No. 41, followed by cultivated farmland is located to the southeast.

Environmental Hazard Potential

Based on the information reviewed, and the observations made during the visual site review, the subject property is considered to have a low environmental hazard potential and no further investigation (i.e., Phase II ESA) is warranted at this time.

A file search (i.e., land titles) is currently being conducted for the subject property. Once received, the outstanding information will be reviewed and, if warranted, forwarded in a follow-up letter. Information contained in the land titles search is not expected to change the findings of this report.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)…

LIST OF DRAWINGS

LIST OF APPENDICES

1.0 INTRODUCTION

A Phase I Environmental Site Assessment (ESA) was conducted for the properties (i.e., subject property) legally described as:

- *Parcel B, Plan 102176096 and Surface Parcel No. 203058738 in the NW-10-37-04-W3M, Rural Municipality (R.M.) of Corman Park No. 344, Saskatchewan.*

The subject property is located at the southeast intersection of Llewellyn Road and Agra Road, along Highway No 41 in the R.M. of Corman Park No. 344.

Written authorization to perform this Phase I ESA was provided by Mr. Paul Deason, on December 22, 2015. A visual site review of the subject property was conducted on December 22, 2015.

In accordance with the Canadian Standards Association (CSA Z768-01 (R2012)) Standards for Phase I Environmental Site Assessments, the Phase I ESA consisted of a review of available background and historical information; a visual site review; and a report of our findings. The purpose of the Phase I ESA was to determine the potential existence of contaminants and/or environmental concerns on the subject property.

2.0 REVIEW OF BACKGROUND AND HISTORICAL INFORMATION

Historical information available for the subject property was reviewed to identify potential environmental concerns, which may not be evident, based on current site conditions. Information sources available and reviewed for the subject property included: aerial (stereo pair) photographs; Land Titles records; zoning records, fire department records; and an environmental file search of Saskatchewan Environments files.

In addition to the above, a review of general background information for the site and area was conducted. Items collected and reviewed included topographic and geologic maps and hydrogeological studies.

2.1 Site Description

The location of the subject property is shown on the Key Plan and Surrounding Land Use Drawing, Drawing No. 11351-1, while details of the subject property are shown on the Site Plan, Drawing No. 11351-2. The subject property is currently undeveloped (no buildings) cultivated farmland which has a total area of approximately 31 hectares (77 acres). It is bound by a gravel road (Agra Road) followed by Monsanto Canada Inc. (research farm)/cultivated farmland to the north. A gravel road (Llewellyn Road) followed by cultivated farmland is to the west, while Highway No. 41, followed by cultivated farmland is located to the southeast.

2.2 Background Information

2.2.1 Physiography and Regional Geology

A review of published physiography and regional geology information (Acton et al., 1960) revealed the following:

1. The subject property lies in the physiographic region known as the Saskatchewan Rivers Plain.
2. The Saskatchewan Rivers Plain is characterized as gently undulating to rolling glacial lacustrine-alluvial plains (glacial lake plains), aeolian plains (dunes) and till plains.
3. The surficial soil deposits consist of variable textured lacustrine and alluvial sands, silts and clays, aeolian sands, glacial till and local bedrock exposures in the South Saskatchewan River.
4. The bedrock deposits at this site consisted of approximately 92 m of glacial till and stratified drift (sand, silt and clay) underlain by the noncalcareous silt and clay of the Lea-Park Formation-Upper Colorado.

A review of Google Earth (cited January, 2016) revealed that the land surface elevation at the site was approximately 518 metres (Geodetic) and slopes gradually downwards to approximately 470 metres (Geodetic) at the South Saskatchewan River, located at its closest point approximately 9 km to the west.

2.2. 2 Hydrogeology

An examination of hydrogeological data (Christiansen, 1967) for this region revealed the following observations:

1. The primary source of water in this region is drift aquifers above or between glacial till strata and the Empress Group, (Tyner Valley Aquifer), between the base of the glacial till and the surface of the bedrock.
2. The Tyner Valley Aquifer system (Empress Group) is the most extensive and potentially productive aquifer in the Saskatoon region.
3. The South Saskatchewan River is a discharge receptor for many of the aquifer systems in the Saskatoon area. The inferred regional groundwater flow would be southeast towards the South Saskatchewan River.
4. A slough and dug out are located on the subject property. Several small sloughs are located on the surrounding properties to the site. The subject property is located in a region of groundwater recharge.

2.2.3 Water Supply

Currently there is no water supplied to the subject property. A review of the Water Security Agency Data Portal (https://gis.wsask.ca/, referenced December 29, 2015) revealed that 7 registered (5 domestic and 2 research) water wells could be located within 500 m of the subject property. The wells are reportedly completed at depths ranging from approximately 12 to 91 m (40 to 300 ft) below grade.

2.3 Air Photograph Review

Historical aerial photographs dated 1974, 1988, 2002 and 2015 were obtained for the site and examined to identify site specific land-use which may have resulted in environmental concerns on and/or adjacent to the site. Select aerial photographs have been included in Appendix A.

A summary of observations made has been presented below.

1974: The subject property and surrounding land appear to be cultivated farmland. A Highway No. 41runs diagonally along base of the site from the southwest to the northwest. A dug out appears to be located proximate the southwest portion of the site. Several small sloughs are located on the site.

1988: Relatively consistent with 1974 observations. A storage building and 3 grain bins are visible (offsite) to the north of the northwest corner of the subject property. A gravel pit appears to be located (offsite) to the northwest.

2002: Relatively consistent with 1888 observations. New commercial/research (Monsanto) development is visible to the north of the site.

2015: The subject property and surrounding land use are consistent with the present site development. The commercial development to the north (i.e., Monsanto Research Farm) of the site has been expanded to the east. A farmyard is visible to the distant southeast of the site.

2.4 Zoning

The subject property is zoned as Agricultural.

2.5 Street Directories

Henderson Directory listings are not available for the R.M. of Corman Park No. 344.

2.6 Land Titles Search

A file search (i.e., land titles) is currently being conducted for the subject property. Once received, the outstanding information will be reviewed and, if warranted, forwarded in a follow-up letter. Information contained in the land titles search is not expected to change the findings of this report.

2.7 Tax Assessment Records-Field Sheets

Tax Assessment Records (field sheets) for the subject property were obtained from the Saskatchewan Assessment Management Agency (SAMA) during this investigation.

Review of the Tax Assessment Records revealed the following:

1. The subject property was last inspected by SAMA on January 19, 2015.
2. The subject property consisted of approximately 70 acres of agricultural land and 7 acres of wetlands.

Copies of the field sheets for NW-10-37-4-W3M have been presented in Appendix B.

2.8 Rural Municipality of Corman Park No. 344 – File Search

No records of spills, leaks, storage or handling of dangerous goods were on file with the R.M. of Corman Park No. 344 for the subject property or surrounding development. A copy of the file search is presented in Appendix C.

2.9 Fire Insurance Maps

No Fire Insurance Maps are available for the subject property.

2.10 Saskatchewan Environment File Search

A file search of Saskatchewan Environment files for the subject property revealed the following:

1. The subject property was not registered pursuant to the Hazardous Substances and Waste Dangerous Goods Regulations.
2. There are no reported spills pursuant to the Environmental Spill Control Regulations.
3. The property located to the north of the site (i.e., Monsanto Research Farm) is registered (Operation ID No. 4497) pursuant to the Hazardous Substances and Waste Dangerous Goods Regulations. Further review of the report revealed that the operational status is listed as operating. Based on the separation distance (over 50 m), this site is considered to represent a low risk of impact towards the subject property.

2.11 Rural Municipality of Corman Park No. 344 - Permits

A file search of the R.M. of Corman Park No. 344 office file for the subject property revealed there are no records of spills, leaks, underground storage tanks, storage of dangerous goods or fire orders. A copy of the file search has been enclosed in Appendix C.

2.12 ERIS ECOLOG Database Report

An ERIS ECOLOG database report search was conducted for the subject property. The database report provides the search results of various Federal, Provincial and Private Source databases for a 250 m radius surrounding the subject property. A copy of the search is presented in Appendix D.

Review of the report revealed that the property located to the north of the site (i.e., Monsanto Research Farm) is registered as Hazardous Material Storage Site and Hazardous Substance Storage Tanks Site. Further review of the report revealed that the operational status is listed as operating. The site reportedly included two 4,500 L Aboveground Storage Tanks (ASTs) housing gasoline and diesel fuels. Based on the separation distance (over 50 m), this site is considered to represent a low impact towards the subject property.

2.13 Interviews

A solicited interview, conducted on December 22, 2015 with Mr. Paul Deason, owner of the subject property, revealed the following:

1. Mr. Deason has been loosely associated with the subject property for over 4 years.
2. No buildings exist on the subject property.
3. The subject property has been used in the past for grain farming.
4. Nothing is buried or burned at the site.
5. No underground and aboveground storage tanks are known to exist at the subject property.
6. There are no air quality concerns.
7. There is no wood preserving/treating on the subject property.
8. No other environmental reports have been completed for the subject property.
9. There are no known environmental concerns (i.e., spills) for the subject property.

3.0 VISUAL SITE REVIEW

PMEL personnel conducted a visual site review on December 22, 2015. Select photographs taken of the subject property have been included in Appendix E, while brief summaries of the observations made during the visual site review are presented in the following sub-sections.

3.1 Property

1. The subject property is vacant (i.e. undeveloped – no buildings) agricultural land.
2. A slough was located in the southern portion of the site.

3.2 Surrounding Land Use

As shown on Drawing No. 11351-1, surrounding land use in the vicinity of the site includes the following:

North: Agra Road followed by cultivated farmland and Monsanto Research Farm.
South: Highway No. 41 followed by cultivated farmland.
East: Highway No. 41 followed by cultivated farmland.
West: Llewellyn Road followed by cultivated farmland.

3.3 Waste Management

3.3.1 Liquid Waste

No liquid waste is reportedly generated on the subject property.

3.3.2 Solid Waste

No solid waste is generated on the subject property.

3.3.3 Hazardous Substances and Waste Dangerous Goods

No hazardous substances or waste dangerous goods exist on the subject property.

3.4 Electromagnetic Fields (EMFs)

No high-tension transmission lines with the potential to generate significant Electromagnetic Fields (EMFs) were identified on the subject property.

3.5 Building Materials

Since there are no permanent buildings on the subject property, building materials such as asbestos, Urea Formaldehyde Foam Insulation (UFFI), Polychlorinated Biphenyls (PCB) containing equipment, ozone depleting substances, lead paint, mercury etc. are not likely to exist on the subject property.

3.6 Radon Potential

Radon is a naturally occurring radioactive gas originating from degradation of naturally occurring uranium in the soil. Radon gas can enter buildings by seeping through cracks in the foundation walls and floors. Since there are no buildings on site, the likelihood of radon accumulation is considered low.

3.7 Storage Tanks

No Aboveground Storage Tanks (ASTs) or visible evidence (i.e., pump islands, vent pipes etc.) of Underground Storage Tanks (USTs) were apparent at the site during the visual site review.

3.8 Surface Staining/Stressed Vegetation and Soil Fill

The majority of the site was snow covered at the time of the visual site review. As such, no stressed vegetation, soil fill and/or surface staining were evident at the time of the site investigation

3.9 Neighbouring Properties

The property located (offsite) to the north of the site (i.e., Monsanto Research Farm) is registered as Hazardous Material Storage Site and Hazardous Substance Storage Tanks Site. Further review of the report revealed that the operational status is listed as operating. The site reportedly included two 4,500 L Aboveground Storage Tanks (ASTs) housing gasoline and diesel fuels. Based on the separation distance (over 50 m), this site is considered to represent a low impact towards the subject property.

Based on historical information and observations made at the time of the visual site review, the risk associated with the remaining properties surrounding the subject property appears low. It should be recognized that the precise nature of the activities carried out on the surrounding sites and their potential impacts to the subject site are outside the scope of this report. Potential contamination associated with surrounding land use cannot be confirmed without further investigation including detailed inspections of the surrounding properties.

4.0 ENVIRONMENTAL HAZARD POTENTIAL

Based on the information reviewed, and the observations made during the visual site review, the subject property is considered to have a low environmental hazard potential and no further investigation (i.e., Phase II ESA) is warranted at this time.

A file search (i.e., land titles) is currently being conducted for the subject property. Once received, the outstanding information will be reviewed and, if warranted, forwarded in a follow-up letter. Information contained in the land titles search is not expected to change the findings of this report.

5.0 CLOSURE

A Phase I Environmental Site Assessment (ESA) was conducted for the property legally described as:

- *Parcel B, Plan 102176096 and Surface Parcel No. 203058738 in the NW-10-37-04-W3M, Rural Municipality (R.M.) of Corman Park No. 344, Saskatchewan.*

The subject property is located at the southeast intersection of Llewellyn Road and Agra Road, along Highway No 41 in the R.M. of Corman Park No. 344.

The ESA consisted of a review of sequential aerial photographs, historical records, Provincial Land Titles, a visual site review, interviews and file searches conducted by the Rural Municipality of Corman Park. If additional information becomes available regarding the environmental hazard potential of this site, our report and recommendations should be reviewed in the light of any new information.

The Phase I ESA report has been prepared for 101050918 Saskatchewan Ltd. and their agents for specific application to the above referenced site. It has been prepared in accordance with generally accepted geoenvironmental engineering practices and no other warranty, express or implied, is made.

Any uses which a Third Party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. P. Machibroda Engineering Ltd. and/or it's employees, servants and agents accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

If this report has been transmitted electronically, it has been digitally signed and secured with personal passwords to lock the document. Due to the possibility of digital modification, only originally signed reports and those reports sent directly by PMEL can be relied upon without fault.

We trust that this report fulfills your requirements for this project. Should you require additional information, please contact us.

P. MACHIBRODA ENGINEERING LTD.

Association of Professional Engineers & Geoscientists of Saskatchewan
CERTIFICATE OF AUTHORIZATION
P. MACHIBRODA ENGINEERING LTD.
Number 172
Permission to Consult held by:

Discipline	Sk. Reg. No.	Signature
Geoenvironmental	6687	

Tomasz Korbas, M.Sc., Engineer-in-Training

PROFESSIONAL ENGINEER
R.T. Machibroda
Member 06687
5-12-31
SASKATCHEWAN
YR. MTH. DAY

Ray Machibroda, P. Eng., M.Sc.

TK:RM:zz

6.0 REFERENCES

Acton, D. F., Clayton, J. S., Ellis, J. G., Christiansen, E. A., and Kupsch, W. O. 1960. Physiographic Divisions of Saskatchewan. Saskatchewan Research Council, Map No. 1.

Christiansen, E. A. and Whitaker, S.H., 1974. Geology and Groundwater Resources of the Waterhen River Area (73-K) Saskatchewan. Saskatchewan Research Council (SRC) Map No. 19.

7.0 QUALIFICATIONS OF ASSESSORS

Tomasz Korbas, Engineer-in-Training, has a Master Degree in Civil Engineering from the University of Saskatchewan. He has conducted over 100 Phase I ESA's at a variety of sites including industrial, commercial, and residential properties. He also has experience with Phase II ESA's of commercial and industrial properties and remediation of petroleum hydrocarbon impacted sites.

Ray Machibroda, P. Eng, M.Sc is a senior geoenvironmental engineer with over 20 years of experience. He has conducted hundreds of Environmental Site Assessments and is experienced in both assessment and remediation of sites including industrial, commercial and residential properties. His experience also includes assessment of landfills and sewage lagoons, risk assessments, and Brownfield redevelopment.

P. MACHIBRODA
ENGINEERING LTD.
CONSULTING
GEOTECHNICAL/GEOENVIRONMENTAL
ENGINEERS

DRAWINGS

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM GOOGLE EARTH PRO ©2015, IMAGE ©2015 DIGITALGLOBE, (IMAGERY DATE: 8/31/15).

LEGEND	PL – PROPERTY LINE

CONSULTING
GEOENVIRONMENTAL
GEOTECHNICAL
ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:

KEY PLAN AND SURROUNDING LAND USE

PROJECT:

PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B - PLAN 10276096, NW-37-04-3 Ext. 4, RM OF CORMAN PARK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
TK	SD	11351-1
DATE:	SCALE:	
JANUARY, 2016	NOT TO SCALE	

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM GOOGLE EARTH PRO ©2015, IMAGE ©2015 DIGITALGLOBE, (IMAGERY DATE: 8/31/15).

LEGEND	PL – PROPERTY LINE

CONSULTING
GEOENVIRONMENTAL
GEOTECHNICAL
ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:

SITE PLAN

PROJECT:

PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B - PLAN 10276096, NW-37-04-3 Ext. 4, RM OF CORMAN PARK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
TK	SD	11351-2
DATE:	SCALE:	
JANUARY, 2016	NOT TO SCALE	

APPENDIX A
Aerial Photographs

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM C.S.M.A. AERIAL PHOTOGRAPH BR74365-70, 1974.

LEGEND	——— PROPERTY LINE

CONSULTING
GEOENVIRONMENTAL
GEOTECHNICAL
ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:

AERIAL (1974)

PROJECT:

PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B - PLAN 10276096, NW-37-04-3 Ext. 4, RM OF CORMAN PARK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
TK	SD	11351-1974
DATE: JANUARY, 2016	SCALE: NOT TO SCALE	

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM C.S.M.A. AERIAL PHOTOGRAPH 047 C.S. 41-4-L5 - 90 88379, 1988.

LEGEND	——— PROPERTY LINE

CONSULTING
GEOENVIRONMENTAL
GEOTECHNICAL
ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:
AERIAL (1988)

PROJECT:
PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B - PLAN 10276096, NW-37-04-3 Ext. 4, RM OF CORMAN PARK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
TK	SD	11351-1988
DATE: JANUARY, 2016	SCALE: NOT TO SCALE	

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM GOOGLE EARTH PRO ©2015, IMAGE ©2015 DIGITALGLOBE, (IMAGERY DATE: 9/20/02).

LEGEND	——— PROPERTY LINE

CONSULTING
GEOENVIRONMENTAL
GEOTECHNICAL
ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:
AERIAL (2002)

PROJECT:
PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B - PLAN 10276096, NW-37-04-3 Ext. 4, RM OF CORMAN PARK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
TK	SD	11351-2002
DATE: JANUARY, 2016	SCALE: NOT TO SCALE	

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM GOOGLE EARTH PRO ©2015, IMAGE ©2015 DIGITALGLOBE, (IMAGERY DATE: 8/31/15).

LEGEND	——— –PROPERTY LINE

CONSULTING
GEOENVIRONMENTAL
GEOTECHNICAL
ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:
AERIAL (2015)

PROJECT:
PHASE I ENVIRONMENTAL SITE ASSESSMENT
PARCEL B - PLAN 10276096, NW-37-04-3 Ext. 4, RM OF CORMAN PARK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
TK	SD	11351-2015
DATE: JANUARY, 2016	SCALE: NOT TO SCALE	

APPENDIX B

Tax Assessment Field Sheets

Details Report

Print

Today's Date: Tuesday, December 22, 2015

PROPERTY INFORMATION

Parcel I.D.: **203309935** Assessment ID Number: **344-000710200**

Please click the link **Property Report** for more detailed property information.

Note: If you find any data discrepancies on this page, please go to the Contact Us page to report them to the local office.

Property Information

Address:	
Municipality:	**CORMAN PARK (RM)**
Roll Status:	**2015 - Maintenance**
Last Updated:	**Saturday, May 16, 2015**
Property Last Updated:	**Monday, January 19, 2015**
Neighbourhood:	**120**
Legal Land Description (LLD):	**Qtr PT NW Sec 10 Tp 37 Rg 04 W 3 Sup 00**
Tax Class and Percentage Adjustment:	**Other Agricultural**
Predominant Use:	**Arable Land**
Valuation Method:	**Cost Approach**
100% Assessed Value:	**$76,600**

Value Information

Component	Liability Sub-division	100% Assessed Value	Tax Class and Percentage Adjustment	Total Assessed Value after % Adjustment	Taxable Assessed Value	Exempt Assessed Value	Over-Ride Reason
Land	1	$76,600	Other Agricultural 55%	$42,130	$42,130	$0	
Total		$76,600		$42,130	$42,130	$0	

Property Report

Property Use: Arable Land

Print Date: 22-Dec-2015

Municipality Name: CORMAN PARK (RM)

Assessment ID Number: 344-000710200 **PID:** 203309935

Civic Address:

Legal Location: Qtr PT NW Sec 10 Tp 37 Rg 04 W 3 Sup 00

Supplementary: EXCEPT: HWY & PCL A (IN LSD 11 & PT LSD 14) & PCL B (IN LSD 13)
ISC #203058738 & 153943623

School Division:	206	**Inspected Date:**	19-Jan-2015
Neighborhood:	120	**Change Reason:**	Maintenance
Title Acres:	127.010	**Year / Frozen ID:**	2015/-37
Puse Code:	Arable Land	**Call Back Year:**	
Predom Code:		**Method_in_use:**	C.A.M.A. - Cost

"

Assessed & Taxable/Exempt Values (Summary)

Description	Assessed Values	Liability Subdivision	Tax Class	Percentage of value	Taxable	Exempt	VA	Tax Status
Agricultural	76,600	1	Other Agricultural	55%	42,130			Taxable
Total of Assessed Values	76,600			Total of Taxable/Exempt Values:	42,130			

AGRICULTURAL ARABLE LAND

Acres	Land Use	Productivity Determining Factors		Economic and Physical Factors		Rating	
20	K - [CULTIVATED]	Soil assocation 1	WR - [WEYBURN]	Topography	T2: Gentle slopes	$/ACRE	528.36
	FIELD CROP PRODUCTN	Soil texture 1	L - [LOAM]	Stones (qualities)	S2: Slight	Final	54.08
		Soil profile 1	OR10 - [CHERN-ORTH (CA 9-12)]				
				Natural hazard	WS: Waste Slough Rate: 0.98		
				Man made hazard	RD: Road Rate: 0.94		
		Soil assocation 2	WR - [WEYBURN]				
		Soil texture 3	L - [LOAM]				
		Soil texture 4					
		Soil profile 2	OR12 - [CHERN-ORTH (CA 12+)]				
		Top soil depth	3-5				
			3-5				
100	K - [CULTIVATED]	Soil assocation 1	EW - [ELSTOW]	Topography	T1: Level to nearly level	$/ACRE	659.86
	FIELD CROP PRODUCTN	Soil texture 1	C - [CLAY]	Stones (qualities)	S1: None to few	Final	67.54
		Soil texture 2	CL - [CLAY LOAM]	Phy. Factor 1	5% reduction due to PD1 - [95 : Poor Int. Drain - Slight]		
		Soil profile 1	OR12 - [CHERN-ORTH (CA 12+)]				
				Natural hazard	WS: Waste Slough Rate: 0.98		
				Man made hazard	RD: Road Rate: 0.94		
		Top soil depth	5+				

Data Source: Govern_Prod

AGRICULTURAL WASTE LAND

Acres	Land Use	Waste Type
7	WETLANDS	WASTE SLOUGH1

APPENDIX C

RM of Corman Park No. 344 - File Search

Rural Municipality of Corman Park

December 31, 2015

Your File: 11351

Thomasz Korbas
P. Machibroda Engineering Ltd.
806-48th Street East
Saskatoon SK S7K 3Y4

Re: File Search
Environmental Site Assessment
NW 10-37-4-W3 & Parcel B, Plan 102176096
RM of Corman Park, Saskatchewan

Further to your request for information regarding the above file, I can advise the following:

i) The R.M. has no record of storage, handling, spills, leaks or release of hazardous substances or waste dangerous goods at or in the immediate vicinity of the above property. We recommend that Ministry of Environment be contacted in this regard.

ii) Saskatoon Fire and Protective Services provide fire protection service in this area, and we recommend that the department be contacted for records of any fires on or in the vicinity of the above property.

iii) The R.M. does not have a record of any outstanding orders on the above property.

A request for a zoning compliance certificate must be made if you require information regarding building permits on the above noted properties. If you have any questions, please do not hesitate to contact me.

Regards,

Kelby Unseth
Planner, RM of Corman Park No. 344
Phone: 306-978-6450
Fax: 306-242-6965
Email: kunseth@rmcormanpark.ca

APPENDIX D

ERIS ECOLOG Database Search

ENVIRONMENTAL RISK INFORMATION SERVICE

DATABASE REPORT

Project Property:	*NW-10-37-4-W3M & Parcel B, Plan 102176096* *Nw-10-37-4-W3m* *Rm Of Corman Park SK*
P.O. Number	*1457*
Report Type:	*Quote - Custom-Build Your Own Report*
Order #:	*20151223104*
Requested by:	*P. Machibroda Engineering Ltd.*
Date:	*December 30, 2015*

Ecolog ERIS Ltd.
Environmental Risk Information Service Ltd. (ERIS)
A division of Glacier Media Inc.
P: 1.866.517.5204
E: info@erisinfo.com

www.erisinfo.com

Table of Contents

Executive Summary

Property Information:

Project Property:	*NW-10-37-4-W3M & Parcel B, Plan 102176096* *Nw-10-37-4-W3m Rm Of Corman Park SK*
P.O. Number:	*1457*

Order Information:

Order No.:	*20151223104*
Date Requested:	*31/12/2015*
Requested by:	*P. Machibroda Engineering Ltd.*
Report Type:	*Quote - Custom-Build Your Own Report*

Additional Products:

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.60km	Total
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
CONV	Convictions	Y	0	0	0
DIS	Wastewater Dischargers	Y	0	0	0
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	0	0
EIIS	Environmental Issues Inventory System	Y	0	0	0
ES	Environmental Spills (Sask Spills)	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
HMS	Hazardous Material Storage	Y	0	1	1
HORW	Horizontal Wells	Y	0	0	0
HSSS	Hazardous Substance Storage Sites	Y	0	0	0
HSST	Hazardous Substance Storage Tanks	Y	0	1	1
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
ILOA	Intensive Livestock Operation Approvals	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NDFT	National Defence & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defence & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGS	Upstream Oil & Gas Site Spills	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
RST	Retail Fuel Storage Tanks	Y	0	0	0
SCT	Scott's Manufacturing Directory	Y	0	0	0
WDS	Waste Disposal Site Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	0	5	5
	Total:		0	7	7

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist m	Elev diff m	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding *Properties*

Map Key	DB	Company/Site Name	Address	Dir/Dist m	Elev diff m	Page Number
1	WWIS		SK	S/585.8	5.23	9
1	WWIS		SK	S/585.8	5.23	9
1	WWIS		SK	S/585.8	5.23	10
1	WWIS		SK	S/585.8	5.23	10
2	HMS		SE-15-37-4-W3, RM CORMAN PK SK	ENE/570.7	8.30	11
2	HSST	MONSANTO RESEARCH FARM, MONSANTO CANADA INC.	SE-15-37-4-W3 R. M. OF CORMAN PARK #344 SK S7N 3R2	ENE/570.7	8.30	11
2	WWIS		SK	ENE/570.7	8.30	11

Executive Summary: Summary By Data Source

HMS - Hazardous Material Storage

A search of the HMS database, dated 1980-Apr 2015 has found that there are 1 HMS site(s) within approximately 0.60 kilometers of the project property.

Site	Address	Distance m	Map Key
	SE-15-37-4-W3, RM CORMAN PK SK	570.7	2

HSST - Hazardous Substance Storage Tanks

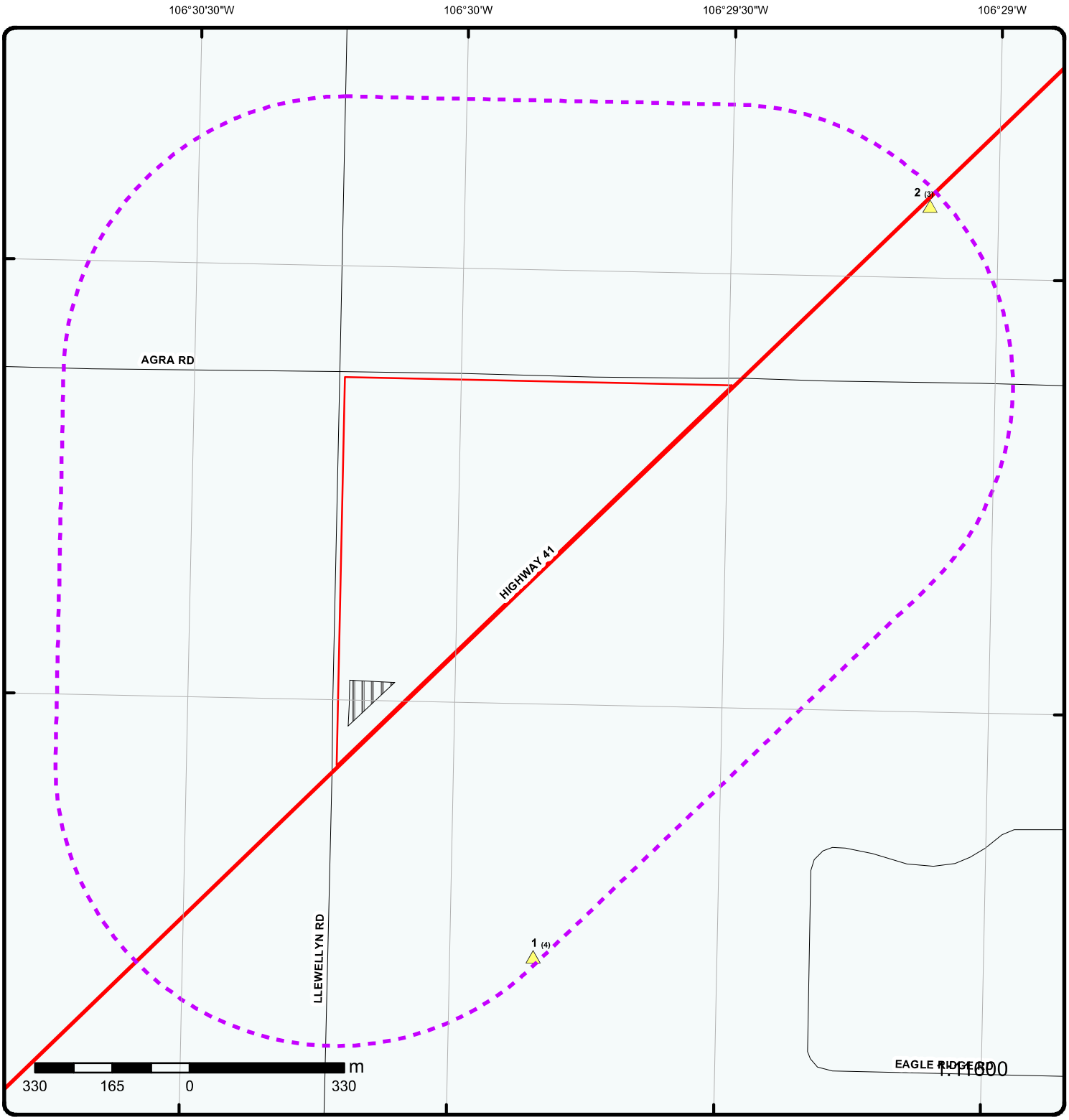
A search of the HSST database, dated 1989-Feb 2006* has found that there are 1 HSST site(s) within approximately 0.60 kilometers of the project property.

Site	Address	Distance m	Map Key
MONSANTO RESEARCH FARM, MONSANTO CANADA INC.	SE-15-37-4-W3 R. M. OF CORMAN PARK #344 SK S7N 3R2	570.7	2

WWIS - Water Well Information System

A search of the WWIS database, dated 1900-Jun 2010 has found that there are 5 WWIS site(s) within approximately 0.60 kilometers of the project property.

Site	Address	Distance m	Map Key
	SK	585.8	1
	SK	585.8	1
	SK	585.8	1
	SK	585.8	1
	SK	570.7	2



Map

Order No: 20151223104

Address: Nw-10-37-4-W3m, Rm Of Corman Park, SK

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road
- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line
- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

Aerial

Order No: 20151223104

Address: Nw-10-37-4-W3m, Rm Of Corman Park, SK

Source: ESRI World Imagery, Updated October 2014

Detail Report

Map Key	Number of Records	Direction/ Distance m	Elevation m	Site	DB
1	1 of 4	S/585.8	521.7	SK	WWIS

Well Use: Water Test Hole
Water Use: Domestic
Depth (ft): 280
Elevation (ft): 1750
Method Well Developed: Drilled

Driller Report NO: 099157
Completed Date: 7/2/1990
DLS Coordinates: -10-37-04-3
Municipality:

--- Details ---

Material:	Till	*Depth (ft):*	24
Description:	Boulders	*Colour:*	Brown
+			
Material:	Till	*Depth (ft):*	75
Description:	Cobblestones	*Colour:*	Grey
+			
Material:	Gravel	*Depth (ft):*	88
Description:	Coarse	*Colour:*	Unknown
+			
Material:	Till	*Depth (ft):*	202
Description:	Unknown	*Colour:*	Grey
+			
Material:	Sand	*Depth (ft):*	231
Description:	Fine-medium	*Colour:*	Unknown
+			
Material:	Till	*Depth (ft):*	254
Description:	Unknown	*Colour:*	Grey
+			
Material:	Till	*Depth (ft):*	280
Description:	Oxidized	*Colour:*	Unknown

Map Key	Number of Records	Direction/ Distance m	Elevation m	Site	DB
1	2 of 4	S/585.8	521.7	SK	WWIS

Well Use: Withdrawal
Water Use: Domestic
Depth (ft): 72
Elevation (ft): 1700
Method Well Developed: Bored

Driller Report NO: 060850
Completed Date: 4/10/1980
DLS Coordinates: SW1/4-10-37-04-3
Municipality:

--- Details ---

Material:	Topsoil	*Depth (ft):*	1
Description:	Unknown	*Colour:*	Unknown
+			
Material:	Clay	*Depth (ft):*	21

Map Key	Number of Records	Direction/ Distance m	Elevation m	Site	DB

Description:	Unknown	*Colour:*	Yellow
+			
Material:	Clay	*Depth (ft):*	53
Description:	Fractured	*Colour:*	Unknown
+			
Material:	Clay	*Depth (ft):*	72
Description:	Boulders	*Colour:*	Blue

---

1 **3 of 4** **S/585.8** **521.7** **SK** **WWIS**

Well Use:	Water Test Hole	*Driller Report NO:*	060826
Water Use:	Domestic	*Completed Date:*	4/7/1980
Depth (ft):	54	*DLS Coordinates:*	SW1/4-10-37-04-3
Elevation (ft):	1700	*Municipality:*	
Method Well Developed:	Augered		

--- Details ---

Material:	Topsoil	*Depth (ft):*	1
Description:	Unknown	*Colour:*	Unknown
+			
Material:	Clay	*Depth (ft):*	9
Description:	Unknown	*Colour:*	Blue
+			
Material:	Clay	*Depth (ft):*	41
Description:	Sandy	*Colour:*	Brown
+			
Material:	Sand	*Depth (ft):*	47
Description:	Unknown	*Colour:*	Unknown
+			
Material:	Clay	*Depth (ft):*	54
Description:	Unknown	*Colour:*	Brown

---

1 **4 of 4** **S/585.8** **521.7** **SK** **WWIS**

Well Use:	Withdrawal	*Driller Report NO:*	099158
Water Use:	Domestic	*Completed Date:*	7/13/1990
Depth (ft):	300	*DLS Coordinates:*	-10-37-04-3
Elevation (ft):	1750	*Municipality:*	
Method Well Developed:	Drilled		

--- Details ---

Material:	Till	*Depth (ft):*	24
Description:	Calcareous	*Colour:*	Brown
+			
Material:	Till	*Depth (ft):*	70
Description:	Cobblestones	*Colour:*	Grey
+			
Material:	Gravel	*Depth (ft):*	85
Description:	Coarse	*Colour:*	Unknown
+			

Map Key	Number of Records	Direction/ Distance m	Elevation m	Site	DB

Material:	Till	*Depth (ft):*	198
Description:	Unknown	*Colour:*	Grey
+			
Material:	Sand	*Depth (ft):*	233
Description:	Fine-medium	*Colour:*	Unknown
+			
Material:	Till	*Depth (ft):*	259
Description:	Unknown	*Colour:*	Grey
+			
Material:	Till	*Depth (ft):*	286
Description:	Clayey	*Colour:*	Unknown
+			
Material:	Clay	*Depth (ft):*	300
Description:	Noncalcareous	*Colour:*	Unknown

---

2 **1 of 3** **ENE/570.7** **524.8** **SE-15-37-4-W3, RM CORMAN PK SK** **HMS**

Operation ID: 4497
Operation Status: Operating
Land Description: SE 15-37-4 3
Operation Name: MONSANTO RESEARCH FARM, MONSANTO CANADA INC. STORAGE SITE

---

2 **2 of 3** **ENE/570.7** **524.8** **MONSANTO RESEARCH FARM, MONSANTO CANADA INC. SE-15-37-4-W3 R. M. OF CORMAN PARK #344 SK S7N 3R2** **HSST**

Facility Code: AG - 1152
Business Desc: Agricultural Industry
Application Date: 4/2/1993

--- Details ---

Type:	Aboveground
Tank Contents Desc:	DIESEL
Capacity (L):	4500
Other Contents:	
+	
Type:	Aboveground
Tank Contents Desc:	GASOLINE (MOTOR)
Capacity (L):	4500
Other Contents:	

---

2 **3 of 3** **ENE/570.7** **524.8** **SK** **WWIS**

Well Use:	Withdrawal	*Driller Report NO:*	090914
Water Use:	Domestic	*Completed Date:*	8/31/1988
Depth (ft):	60	*DLS Coordinates:*	SE1/4-15-37-04-3
Elevation (ft):	1750	*Municipality:*	
Method Well Developed:	Bored		

--- Details ---

Material:	Till	*Depth (ft):*	32

Description:	Unknown	*Colour:*	Brown
+			
Material:	Gravel	*Depth (ft):*	36
Description:	Fine	*Colour:*	Brown
+			
Material:	Till	*Depth (ft):*	60
Description:	Unknown	*Colour:*	Brown

Unplottable Summary

Total: 2 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
ES		JCT HWY 41/5 E OF SASKATOON	SASKATOON SK	
SCT	Monsanto Canada Inc.		SK	

Unplottable Report

Site: ***JCT HWY 41/5 E OF SASKATOON SASKATOON SK***

Database: ***ES***

Spill ID:	2000-0120	*Quantity:*	unknown
Date of Spill:	5/17/2000	*Units:*	
Material:	Diesel	*DLS:*	
Other Material:			
Lat Long:			

Site: ***Monsanto Canada Inc. SK***

Database: ***SCT***

Established:	
Plant Size (ft²):	
Employment:	6

Appendix: Database Descriptions

Ecolog Environmental Risk Information Services Ltd can search the following databases. The extent of Historical information varies with each database and current information is determined by what is publicly available to Ecolog ERIS at the time of update. ***Note****: Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 2001-Jul 2014

Chemical Register: Private CHEM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Government Publication Date: 1999-Jul 2014

Convictions: Provincial CONV

This database summarizes the penalties and convictions handed down by the Saskatchewan courts. Companies and individuals that have been found guilty of environmental offenses under Saskatchewan's Environmental Protection Legislation are listed in this database. The records in this database are associated with the City the offense took place and are not plotted.

Government Publication Date: 1995-Nov 2014

Wastewater Dischargers: Provincial DIS

This database is maintained by SERM and supplies the locations of the wastewater dischargers in the province. The geographic coordinates have been provided in DLS (Dominion Land Survey) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the LSD or Quarter section only.

Government Publication Date: 2000-Apr 2015

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Aug 2014

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Environmental Spills (Sask Spills): Provincial ES

This database includes an inventory of known spills that occurred throughout the province and that are reported under regulation R.R.S. c. D-14, Reg. 1. Some of the geographic coordinates have been provided in DLS (Dominion Land Survey) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the LSD or Quarter section only.

Government Publication Date: 1977-Feb 2015

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Government Publication Date: June 2000-Oct 2015

Hazardous Material Storage: Provincial HMS

The Saskatchewan Hazardous Materials Storage Program collects this information. With the approval of the Ministry of Environment, hazardous substances and waste dangerous goods can be stored in underground storage tanks, above-ground storage tanks, outdoor storage site and warehouse/indoor storage sites. A hazardous substance/waste is defined as a substance/waste that because of its quantity, concentration or physical, chemical or infectious characteristics, either individually or in combination with other substances, is an existing or potential threat to the environment or human health. This inventory includes information on operator ID, operation name, address, legal land description and operation status.

Government Publication Date: 1980-Apr 2015

Horizontal Wells: Provincial HORW

Saskatchewan Industry and Resources maintains an inventory of all horizontal wells drilled in the province. The database provides detailed information in regard to well name, owner name, status, license no., initial and final drilling date, well type, horizon name and pool name.

Government Publication Date: Aug 1987-Jun 2007*

Hazardous Substance Storage Sites: Provincial HSSS

This is an inventory of hazardous substance storage sites that must be registered under regulation 25/92, S. 3. The database is a catalog of information on the location of outdoor and warehouse sites, housing hazardous products used by companies in the agricultural, chemical, farming, warehousing, trucking, waste recycling, distribution, service stations/repair shops, bulk stations, autobody, mining, and manufacturing industry. Information is provided on the type of product(s) stored, application date, company name, location, and the type of business service operated on site. For current information, please refer to the HMS database.

Government Publication Date: 1989-Feb 2006*

Hazardous Substance Storage Tanks: Provincial HSST

This is an inventory of hazardous substance storage tanks that must be registered under regulation 25/92, S. 3. The database is a compilation of information on aboveground and underground storage tanks that hold substances such as gasoline, diesel, chemicals, heating oil, kerosene and alcohol blended products. Information is provided on the contents and capacity of the tank, company name, location, and the type of business service operated on site. For current information, please refer to the HMS database.

Government Publication Date: 1989-Feb 2006*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Intensive Livestock Operation Approvals: Provincial ILOA

Under the Agricultural Operations Act, certain types of intensive livestock operations are required to obtain plan approval. Approvals are subject to the size of operation and their proximity to a water source. Those requiring plan approvals must submit documentation regarding manure storage, utilization of manure nutrients and disposal method for dead animals. Sask. Agriculture, Food and Rural Revitalization maintains a database of approvals issued over the last three decades, for operations that may or may not be currently operational. An ILO plan approval may have been issued to an intensive livestock operation but never been constructed, been approved and not constructed yet, or it may have been constructed and later discontinued. There is no distinction in the database between operational and non-operational sites. Please note that the value "Sum of Animal Units" is a calculation used to compare different types of livestock operations (each type of animal is rated on a scale). Geographic coordinates were provided in DLS (Dominion Land Survey) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the Quarter section only.

Government Publication Date: 1971-Apr 2015

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Provincial MNR

Saskatchewan Energy and Mines maintains an inventory of 2890 separate mineral occurrences in the "Saskatchewan Mineral Deposit Index" regarding metallic, industrial mineral and coal deposits. Information within the database pertains to the SMDI No., showing name, location, commodity, deposit type, status, classification and geographical reference data. For additional information regarding geological data and exploration history, please contact the office and quote the SMDI No.

Government Publication Date: 1981-Mar 2015

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

National Defence & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defence & Canadian Forces Spills: Federal NDSP

The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Aug 2010

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-2013

Upstream Oil & Gas Site Spills: Provincial OGS

Saskatchewan Industry and Resource compiles spill information pertaining to crude oil, produced water and spills on upstream oil and gas facilities. Information includes location, date of spill, substance spilled, total amount spilled and source.

Government Publication Date: 1990-Apr 2013

Oil and Gas Wells: Private OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-Sep 2015

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

Saskatchewan Agriculture and Food maintains a database of all vendors of registered pesticides.

Government Publication Date: 1998-Apr 2010

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Jul 2014

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Waste Disposal Site Inventory: Provincial WDS

This inventory pertains to registered waste disposal sites within the province of Saskatchewan. Specific dates as to when the waste disposal site was activated are not available. The geographic coordinates have been provided in DLS (Dominion Land Survey) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the LSD or Quarter section only.

Government Publication Date: 2000-Jun 2015

Water Well Information System: Provincial WWIS

This database was collected from Saskatchewan Water, Water Resource Administration and contains over 100,000 records. The geographic coordinates have been provided in DLS (Dominion Land Survey) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the LSD or Quarter section only.

Government Publication Date: 1900-Jun 2010

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries". All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and were included as reference.

APPENDIX E

Photographs

PHOTOGRAPH NO. 11351-01 **Panoramic photograph taken proximate the northeast corner of the subject property, looking southwest to west.**

PHOTOGRAPH NO. 11351-02 **Panoramic photograph taken near the northwest corner of the subject property, looking east to south.**

PHOTOGRAPH NO. 11351-03 **Panoramic photograph taken near the southwest corner of the subject property, looking north to northeast.**

PHOTOGRAPH NO. 11351-04 **A dugout located in the southern portion of the site, looking south.**

Appendix K
Geotechnical Investigation

SILVER CREEK
Developments

PRELIMINARY GEOTECHNICAL INVESTIGATION

PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION
NW 10-37-4 W3M
NEAR SASKATOON, SASKATCHEWAN
PMEL FILE NO. 23108
AUGUST 29, 2025







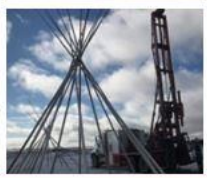










PREPARED FOR:
Viking Land Corp.

ATTENTION: Paul Deason

P.MACHIBRODA ENGINEERING LTD.

P.MACHIBRODA ENGINEERING LTD.

PROJECT: Preliminary Geotechnical Investigation
Proposed Commercial/Industrial Subdivision
NW 10-37-4 W3M
Near Saskatoon, Saskatchewan
PMEL File No. 23108
August 29, 2025

PREPARED FOR: Viking Land Corp.

ATTENTION: Paul Deason

DISTRIBUTION: Viking Land Corp. – Digital Copy
P. Machibroda Engineering Ltd. – Digital Copy

806-48th Street East, Saskatoon, SK S7K 3Y4
P: 306.665.8444 | **F**: 306.652.2092 | **E**: pmel.sk@machibroda.com
www.machibroda.com

TABLE OF CONTENTS

LIST OF TABLES

LIST OF DRAWINGS

LIST OF APPENDICES

1 INTRODUCTION

1.1 GENERAL

The following report has been prepared to provide preliminary geotechnical information for the commercial/industrial subdivision proposed for the plot of land within NW 10-37-4 W3M near Saskatoon, Saskatchewan.

The terms of reference for this investigation were presented in P. Machibroda Engineering Ltd. (PMEL) Proposal No. 23108, dated July 23, 2025. Written authorization to proceed with this investigation was provided via the signed consulting agreement between Viking Land Corp. and P. Machibroda Engineering Ltd. dated August 8, 2025.

1.2 SITE LOCATION AND DESCRIPTION

The proposed commercial/industrial subdivision is located on a vacant parcel east of Saskatoon, Saskatchewan. The subject site is bound by Township Road 372 to the north, Highway 41 to the east, Prairie Christian Academy to the west, and farmland to the south. The subject property consists of predominantly grass and brush covered land. From historical satellite images of the subject site, it has previously been used for agriculture with no evidence of previous development.

A Site Plan showing the location of the study area and boreholes has been shown on Drawing No. 23108-1.

2 FIELD INVESTIGATION

The field investigation was conducted on August 12, 2025. Groundwater monitoring was conducted on August 26, 2025.

Three (3) boreholes, located as shown on the Site Plan, Drawing No. 23108-1, were dry drilled using our truck-mounted, continuous flight solid stem auger drilling rig. The boreholes were 150 mm in diameter and extended to depths between 12.0 and 12.4 m below the existing ground surface. Borehole logs, as shown on Drawing Nos. 23108-2 to 4A, inclusive, were compiled during test drilling to record the soil stratification, the groundwater conditions, the position of unstable sloughing soils and the depths at which cobblestones and/or boulders were encountered.

Disturbed samples of auger cuttings were collected during test drilling and sealed in plastic bags to minimize moisture loss. The soil samples were transported to our laboratory for analysis.

Standard penetration tests (N-index), utilizing a safety hammer with automatic trip were performed during test drilling.

The coordinates at the borehole locations were recorded with a handheld GPS unit and the approximate ground surface elevations were referenced to the east side of the existing culvert within the north approach into Prairie Christan Academy, located approximately as shown on the Site Plan, Drawing No. 23108-1. A datum elevation of 100.00 m was assumed for the top of the culvert.

3 SOIL AND GROUNDWATER CONDITIONS

3.1 SOIL PROFILE

The general soil profile consisted of approximately 100 mm of topsoil overlying clay which extended to depths between 2.8 and 5.9 m, followed by glacial till, which extended to at least 12.4 m below grade, the maximum depth explored with our investigation. A layer of silt and sand was encountered beneath the topsoil at the location of BH 25-1.

The clay was very stiff in consistency, moist, and had a medium to high plasticity. The glacial till was medium plastic, moist and very stiff initially, becoming hard with depth. The silt and sand deposit was low plastic and stiff.

3.2 GROUNDWATER CONDITIONS, SLOUGHING

Groundwater seepage and sloughing conditions were not encountered at the test locations at the time of the field investigation. A summary of the groundwater levels recorded in the monitoring wells installed during this investigation has been presented in Table I.

TABLE I RECORDED GROUNDWATER LEVELS

Borehole No.	Groundwater Depth (m)	
	I.A.D.	August 26, 2025
25-1	Dry (> 4.6)	Dry (> 4.6)
25-2	Dry (> 4.4)	Dry (> 4.4)
25-3	Dry (> 4.6)	Dry (> 4.6)

*I.A.D. – Immediately After Drilling

An examination of Table I revealed that the groundwater level was situated greater than 4.6 m below existing grade on August 26, 2025. The monitoring wells may not have stabilized at the time of measurement and higher groundwater conditions should be anticipated, particularly during and/or following precipitation events and/or snow melt.

3.3 COBBLESTONES AND BOULDERS

Cobbles/boulders were encountered within the glacial till deposits during test drilling. Glacial till inherently contains sorted deposits of the above particle sizes as well as a random distribution of larger particle sizes in the cobblestone range (60 to 200 mm) and boulder-sized range (larger than 200 mm). Inter/intra till deposits of cobblestones, boulders, boulder pavements and isolated deposits of saturated sand or gravel should be anticipated within the glacial till deposit.

It should be recognized that the statistical probability of encountering cobbles/boulders in the small diameter boreholes drilled at this site was low. The frequency of encountering such deposits will increase proportionately with the number/depth of pile foundations installed.

4 LABORATORY ANALYSIS

The soil classification and index tests performed during this investigation consisted of a visual classification of the soil, moisture contents, Atterberg limits, grain size analysis, and unit weights.

The results of the soil classification and index tests conducted on representative samples of soil have been plotted on the borehole logs alongside the corresponding depths at which the samples were recovered, as shown on Drawing Nos. 23108-2 to 4A, inclusive. The results of the grain size distribution analyses tests have been plotted in Appendix B.

5 DESIGN CONSIDERATIONS

The purpose of this investigation was to evaluate the existing subsurface soil and groundwater conditions for potential site development. Site specific investigation(s) will be required once the proposed development details have been finalized.

The subsurface soil conditions generally consisted of a thin layer of topsoil overlying clay, followed by an extensive deposit of glacial till to the full depth explored (i.e., 12.4 m). Cobbles/boulders were encountered within the glacial till.

The subgrade soils are considered frost susceptible, and the potential depth of frost penetration could range from approximately 1.7 to 2.5 m, depending on surface cover, severity of winter and heat loss affects beneath/adjacent buildings; the depth of frost penetration will be greater where granular fills are utilized.

The depth to the groundwater table was greater than 4.6 m (i.e., the maximum depth of the monitoring wells) below existing grade on August 26, 2025. Higher groundwater conditions should be expected during or following spring snowmelt and/or periods of precipitation.

Preparation of the site for development should consist of the removal of all trees, root systems, vegetation, topsoil and organic material from the construction areas.

Based on current conditions, it is anticipated that conventional site preparation (scarifying, moisture conditioning and re-compacting the soils) will suffice over the majority of the site. The use of geosynthetics and additional fill thicknesses may be required in low lying areas.

If fill is required to raise the site grades, the on-site clays are considered acceptable for use as general subgrade fill. Imported non-expansive soils such as glacial till or sand are preferred if potential movements associated with using the on-site highly plastic clays as subgrade fill is to be minimized.

The groundwater table is anticipated to be below the depth of typical excavations at this site. Conventional open-cut excavations with sloped sidewalls should be feasible.

Potential deep foundation alternatives for structures at this site include drilled, cast-in-place concrete piles (straight shaft and/or belled), continuous flight auger (CFA) piles, driven open-ended steel pipe piles and helical screw piles. Construction difficulties associated with cobbles/boulders could be encountered for all pile types.

Footings could be considered as a foundation support but will be exposed to potential foundation movements associated with the highly plastic nature of the clay soils. Pile foundations will not undergo movements to the same level as footings and are preferred if potential foundation movements are not tolerable.

Grade-supported floor slabs could be considered but will be exposed to potential differential movements associated with soil volume changes in the clay. If grade-supported floor slabs are constructed, methods to minimize potential movements should be implemented during design/construction (i.e., not allowing the subgrade to dry-out during construction, providing positive drainage alongside the foundation, overexcavating a portion of the highly plastic clay subgrade from beneath the slab and replacing with non-expansive fill, etc.). Where potential floor movements/cracking cannot be tolerated, the slabs will need to be structurally supported by piles.

6 LIMITATIONS

The presentation of the summary of the borehole logs and preliminary design considerations has been completed as authorized. Three, 150 mm diameter boreholes were dry drilled using our continuous flight solid stem auger drilling equipment.

Borehole logs were compiled during test drilling which, we believe, were representative of the subsurface conditions at the borehole locations at the time of test drilling. Variations in the subsurface conditions from that shown on the borehole logs at locations other than the exact test location should be anticipated. If conditions should differ from those reported here, then we should be notified immediately in order that we may examine the conditions in the field and reassess our recommendations in the light of any new findings.

The Terms of Reference for this investigation did not include any environmental assessment of the site. No detectable evidence of environmentally sensitive materials was detected during the actual time of the field test drilling program. If, on the basis of any knowledge, other than that formally communicated to us, there is reason to suspect that environmentally sensitive materials may exist, then additional boreholes should be drilled and samples recovered for chemical analysis.

The subsurface investigation necessitated the drilling of deep boreholes. The boreholes were backfilled at the completion of test drilling. Please be advised that some settlement of the backfill materials will occur which may leave a depression or an open hole. It is the responsibility of the client to inspect the site and backfill, as required, to ensure that the ground surface at each borehole location is maintained level with the existing grade.

It is recommended to decommission the monitoring wells once they are no longer needed. PMEL will not accept any future liability associated with inadequate decommissioning. Costs for decommissioning the monitoring wells can be provided by PMEL upon request.

This report has been prepared for the exclusive use of Viking Land Corp. and their agents for specific application to the proposed development located within NW 10-37-4 W3M, near Saskatoon, Saskatchewan. It has been prepared in accordance with generally accepted geotechnical engineering practices and no other warranty, expressed or implied, is made.

The design considerations presented in this report are for preliminary purposes only. Detailed, specific geotechnical investigation(s) are recommended once the building/structure details and locations have been finalized. PMEL will not accept responsibility on this project for any unsatisfactory performance if the design considerations presented in this report are utilized for the final building design in lieu of conducting a detailed, specific geotechnical investigation.

If this report has been transmitted electronically, it has been digitally signed and secured with personal passwords to lock the document. Due to the possibility of digital modification, only originally signed reports and those reports sent directly by PMEL can be relied upon without fault.

We trust that this report fulfills your requirements for this project. Should you require additional information, please contact us.

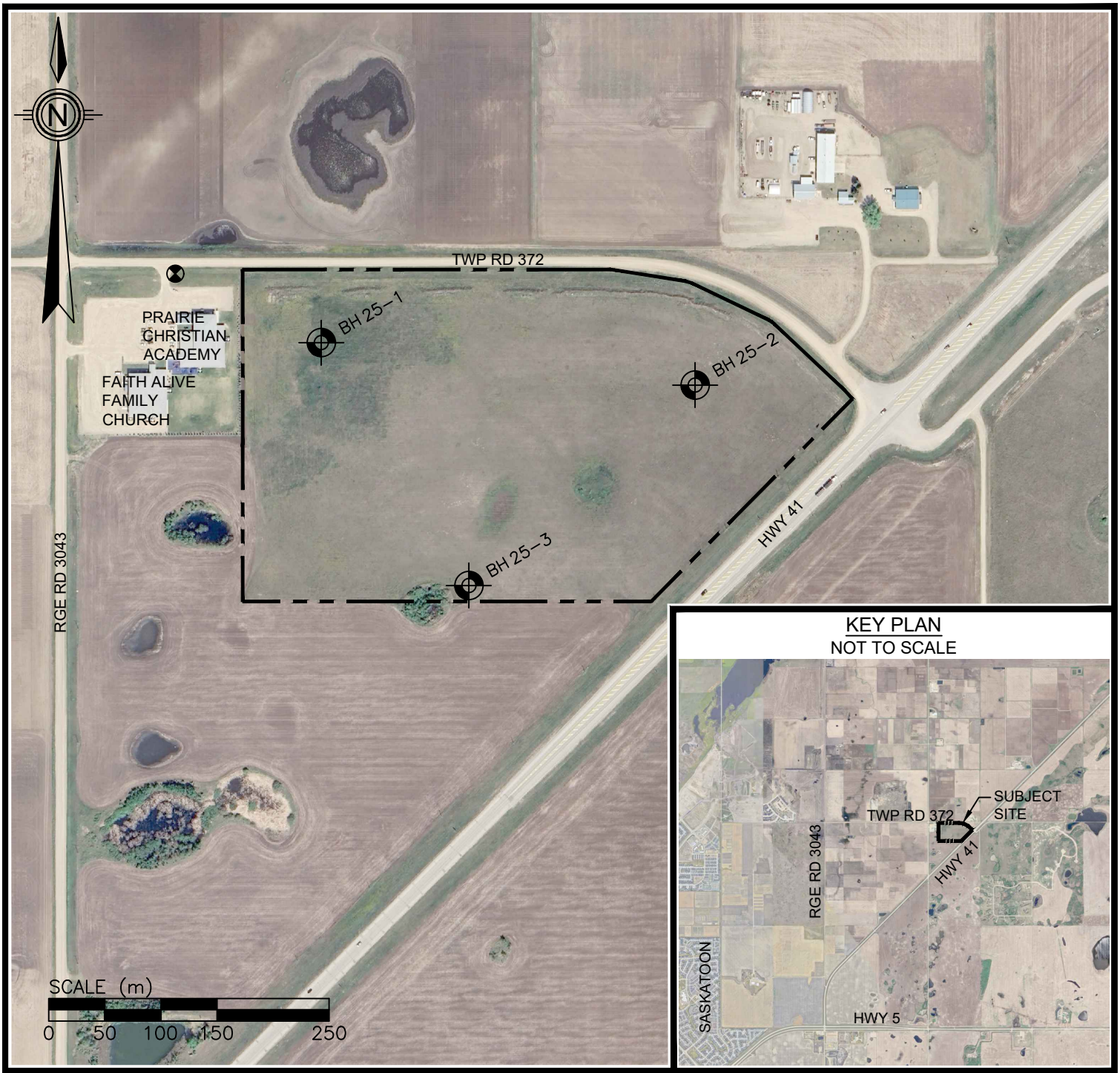
P. MACHIBRODA ENGINEERING LTD.

Aaron Dionne, P.Geo.

Kelly Pardoski, P.Eng.

AD/KP

DRAWINGS



KEY PLAN
NOT TO SCALE

NOTE:
1. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
2. THIS DRAWING WAS COMPILED FROM GOOGLE EARTH PRO ©2025, IMAGE ©2025 DIGITALGLOBE, (IMAGERY DATE: 05/23/25).
3. THIS DRAWING WAS COMPILED USING HANDHELD GPS EQUIPMENT (TRIMBLE, MODEL No. UNIT 3, Geo7x).
4. BENCHMARK: EAST SIDE OF CULVERT NORTH OF PRAIRIE CHRISTIAN ACADEMY. ASSUMED DATUM ELEVATION = 100.00 m.

LEGEND — – – – —APPROXIMATE SITE BOUNDARY; —PMEL BOREHOLE (MONITORING WELL INSTALLED); —BENCHMARK

CONSULTING GEOENVIRONMENTAL GEOTECHNICAL ENGINEERS

P. MACHIBRODA ENGINEERING LTD.

806 – 48th STREET EAST
SASKATOON, SK
S7K 3Y4

DRAWING TITLE:
SITE PLAN - BOREHOLE LOCATIONS

PROJECT:
PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION
PORTION OF NW 10-37-4 W3M, NEAR SASKATOON, SK

APPROVED BY:	DRAWN BY:	DRAWING NUMBER:
AD	BS	23108-1
DATE: AUGUST, 2025	SCALE: AS SHOWN	

P.MACHIBRODA ENGINEERING LTD.

BOREHOLE 25-1

DRAWING NUMBER: 23108-2

PROJECT: PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION

LOCATION: PORTION OF NW 10-37-4 W3M
NEAR SASKATOON, SK

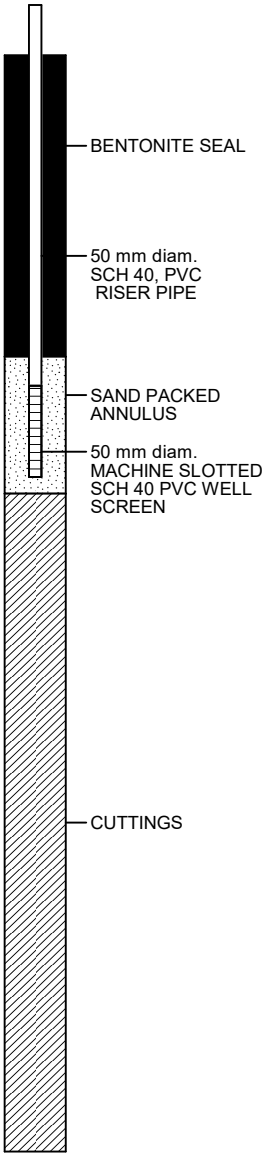
NORTHING (m): 5781264 **EASTING (m):** 397394 **ELEVATION (m):** 100.1 **DATE DRILLED:** AUG 12/25

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

WATER LEVELS
After Drilling
During Drilling

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	% FINES	POCKET PEN. (kg/cm²)
0		TOPSOIL			13.7	23	15		30	
		SILT AND SAND, some clay, stiff, low plastic, moist, brown.			18.6					1.75
1		CLAY, silty, very stiff, medium plastic, moist, brown. rootlets to 0.3 m.								
2		some silt, highly plastic below 1.6 m.		11	21.6			19.7		1.5
3					25.6					1.75
4										
5				14	30.6			18.6		1.75
6		GLACIAL TILL, clay, silty, trace sand, trace gravel, very stiff, medium plastic, moist, brown.			15.4					0.5
7		hard below 7.6 m.		36	13.8			21.9		4.0
8		grey below 8.6 m.								
9					10.5					4.0
10										
11				50	10.3			22.5		4.25
12					10.6					4.5

MONITORING WELL: BH25-1
ELEV.: 101.1 m



NOTE:
1. Borehole open and dry Immediately After Drilling.
2. Monitoing Well Dry on August 26, 2025.

P.MACHIBRODA ENGINEERING LTD.

BOREHOLE 25-2

DRAWING NUMBER: 23108-3

PROJECT: PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION

LOCATION: PORTION OF NW 10-37-4 W3M
NEAR SASKATOON, SK

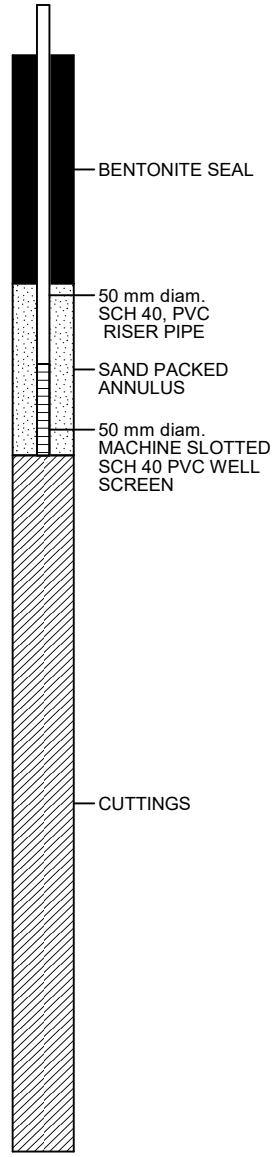
NORTHING (m): 5781221 **EASTING (m):** 397720 **ELEVATION (m):** 103.4 **DATE DRILLED:** AUG 12/25

SAMPLE TYPE: CUTTINGS SPLIT SPOON SHELBY TUBE

WATER LEVELS
After Drilling
During Drilling

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	% FINES	POCKET PEN. (kg/cm²)
0		TOPSOIL			19.1					1.0
		CLAY, silty, very stiff, highly plastic, moist, brown.			19.6	68	23			1.5
1										
2				14	20.7					1.75
3					27.7					2.0
4		GLACIAL TILL, clay, silty, some sand, trace gravel, hard, medium plastic, moist, brown, oxide stained, gypsum crystals.		29	10.8					3.75
5										
6					12.1					3.75
7										
8		cobbles and boulders at 8.0 m.		53	11.8			22.0		4.0
9					12.2					4.0
10										
11		cobbles and boulders at 11.0 m.		56	12.7			21.0		4.25
12					13.9					4.25

MONITORING WELL: BH25-2
ELEV.: 104.4 m



NOTE:
1. Borehole open and dry Immediately After Drilling.
2. Monitoring Well Dry on August 26, 2025.

P.MACHIBRODA ENGINEERING LTD.

BOREHOLE 25-3

DRAWING NUMBER: 23108-4

PROJECT: PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION

LOCATION: PORTION OF NW 10-37-4 W3M
NEAR SASKATOON, SK

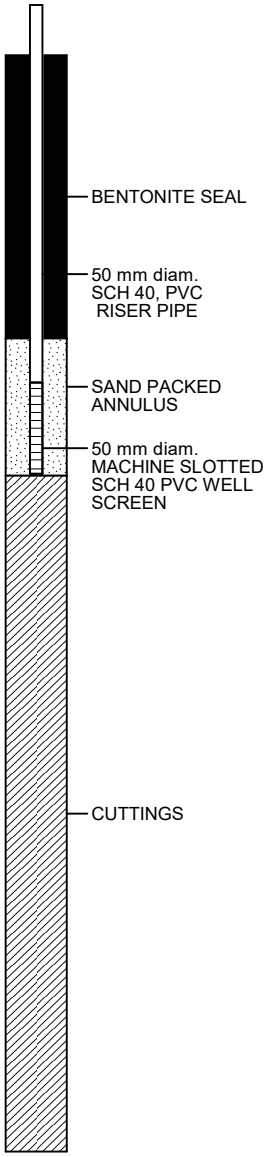
NORTHING (m): 5781050 **EASTING (m):** 397517 **ELEVATION (m):** 102.3 **DATE DRILLED:** AUG 12/25

SAMPLE TYPE: ☒ CUTTINGS ☒ SPLIT SPOON ■ SHELBY TUBE

WATER LEVELS
▼ After Drilling
▽ During Drilling

DEPTH (m)	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	% FINES	POCKET PEN. (kg/cm²)
0	TOPSOIL			21.7					
	CLAY, some silt, trace sand, very stiff, medium plastic, moist, brown. damp 0.4 to 1.9 m.			14.7				89	
1									
				14.0	32	15			
2									
3	GLACIAL TILL, clay, silty, some sand, trace gravel, very stiff, medium plastic, moist, brown, oxide stained, gypsum crystals.	☒	25	9.7			21.9		2.5
	some silt below 4.2 m.								
4				11.0					2.0
5									
6		☒	19	11.8	31	15	21.9		2.0
7				16.5					2.5
8									
9	hard below 9.0 m.	☒	32	12.1			22.0		3.5
	silty below 9.8 m.								
10				6.6					3.5
11									
12									

MONITORING WELL: BH25-3
ELEV.: 103.2 m



CONTINUED ON NEXT PAGE

P.MACHIBRODA ENGINEERING LTD.

BOREHOLE 25-3

DRAWING NUMBER: 23108-4A

PROJECT: PROPOSED COMMERCIAL/INDUSTRIAL SUBDIVISION

LOCATION: PORTION OF NW 10-37-4 W3M
NEAR SASKATOON, SK

NORTHING (m): 5781050 **EASTING (m):** 397517 **ELEVATION (m):** ELEVATION: **DATE DRILLED:** AUG 12/25

SAMPLE TYPE: ☒ CUTTINGS ☒ SPLIT SPOON ■ SHELBY TUBE

WATER LEVELS
▼ After Drilling
▽ During Drilling

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	% FINES	POCKET PEN. (kg/cm²)	MONITORING WELL: BH25-3	DEPTH (m)
12		GLACIAL TILL, clay, silty, some sand, trace gravel, hard, medium plastic, moist, brown, oxide stained, gypsum crystals.	☒	80	10.6			22.0		4.0	CUTTINGS	12
13		grey below 12.2 m.										13
14												14
15												15
16												16
17												17
18												18
19												19
20												20
21												21
22												22
23												23
24												24

NOTE:
1. Borehole open and dry Immediately after Driling.
2. Monitoring Well Dry on August 26, 2025.

APPENDIX A

Explanation of Terms on
Borehole Logs

CLASSIFICATION OF SOILS

Coarse-Grained Soils: Soils containing particles that are visible to the naked eye. They include gravels and sands and are generally referred to as cohesionless or non-cohesive soils. Coarse-grained soils are soils having more than 50 percent of the dry weight larger than particle size 0.080 mm.

Fine-Grained Soils: Soils containing particles that are not visible to the naked eye. They include silts and clays. Fine-grained soils are soils having more than 50 percent of the dry weight smaller than particle size 0.080 mm.

Organic Soils: Soils containing a high natural organic content.

Soil Classification By Particle Size

Soil Type	Particles of Size
Clay	< 0.002 mm
Silt	0.002 – 0.060 mm
Sand	0.06 – 2.0 mm
Gravel	2.0 – 60 mm
Cobbles	60 – 200 mm
Boulders	>200 mm

TERMS DESCRIBING CONSISTENCY OR CONDITION

Coarse-grained soils: Described in terms of compactness condition and are often interpreted from the results of a Standard Penetration Test (SPT). The standard penetration test is described as the number of blows, N, required to drive a 51 mm outside diameter (O.D.) split barrel sampler into the soil a distance of 0.3 m (from 0.15 m to 0.45 m) with a 63.5 kg weight having a free fall of 0.76 m.

Compactness Condition	SPT N-Index (blows per 0.3 m)
Very loose	0-4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	Over 50

Fine-Grained Soils: Classified in relation to undrained shear strength.

Consistency	Undrained Shear Strength (kPa)	N Value (Approximate)	Field Identification
Very Soft	<12	0-2	Easily penetrated several centimetres by the fist.
Soft	12-25	2-4	Easily penetrated several centimetres by the thumb.
Firm	25-50	4-8	Can be penetrated several centimetres by the thumb with moderate effort.
Stiff	50-100	8-15	Readily indented by the thumb, but penetrated only with great effort.
Very Stiff	100-200	15-30	Readily indented by the thumb nail.
Hard	>200	>30	Indented with difficulty by the thumbnail.

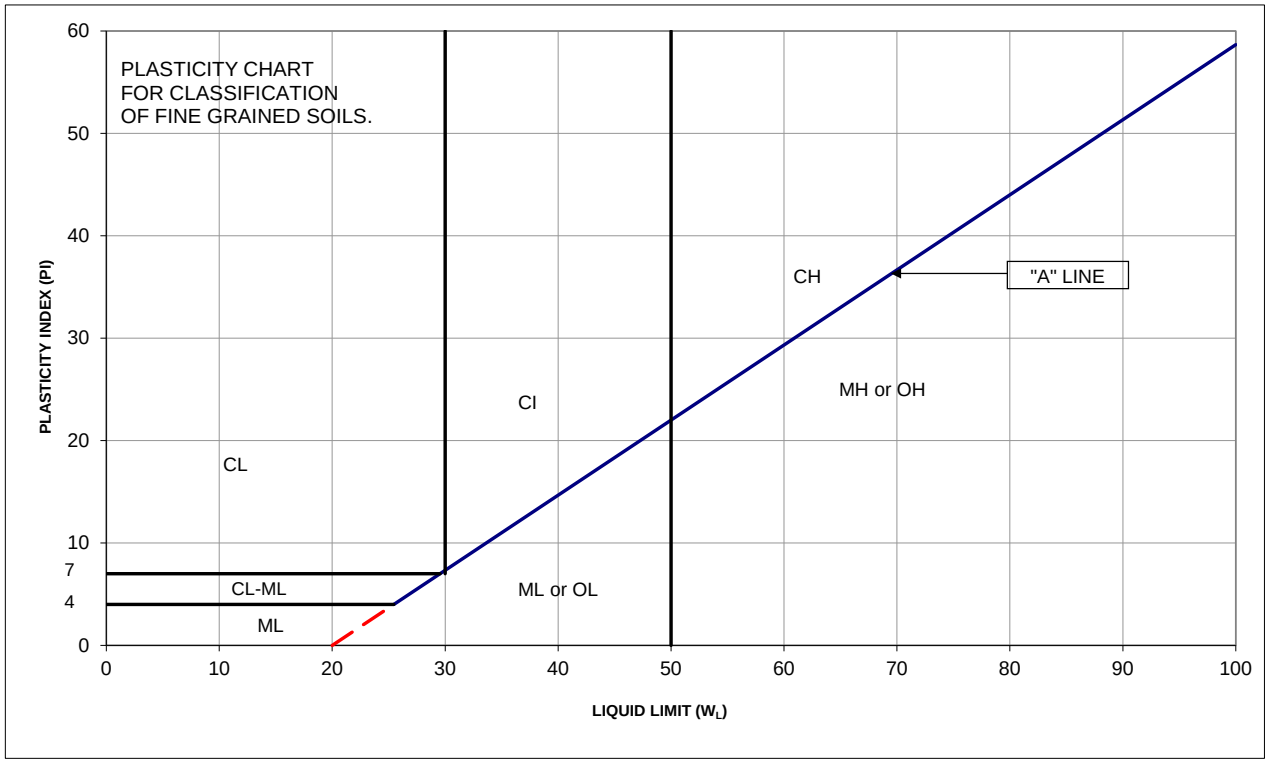
Organic Soils: Readily identified by colour, odour, spongy feel and frequently by fibrous texture.

DESCRIPTIVE TERMS COMMONLY USED TO CHARACTERIZE SOILS

Poorly Graded - predominance of particles of one grain size.
Well Graded - having no excess of particles in any size range with no intermediate sizes lacking.
Mottled - marked with different coloured spots.
Nuggety - structure consisting of small prismatic cubes.
Laminated - structure consisting of thin layers of varying colour and texture.
Slickensided - having inclined planes of weakness that are slick and glossy in appearance.
Fissured - containing shrinkage cracks.
Fractured - broken by randomly oriented interconnecting cracks in all 3 dimensions

SOIL CLASSIFICATION SYSTEM (MODIFIED U.S.C.)

MAJOR DIVISION			GROUP SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOUR OR ODOUR AND OFTEN FIBROUS TEXTURE
COARSE-GRAINED SOILS(MORE THAN HALF BY WEIGHT LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS More than half coarse fraction larger than No. 4 sieve size	CLEAN GRAVELS	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES <5% FINES	$C_u = \frac{D_{60}}{D_{10}} > 4$ $C_c = \frac{(D_{30})^2}{D_{60} \times D_{10}} = 1 \text{ to } 3$
			GP	POORLY-GRADED GRAVELS AND GRAVEL-SAND MIXTURES <5% FINES	NOT MEETING ALL ABOVE REQUIREMENTS FOR GW
		DIRTY GRAVELS	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES >12% FINES	ATTERBERG LIMITS BELOW "A" LINE OR PI < 4
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES >12% FINES	ATTERBERG LIMITS ABOVE "A" LINE WITH PI > 7
	SANDS More than half coarse fraction smaller than No. 4 sieve size	CLEAN SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS MIXTURES <5% FINES	$C_u = \frac{D_{60}}{D_{10}} > 6$ $C_c = \frac{(D_{30})^2}{D_{60} \times D_{10}} = 1 \text{ to } 3$
			SP	POORLY-GRADED SANDS OR GRAVELLY SANDS <5% FINES	NOT MEETING ALL GRADATION REQUIREMENTS FOR SW
		DIRTY SANDS	SM	SILTY SANDS, SAND-SILT MIXTURES >12% FINES	ATTERBERG LIMITS BELOW "A" LINE OR PI < 4
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES >12% FINES	ATTERBERG LIMITS ABOVE "A" LINE WITH PI >7
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT PASSING NO. 200 SIEVE SIZE)	SILTS Below "A" line on plasticity chart; negligible organic content		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	$W_L < 50$
			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS	$W_L > 50$
	CLAYS Above 'A" line on plasticity chart; negligible organic content		CL	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS	$W_L < 30$
			CI	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS	$W_L > 30 < 50$
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	$W_L > 50$
	ORGANIC SILTS & ORGANIC CLAYS Below "A" line on plasticity chart		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	$W_L < 50$
			OH	ORGANIC CLAYS OF HIGH PLASTICITY	$W_L > 50$



P.MACHIBRODA ENGINEERING LTD.

APPENDIX B

Grain Size Distribution Analysis

P.MACHIBRODA ENGINEERING LTD.

AASHTO T 88: PARTICLE SIZE ANALYSIS OF SOILS

Project: Proposed Subdivision

Location: Portion of NW-10-37-04-W3M

Project No.: 23108

Date Tested: August 26, 2025

Borehole No.: 25-1

Sample No.: 21

Depth (m): 0.3

Sieve Analysis:

Sieve	Diameter mm	% Finer
1.5"	38.100	100
1"	25.400	100
3/4"	19.100	100
1/2"	12.700	98
3/8"	9.500	98
# 4	4.750	98
# 10	2.000	96
# 20	0.850	95
# 40	0.425	89.0
#60	0.250	76.4
# 100	0.150	46.3
# 200	0.075	30.2

Hydrometer Analysis:

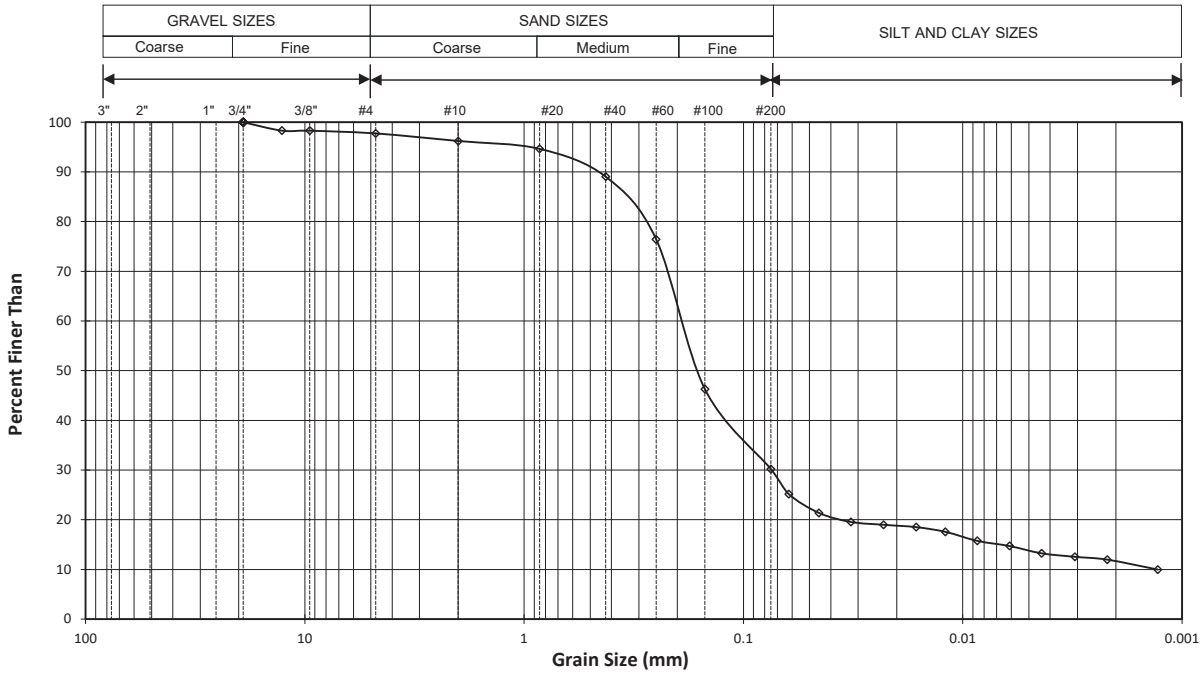
Dispersing Agent: *Sodium Hexametaphosphate*

Diameter mm	% Finer
0.0622	25.2
0.0452	21.4
0.0324	19.6
0.0230	19.0
0.0163	18.5
0.0120	17.6
0.0086	15.7
0.0061	14.7
0.0044	13.2
0.0031	12.5
0.0022	12.0
0.0013	10.0

Material Description:

% Gravel Sizes	% Sand Sizes	% Silt Sizes	% Clay Sizes
2	68	18	12

Remarks:



CERTIFIED BY CCIL Canadian Council of Independent Laboratories For specific tests as listed on www.ccil.com

Drawing No.

B-1

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE WITH AASHTO T 88 STANDARD
P. MACHIBRODA ENGINEERING LTD.

PER

P.MACHIBRODA ENGINEERING LTD.

AASHTO T 88: PARTICLE SIZE ANALYSIS OF SOILS

Project: Proposed Subdivision

Location: Portion of NW-10-37-04-W3M

Project No.: 23108

Date Tested: August 26, 2025

Borehole No.: 25-3

Sample No.: 12

Depth (m): 0.8

Sieve Analysis:

Sieve	Diameter mm	% Finer
1.5"	38.100	100
1"	25.400	100
3/4"	19.100	100
1/2"	12.700	100
3/8"	9.500	100
# 4	4.750	99
# 10	2.000	99
# 20	0.850	98
# 40	0.425	96.7
#60	0.250	94.9
# 100	0.150	92.7
# 200	0.075	89.0

Hydrometer Analysis:

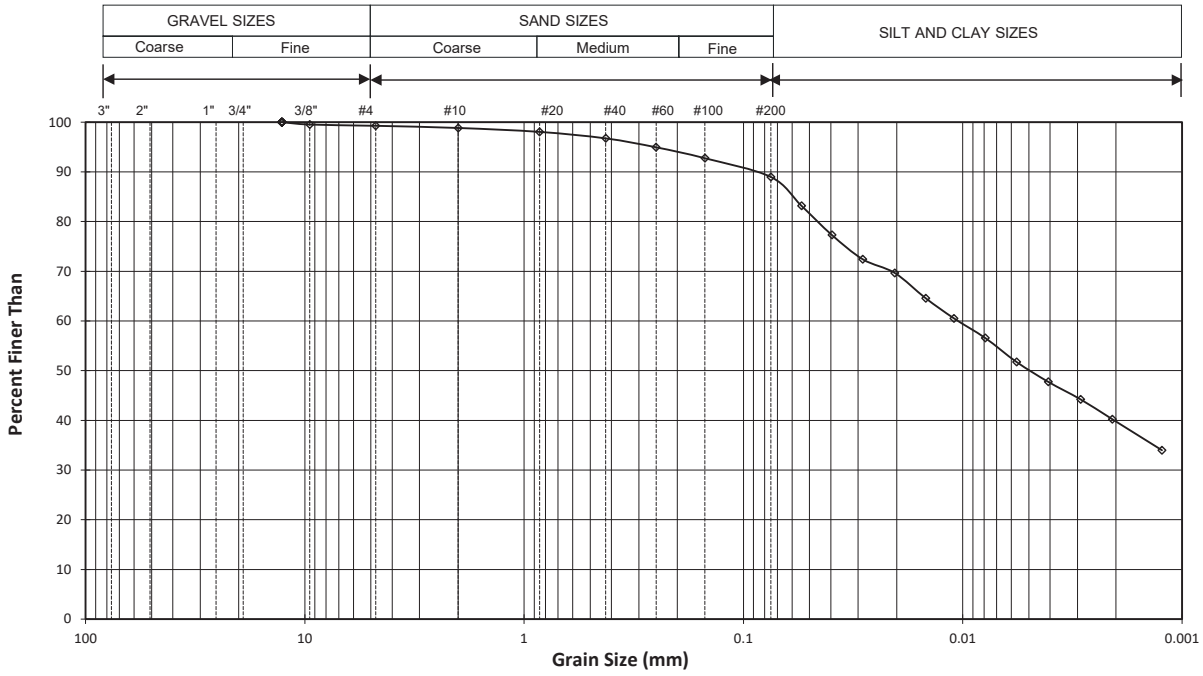
Dispersing Agent: *Sodium Hexametaphosphate*

Diameter mm	% Finer
0.0543	83.2
0.0395	77.3
0.0286	72.4
0.0204	69.7
0.0148	64.6
0.0110	60.5
0.0079	56.6
0.0057	51.7
0.0041	47.7
0.0029	44.2
0.0021	40.2
0.0012	34.0

Material Description:

% Gravel Sizes	% Sand Sizes	% Silt Sizes	% Clay Sizes
1	10	49	40

Remarks:



CERTIFIED BY CCIL Canadian Council of Independent Laboratories For specific tests as listed on www.ccil.com

Drawing No.

B-2

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE WITH AASHTO T 88 STANDARD
P. MACHIBRODA ENGINEERING LTD.

PER

Appendix L

RM of Corman Park Correspondence (ILO's)

SILVER CREEK
Developments

Maggie Schwab

From: Cory Boudreau <cboudreau@rmcormanpark.ca>
Sent: Wednesday, July 12, 2017 3:13 PM
To: Maggie Schwab
Subject: RE: Proposed development NW-10-37-4 W3M

Oh your classic request! Haha.

There are no gravel pits in the area
There are agricultural support/research services in the area. (north of the subject parcel)
No ILOs.
Eagle Ridge Estates is located at SE 10-37-4-W3.
And, as per the P4G plan, other Multi-parcel res subdivisions may be proposed.

I usually do a map, but at the moment I do not have the time.
Do you need more specific information?
If so I will ask Michelle, our Planning Tech to try and put something together.
Regards,

Cory Boudreau, B.A
Planner I,
R.M. of Corman Park 344
Ph: (306)975-1665 Fax: (306)242-6965

Rural Municipality of Corman Park

Please consider the environment before printing this e-mail

From: Maggie Schwab [mailto:mschwab@crosbyhanna.ca]
Sent: Wednesday, July 12, 2017 3:06 PM
To: Cory Boudreau <cboudreau@rmcormanpark.ca>
Subject: RE: Proposed development NW-10-37-4 W3M

Hi Cory,

We are aware of the P4G Plan and the designation for Future Urban Residential. There have been many discussions with Rebecca and the Developer was involved in the P4G IDS and Regional Plan. What I'm looking for are setbacks from ILOs, landfills, gravel operations, etc.

Thanks,
Maggie

From: Cory Boudreau [mailto:cboudreau@rmcormanpark.ca]
Sent: Wednesday, July 12, 2017 3:04 PM

Appendix M
Public Notice

SILVER CREEK
Developments

October 16, 2025

To Whom It May Concern,

Neighbours of the following property:

Parcels D, E, F, G, H & J, Plan No. 102331639 in NW1/4 Sec 10, Twp 37, Rge 4, W3

are hereby notified of a proposed subdivision and rezoning application. Please refer to Figure 1.0 on the backside of this letter.

The applicant is proposing to subdivide and rezone 10 lots, ranging in size from 1.00 acres to 2.66 acres. It is proposed that these lots be rezoned to “D – Arterial Commercial 2 District (DC2)”. A complete list of permitted and discretionary uses can be found in the P4G Zoning Bylaw, located on the RM of Corman Park website. A Municipal Utility parcel (stormwater management pond) is also proposed. Please refer to the Plan of Proposed Subdivision, identified as Figure 2.0 on the backside of this letter.

Any person who may be affected by the proposed subdivision may address their questions, comments, or concerns by December 19, 2025 via email to devin@silvercreekdevelopment.ca, or by mail to:

Devin Clarke
Silver Creek Developments
313 Dubois Manor
Saskatoon, SK S7V 0R5

Kind Regards,

Devin Clarke, RPP, MCIP
Principal
Silver Creek Developments Inc.
devin@silvercreekdevelopment.ca
(306) 291-1668
www.silvercreekdevelopment.ca

SILVER CREEK
Developments

Figure 1.0 – Location Map

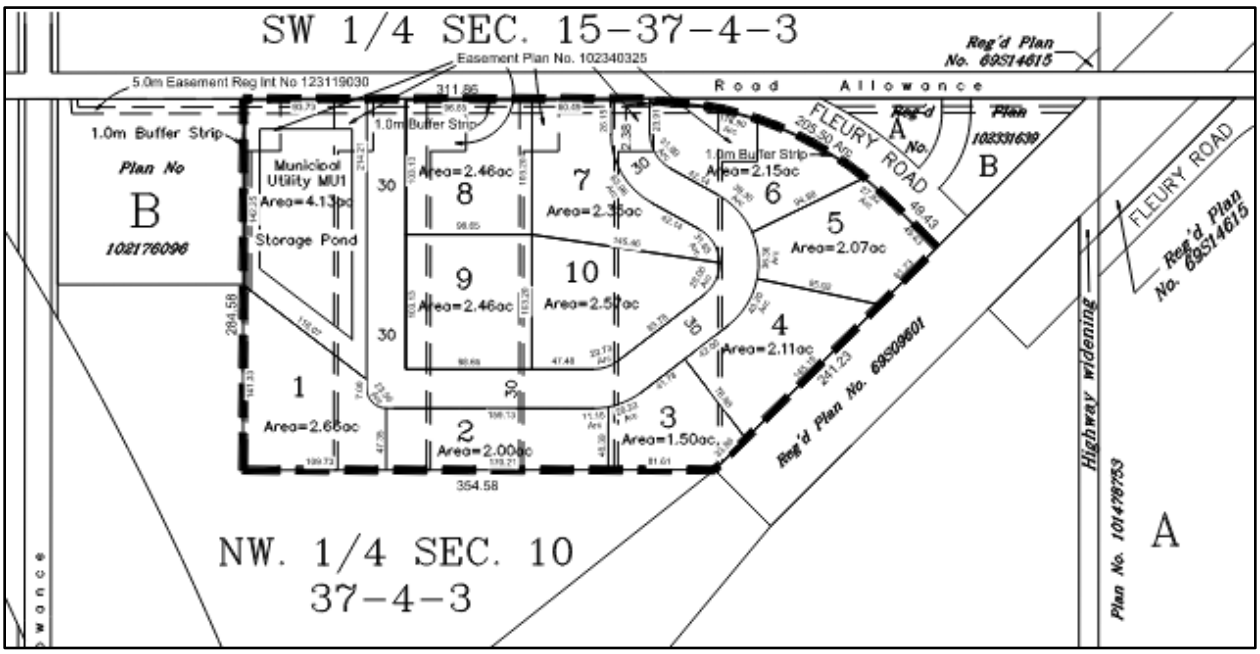


Figure 2.0 – Plan of Proposed Subdivision