

# **Nisku Business Generator Park Outline Plan**

**Leduc County**

Project Number: 2013-110

Prepared for Nickel Properties Inc.

February 25, 2014

Prepared by Invistec Consulting LTD.



# Nisku Business Generator Outline Plan

## Leduc County

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1.1 Purpose	<p>Leduc County is experiencing significant growth in the Nisku Business Park area, a trend that is expected to continue in the foreseeable future. In response to the demand for industrial and manufacturing opportunities this area offers, the proponent has provided a comprehensive design plan for Nisku Business Generator Park. The Outline Plan conforms to the policies and intent of the MDP, Capital Region Plan and North Major Area Structure Plan.</p> <p>A Business Generator is an incubation program for new manufacturing companies and entrepreneurs with new product ideas. The program helps support these new companies through education and shared resources to nurture successful businesses.</p> <p>The purpose of this Outline Plan is to establish a land use framework and servicing concept for the Nisku Business Generator Park. The Nisku Business Generator development concept includes manufacturing business incubation with: manufacturing buildings, a general industrial area and support service buildings.</p>
1.2 Policy Framework	<p>The Leduc County Municipal Development Plan (MDP) outlines the broad policies for guiding growth and changes in the County. The Nisku Business Generator Park is located within the North Major Area Structure Plan. The MDP states that its use is for conceptual framework purposes and boundaries are not set, therefore, the approval of this plan will not require any MDP amendments.</p> <p><b>MDP Objectives:</b></p> <ul style="list-style-type: none"><li>• A compatible and harmonious land development pattern</li><li>• Strong and sustained economic growth and tax base</li><li>• Protection of significant environmental areas and prevention of land, water, air, noise and visual protection</li></ul>
1.2.1 Municipal Development Plan	

# Nisku Business Generator Outline Plan

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**1.2.2**  
**Leduc County**  
**North Major**  
**Area Structure**  
**Plan**

The Nisku Business Generator Outline Plan is consistent with the Leduc County North Major Area Structure Plan. The Outline Plan is identified in the Business Park area and proposes an Industrial – Business Park.

**North Major ASP Objectives:**

Section 2.2.2

*“To promote economic growth which contributes to the financial sustainability of the County.”*

Nisku Business Generator strives to support new manufacturing and business uses. This will attract new investments and improve the economic and employment base of the Nisku Business Park.

Section 2.2.4

*“To conserve the environment of the plan area, especially significant sensitive areas and features.”*

Irvine Creek runs along the south east property line of the subject land. The creek and environmentally sensitive area around the creek has been previously dedicated as Environmental Reserve via subdivision plan (2006).

**North Major ASP Policies:**

Section 7.1.6

*“In the Business Park Area, development adjacent to the residential area to the east must be designed to buffer the business park development from the residential area. This will include extensive site landscaping to screen the business park area, such landscaping to incorporate a linked, treed trail way corridor.”*

The Nisku Business Generator Outline plans for two land uses; Industrial (IND) to the north west and Manufacturing and Business Incubation (MB) in the south east. An internal road bisect the two land uses, this road is a boundary and transition for both areas. The Manufacturing and Business Incubation district is a compatible transition use next to the residential area on the east. All manufacturing in this district are indoors and yards are landscaped to provide a visual buffer. Irvine Creek is directly south of the MB district this also acts as a natural buffer for residents to the east of the Plan area.

**1.3**  
**Interpretation**

All map symbols, locations, and boundaries contained within The Nisku Business Generator Outline Plan (referred to as the Plan) shall be interpreted as approximate unless otherwise specified within the Plan.

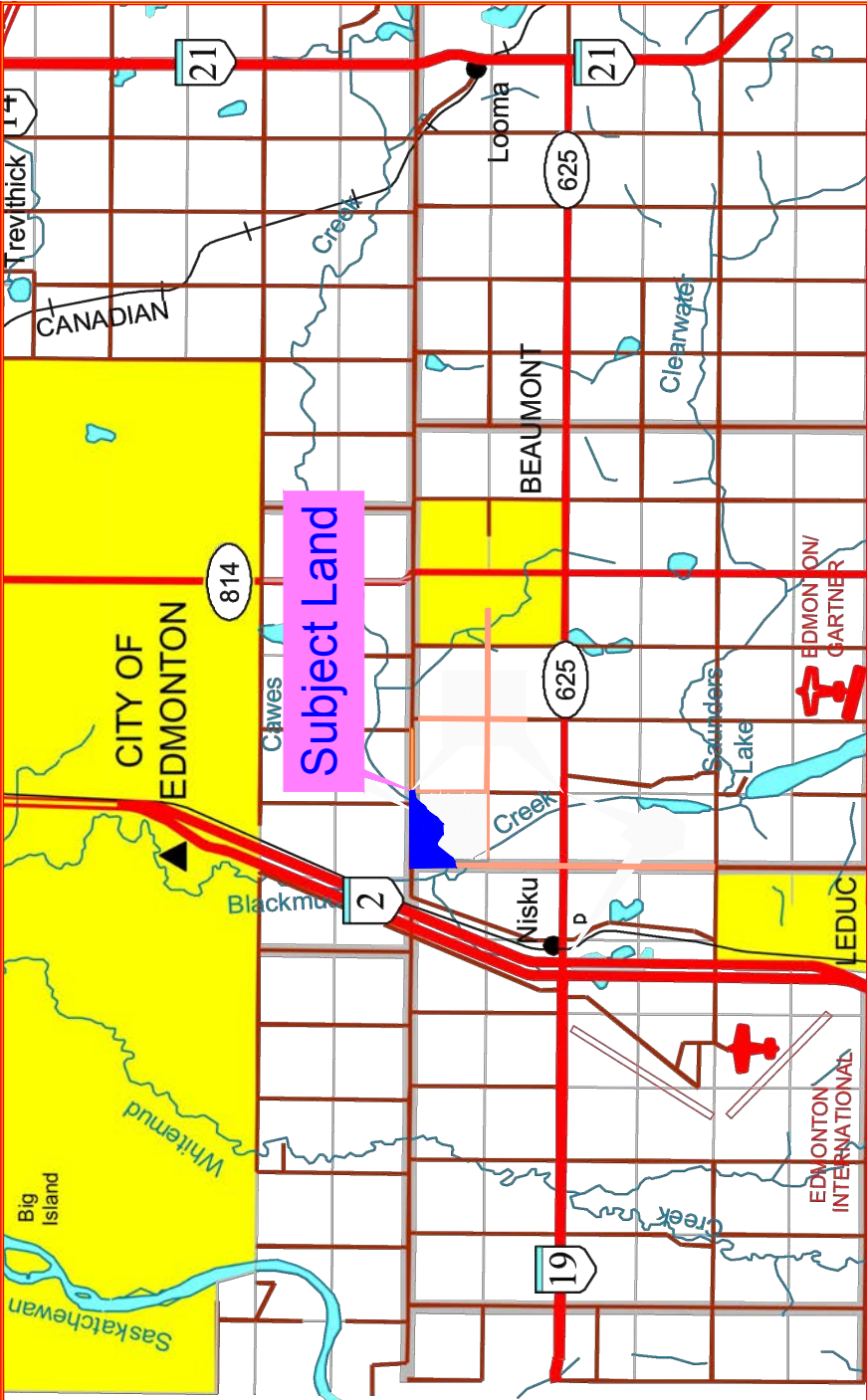
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<b>2.0 Plan Context</b>	
<b>2.1 Location</b>	<p>The Plan area is located within a portion of the NE-31-50-24-W4M in Leduc County, Alberta. The Plan Area is bound:</p> <ul style="list-style-type: none"><li>• Range Road 510 to the north</li><li>• Irvine Creek to the southeast</li><li>• Future spine road to the west.</li></ul> <p>The approximate area of the site is 32 ac. Shown on Figure 1.0 – Location Plan</p>
<b>2.2 Background</b>	<p>The property is currently zoned as Direct Control Industrial. There are two existing buildings on the property, which was developed under the approval from Leduc County. Both buildings will be incorporated into the development concept.</p>
<b>2.3 Land Ownership</b>	<p>This property is owned by Nickel Properties Inc. who is committed to creating a high quality, attractive, and sustainable Business Generator Park while carefully considering the constraints and opportunities of the area.</p>

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Nisku Business Generator Park Outline Plan  
Leduc County

Figure 1: Location Plan



Pin. of NW¼ Sec. 31-50-24-W4M  
Scale: NTS  
July 11, 2013

**INVISTEC**



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### 2.4 Site Context

#### 2.4.1 Topography

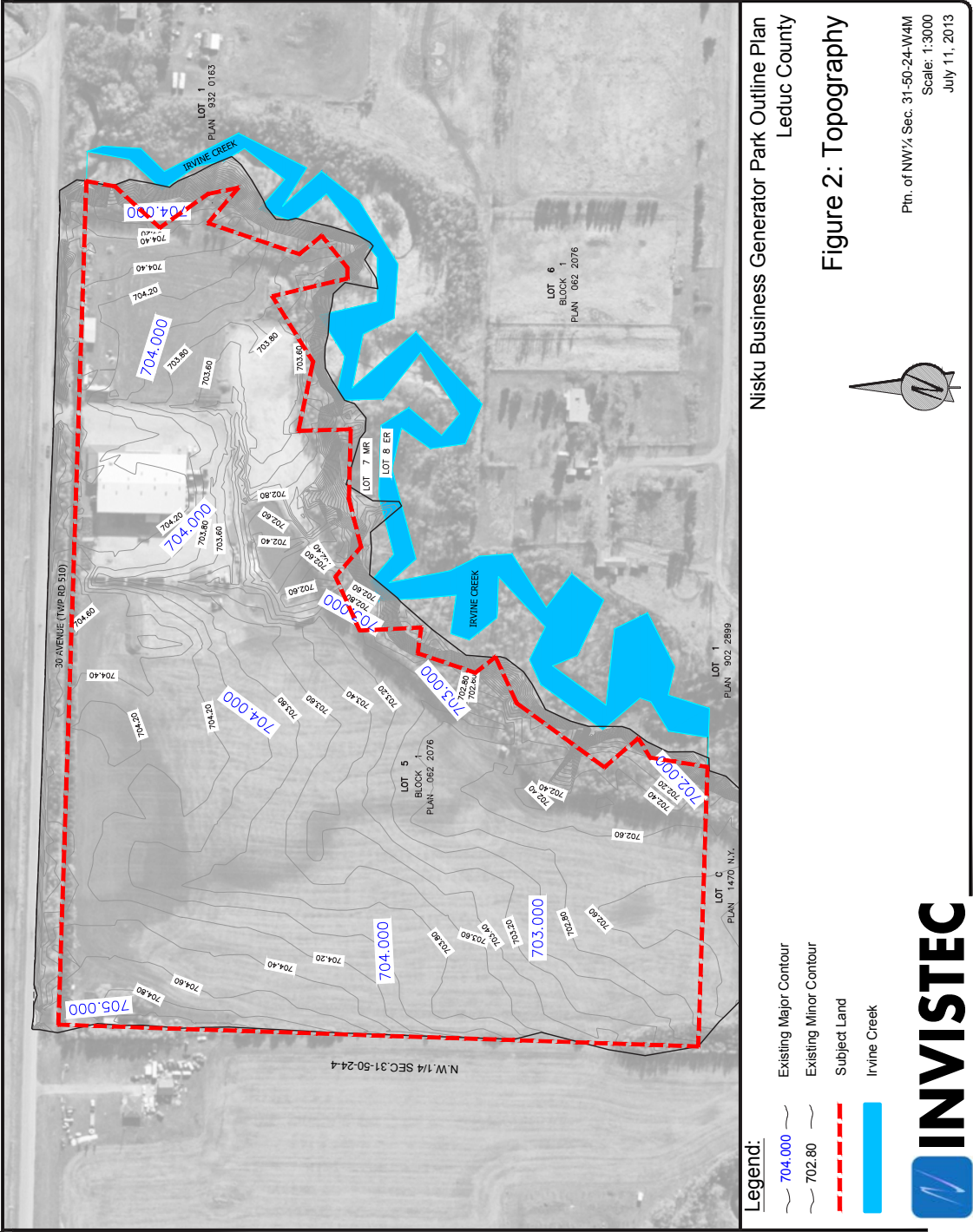
The topography of the proposed Nisku Business Generator Park is divided into two parts. Stormwater from the east portion generally drains towards the existing storm pond to the south, while the west portion is relatively flat with an average slope of approximately 1% towards the southeast to the top of the ravine. (Figure 2 – Topography).

The highest point on the subject site with an elevation of 705.4 m is located at the north-west corner, while the lowest point with an elevation of around 698 m is situated in the existing natural ditch connecting to Irvine Creek in the south-west corner.



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### 2.4.2

#### **Environmental Site Assessment**

A Phase One Environmental Site Assessment (ESA) was completed for the Plan Area by Eco Mark LTD in February 2006. The Environmental Site Assessment was reviewed in June 2013 and no significant change to the area from 2006 assessment was found, therefore no update is required. The Environmental Assessment reviewed the current and historic land uses of the site and surrounding area to determine if there was any contamination to the Plan Area. The ESA stated that no visible evidence of negative environmental impact was present and that no further studies are required.

### 2.4.3

#### **Geotechnical Evaluation**

A geotechnical investigation has been completed by CT and Associates on July 2013. It is determined by CT and Associates that the site is suitable for industrial development. A full report has been provided under separate cover.



# Nisku Business Generator Outline Plan

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### 3.0 Land Use

#### 3.1 Visions and Principles

Nisku Business Generator Park concept was derived from a challenge to “think more holistically about business, the environment and our personal lives.” This Outline Plan synthesizes and puts into practice various concepts and technologies to realize this vision.

The principle of the Outline Plan is to provide an incubator development for new, manufacturing and business uses. The development will be designed to functionally link technological innovations and social infrastructure to provide a superior environment for business and product creation.

#### 3.2 Business Generator Concept

The concept of the Nisku Business Generator (NBG) is to provide a steady flow of new, successful manufacturing companies, entrepreneurs and new product ideas. This section outlines the components needed to create a successful Business Generator. It is hoped that through the Nisku Business Generators success, other communities will replicate these strategies within their own communities.

The components of the NBG can be categorized as the following:

1. Living, Working and Interactions
2. Sharing
3. Education, training and mentoring
4. Environmental Responsibility

#### Living, Working and Interactions

In countless communities across Canada, individual entrepreneurs are combining their residence and work on one site. The NBG proposes to develop this concept to allow it to aid in business incubation. Shop space can be situated near residential space. Residential space will be integrated with office space in such a way as to provide malleability in use and function. Benefits will include lower start up costs and better utilization of commute time. Integration of work and home life, when properly managed, can improve transfer of knowledge, skills, and attitudes.

Site selection and site design are critical to encouraging entrepreneurial start-ups and maintaining morale in the face of business challenges.

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### Sharing

There is currently only one business generator in Canada that is exclusively focused on developing manufacturing. It is currently located in Drummondville, Quebec. It consists of one building. Incubation sites rely on the sharing of infrastructure and services to reduce costs to their participants. The NBG will attempt to do this on a much larger scale. Living on site with multiple buildings and spaces will effectively form a complete manufacturing entrepreneurial campus.

### Infrastructure

Buildings need to be designed to be malleable, allowing for easy accommodation to the businesses' needs. NBG goal in building and site design is to increase social and business interactions, improve morale and business synergy. This requires open spans, clear floor space, electrical wiring and other modifications in building design. Communal yard working space and storage space that can be rented for occasional use, thus allowing small business participation in contracts that they may normally be barred from due to lack of the capital for full purchase of yard space.

### Equipment

Communal use of loading docks, forklifts, compressed air, cranes, and other items and equipment needed for manufacturing activities. Communal use of photo studio and technologies to support internet marketing of their manufactured products.

### Utilities

Shared use of investments in utilities and utility saving technologies that would not be possible for a short-term rental situation. Examples include upgraded building insulation, LED lighting, installation of solar panels and solar walls, co-generation of power and district heating.

Shared uses of these items can help reduce the startup and operating costs of new businesses, thus allowing new businesses to be more financially sustainable.

### Education, Training and Mentoring

A critical component of the NBG is the requirement that participants engage in education, training, and mentoring as a condition for participation in the incubator. Living, sharing, and environmental actions undertaken by NBG will afford incubator participants considerable savings in both time and money. Incubation participants will be expected to invest some of those savings into their own personal development. Incubator entrants will undergo diagnostic assessments and, as a condition of their lease, they will be expected to successfully upgrade key business skill sets that may be lacking.

# Nisku Business Generator Outline Plan

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### Environmental Responsibility

A holistic approach necessitates interaction with the natural environment as well as the social and business environments. This project will attempt where feasible to integrate the following technologies within the business incubation process.

1. Cogeneration technologies of onsite power and heat distribution
2. Active and passive solar power
3. Waste energy distribution for heating/cooling of buildings
4. Bio Swales
5. “Utilitor” provision of utility services, garbage collection and recycling
6. Energy efficient construction technologies
7. Community garden spaces
8. Urban roof top food production technologies
9. Natural methods of pest control (eg: dragonfly hatcheries)
10. Green Corridors, walking paths, and unique use of food producing foliage within a business district
11. Permeable parking areas
12. Grey water reuse and distribution methods
13. LED lighting
14. Special attention to the integration of the five senses within the development and their effects on motivation and creativity.

### 3.3 Site Design

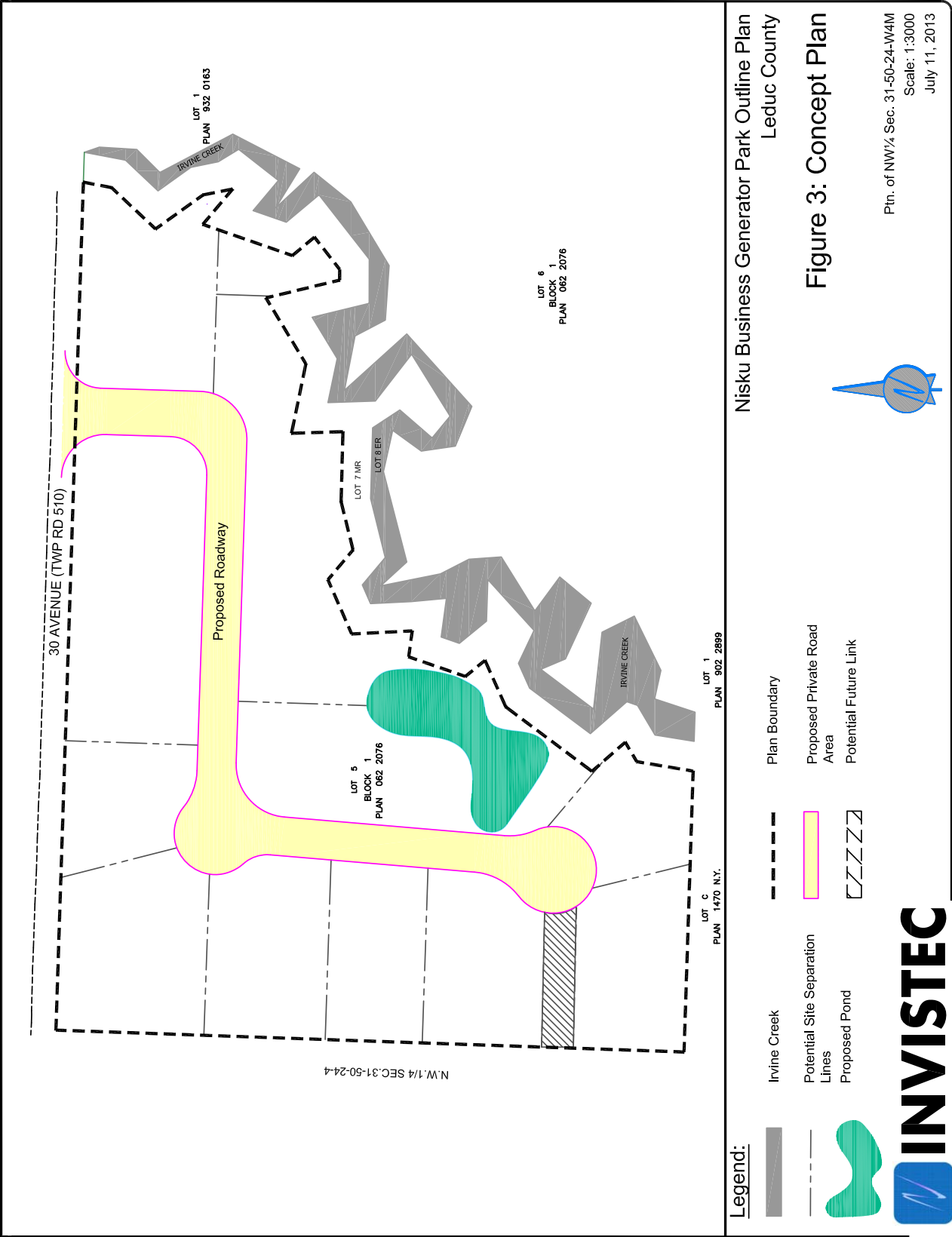
This Concept Plan has considered the following factors:

- Provide a range of land uses industrial and Manufacturing Business Incubation
- Satisfaction of municipal requirements
- Consistency with surrounding existing industrial uses

The overall design for Nisku Business Generator Park is shown in Figure 3 - Concept Plan. The concept features efficient use of land and a roadway pattern that maximizes developable land while conserving environmentally sensitive land.

# Nisku Business Generator Outline Plan

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# Nisku Business Generator Outline Plan

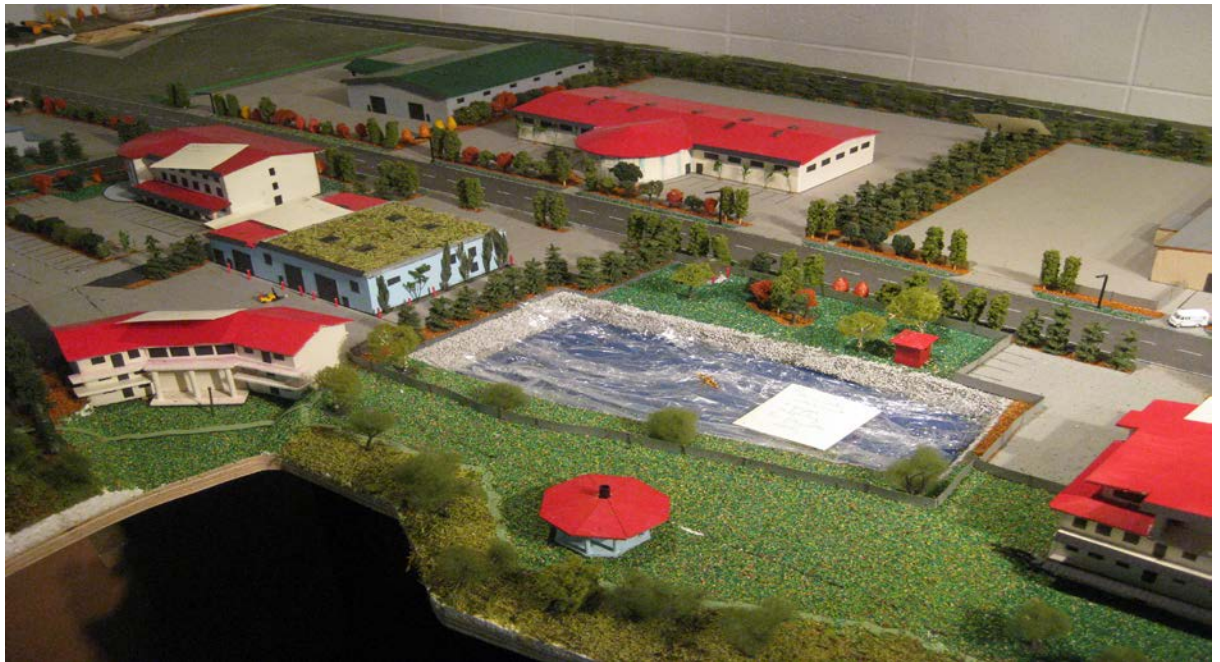
## Leduc County

### 3.3.1 Redistricting

The Plan area is currently zoned Direct Control Industrial under Bylaw 1665-83 (DC). The proposed redistricting is Industrial District to the north west of the internal road and Manufacturing Business Incubation District in the south east portion.

Industrial (IND) District allows for industrial uses, logistics, manufacturing and greater flexibility of outdoor storage.

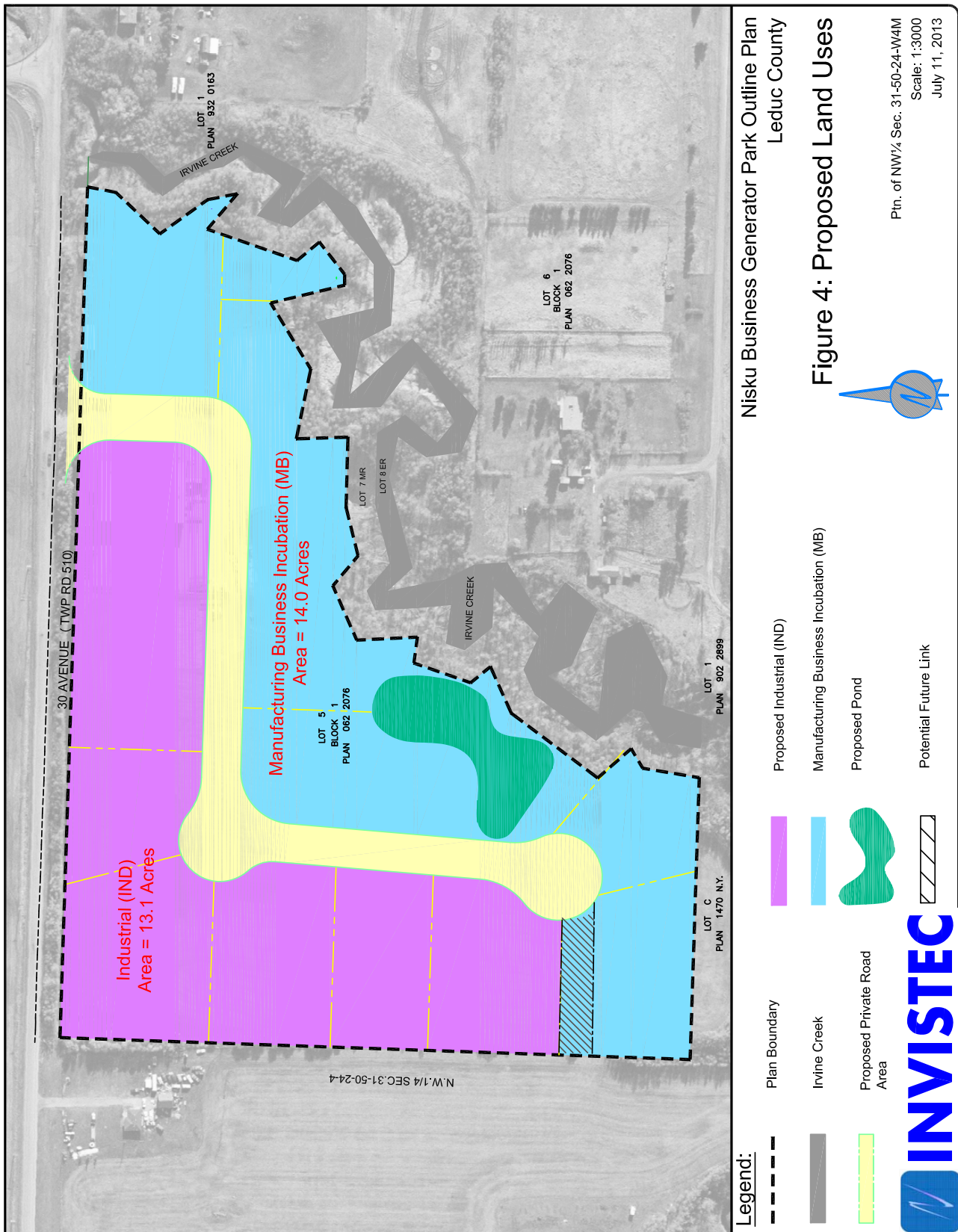
The Manufacturing Business Incubation (MB) District allows for development of a wide array of manufacturing, business/corporate offices, mixed use residential/offices, and retail/commercial accommodations. Most of the Nisku Business Generator operations will be in this district, the buildings will be developed to provide business support, education, mixed use residential/office, indoor manufacturing. All of the uses in this district will operate in such a way as to not create any disturbance outside of the enclosed buildings and to be compatible with all adjacent land uses.





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**3.3.2**  
**Connectivity**

Nisku Business Generator Park Outline plan strongly advocates connectivity and walkability. A walking trail will be proposed along the Environmental Reserve lands and is intended to be utilized for passive recreation amenities. Multi-use trails or walk way is also planned along both sides of the internal road to encourage walkability on-site. Those trails will ultimately connect to the trails along TWP Road 510. The general connectivity is show in Figure 5 – Connectivity.

**3.3.3**  
**Sustainability**

Nisku Business Generator Outline Plan has been developed with the pillars of Sustainability: Environment, Economic and Social.

The Plan Area takes a holistic approach to interaction between the environment, economics and social factors. The Nisku Business Generator shall consider a number of sustainable development practices: Bio- swales, community garden plots, waste energy distribution for heating/cooling of buildings, and active and passive solar power.

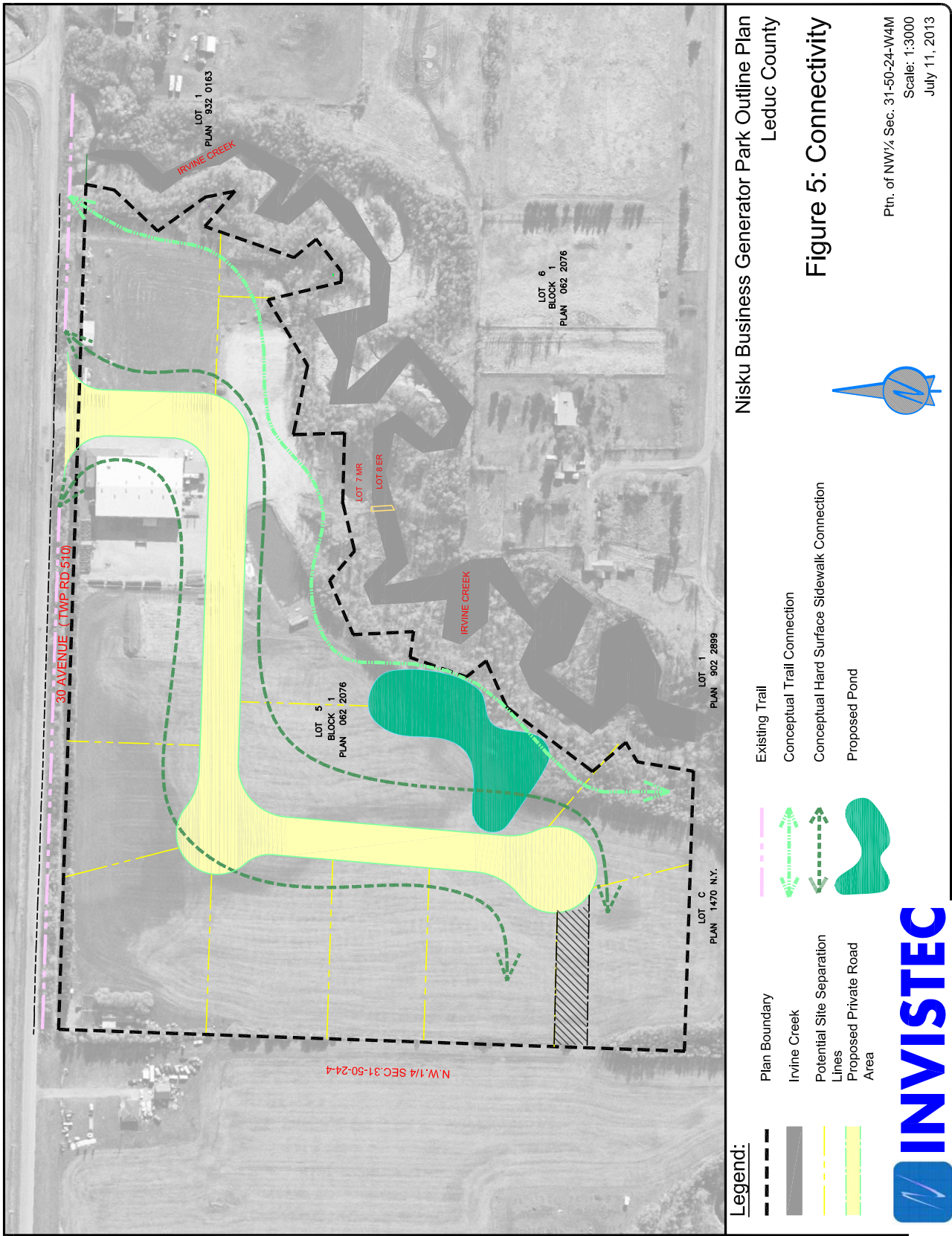
Nisku Business Generator will partner with educational institutions which are key providers of business and manufacturing education services. This educational program will create a strong social network for new business. The businesses in the Plan Area will share infrastructure and services to reduce costs and create synergies. The creation of strong social networks and business synergies will promote a sustainable economic and social industrial park.

**3.4**  
**Public**  
**Consultation**

The Outline Plan will be developed with Public Consultation throughout the process. A Public Meeting will be held after the first draft is complete.

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4.0  
Servicing

4.1  
Transportation

**Access**

The proposed Nisku Business Generator Park is immediately south of Township Road 510 and west of future Nisku Spine Road (9th St.). The alignment of 9th St. is conceptual at the time when this report is prepared, and it is schematically shown on Figure 6 - Transportation. Township Road 510 has been identified by Leduc County as a future 4-lane arterial road. An intersection is being proposed at Range Road 244 North and Township Road 510. This will provide the main access to the plan area as indicated in the Township Road 510 Functional Planning Study (Associated Engineering, 2009). The realigned Range Road 244 immediately north of the plan area is designated as a minor arterial road.

An emergency access is proposed along the north property line to provide a second access to the site in case of an emergency situation.

**Internal Roadway**

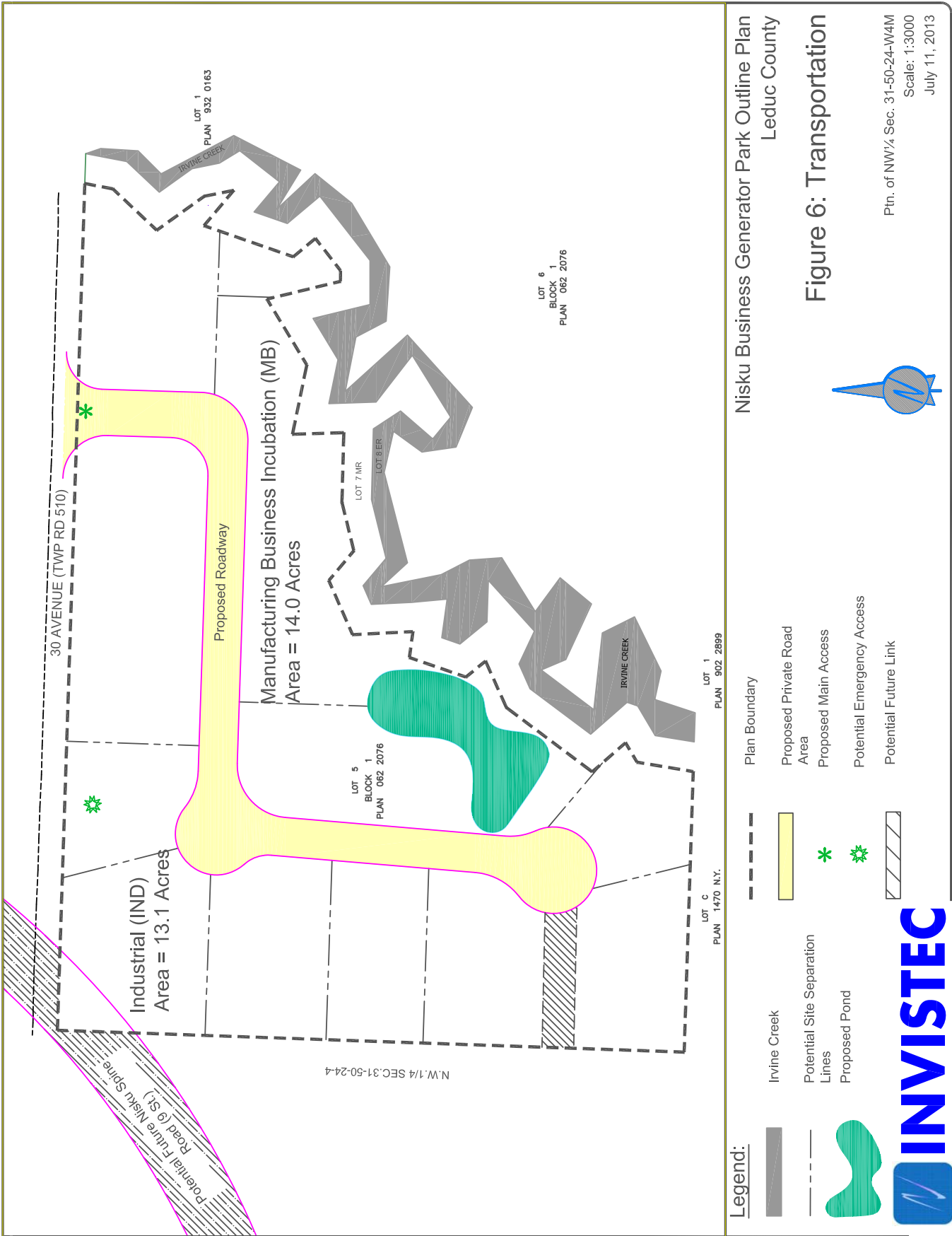
The proposed internal road within the plan area will function as the main transportation corridor. This road proposed a 24.0 m right-of-way with a 3.5 m wide lane in each direction. Drainage ditches and sidewalks will be provided on both sides of the roadway, as illustrated on Figure 7 – Conceptual Private Industrial Roadway Cross Section.

Since the land owner has no intention to further subdivide the land at the time this Outline plan was prepared. The internal roadway will be considered as a private transportation system. The components of the proposed internal roadway meets all the requirements of County design standards. Roadway width and turning radii have been considered in the design and modelled using AutoTurn software to accommodate the turning maneuvers of large vehicles.



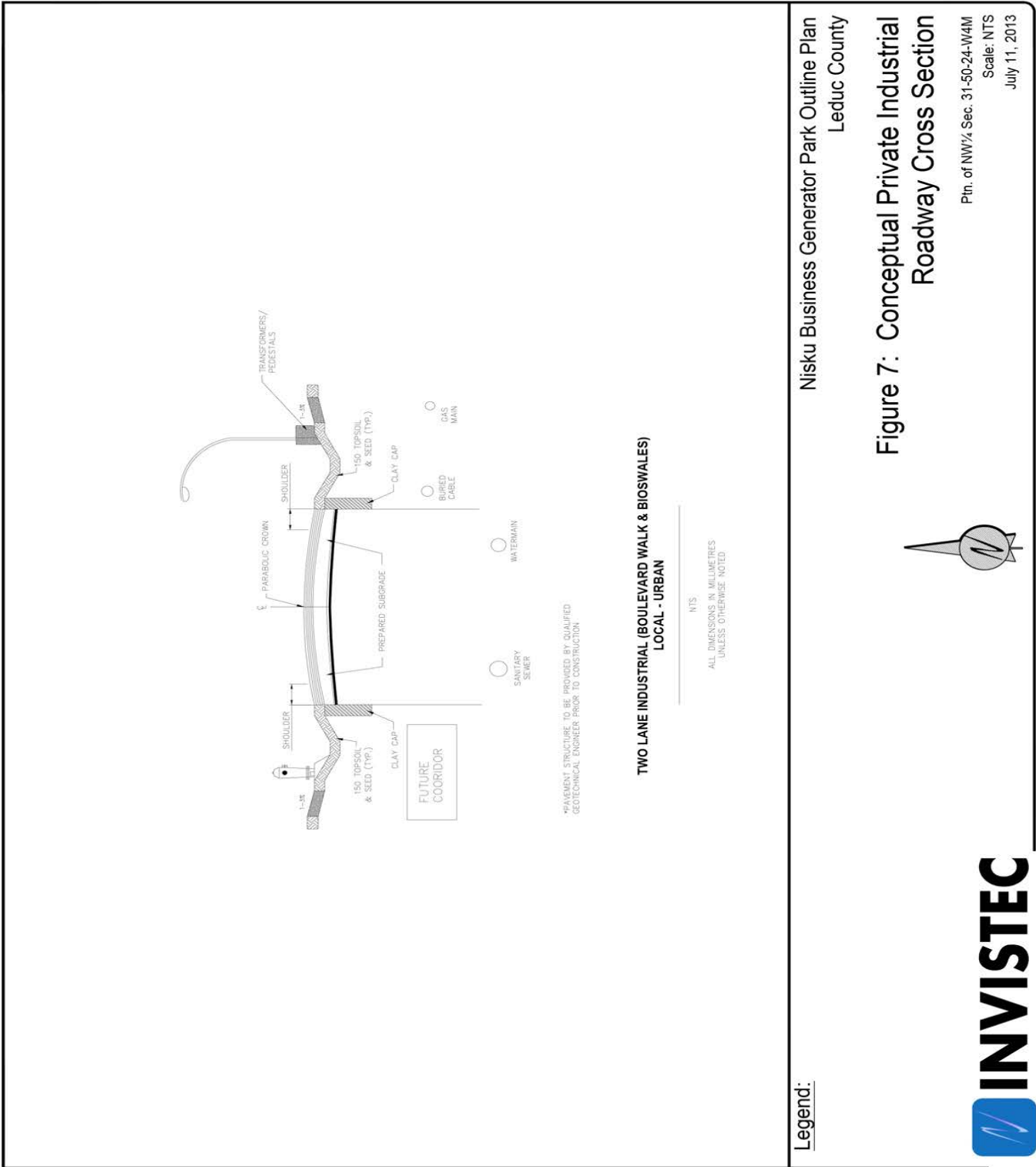
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### 4.1 Transportation

#### Traffic Impact

The most recent traffic analysis available was included in the Township Road 510 Functional Planning Study. This study addressed the traffic impact of the surrounding developments along Township Road 510. The majority of the trip generation, distribution, and assignment were estimated based on the existing land uses at the time of the study. Stop controlled intersection has been recommended at the northerly access to the plan area.

There are no regional planning studies completed for the area north of Township Road 510. Future planning of the surrounding lands may require additional review to verify as to whether signalization or other improvements are warranted.



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### 4.2 Storm Water Management

The drainage pattern in the subject site is generally divided into east and west basins, as demonstrated by the major flow arrows shown on Figure 8 – Existing Drainage Systems. Runoff within the east basin is routed along the existing ditches and culvert crossings to the existing interim pond. The interim pond was designed and constructed by the land owner after receiving development approval from Leduc County. An existing nature outlet based on the existing topography drains the stormwater from the pond to Irvine Creek.

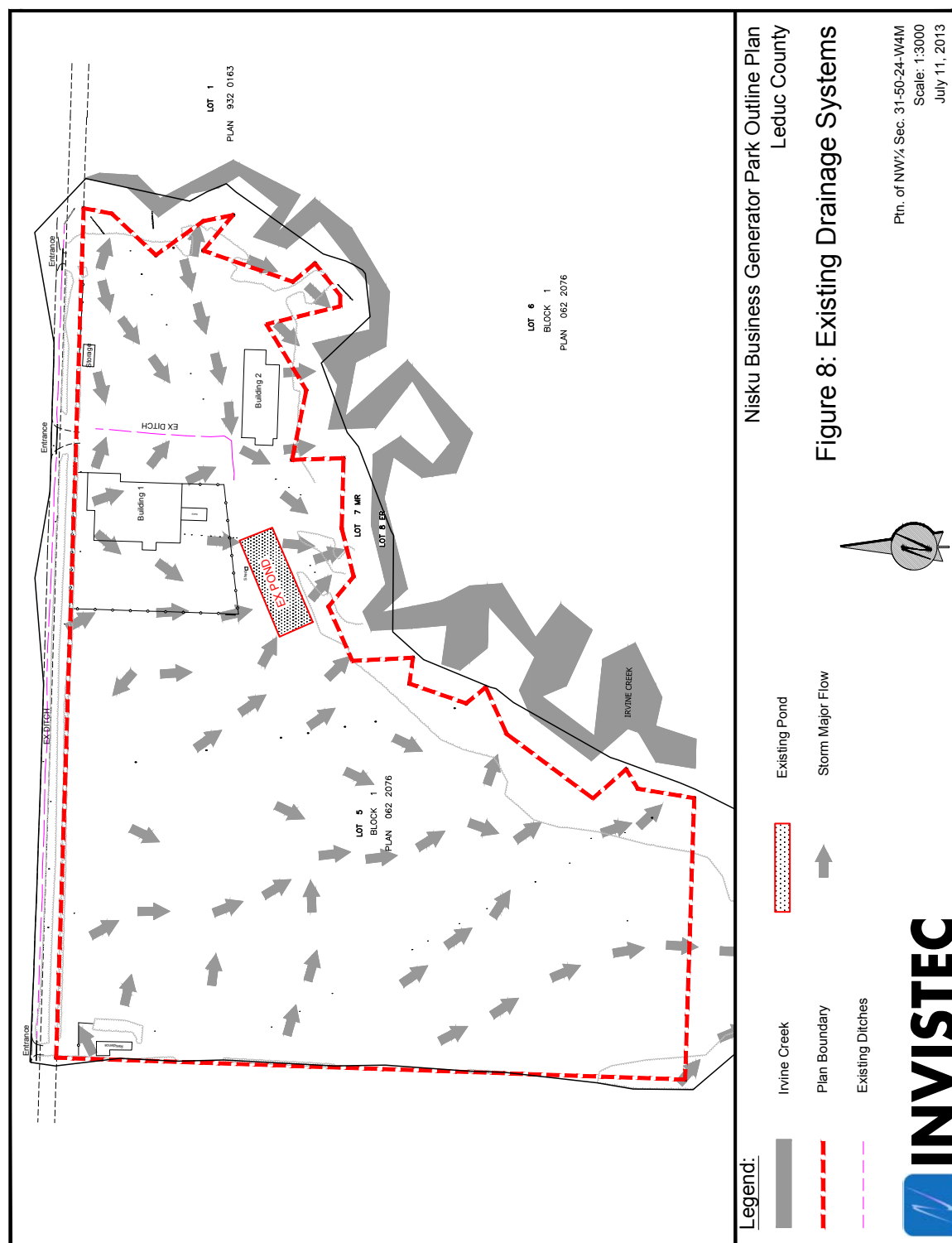
The existing pond will serve as an interim pond for the existing development on the east portion of the plan area. It will be replaced by a permanent storm pond as shown on Figure 9 – Storm Servicing. Runoff from the west portion of the plan area naturally flows along the existing grades from the high points on the north to the low points in the existing ditches within the south-east boundary, and ultimately to Irvine Creek.

Stormwater servicing of this industrial development area consists of dual drainage systems: minor (roadside and parcel swales) and major (overland drainage) storm systems. The runoff from roadway and individual parcels will be conveyed through a combination of bioswales, culverts and ditches to the proposed stormwater management facility located in the south-east portion of the site, ultimately discharge to the Irvine Creek through a naturalized outfall, as shown on Figure 9. The discharge rate will be consistent with the predevelopment flow rate to Irvine Creek to mitigate any potential adverse impacts to the downstream water courses.

Bioswales will be proposed along both sides of the internal roadway and through the development area. Bioswales will be designed to trap silt and pollutants from surface runoff water, before releasing to the pond. Approximately 2.5 m active depth, the storm pond is able to hold approximately 12,000 cub.m of on-site stormwater and accommodate storm events up to 1:100 years. Two inlet pipes will connect the bioswales to the pond, and a naturalized outfall water will release water to Irvine Creek. The proposed permanent storm pond will intercept the stormwater flow from the development and pre-treat it to address water quality prior to discharging to Irvine Creek. In compliance with Provincial guidelines related to stormwater quality, the pond will be graded and designed to apply necessary sediment controls around this facility.

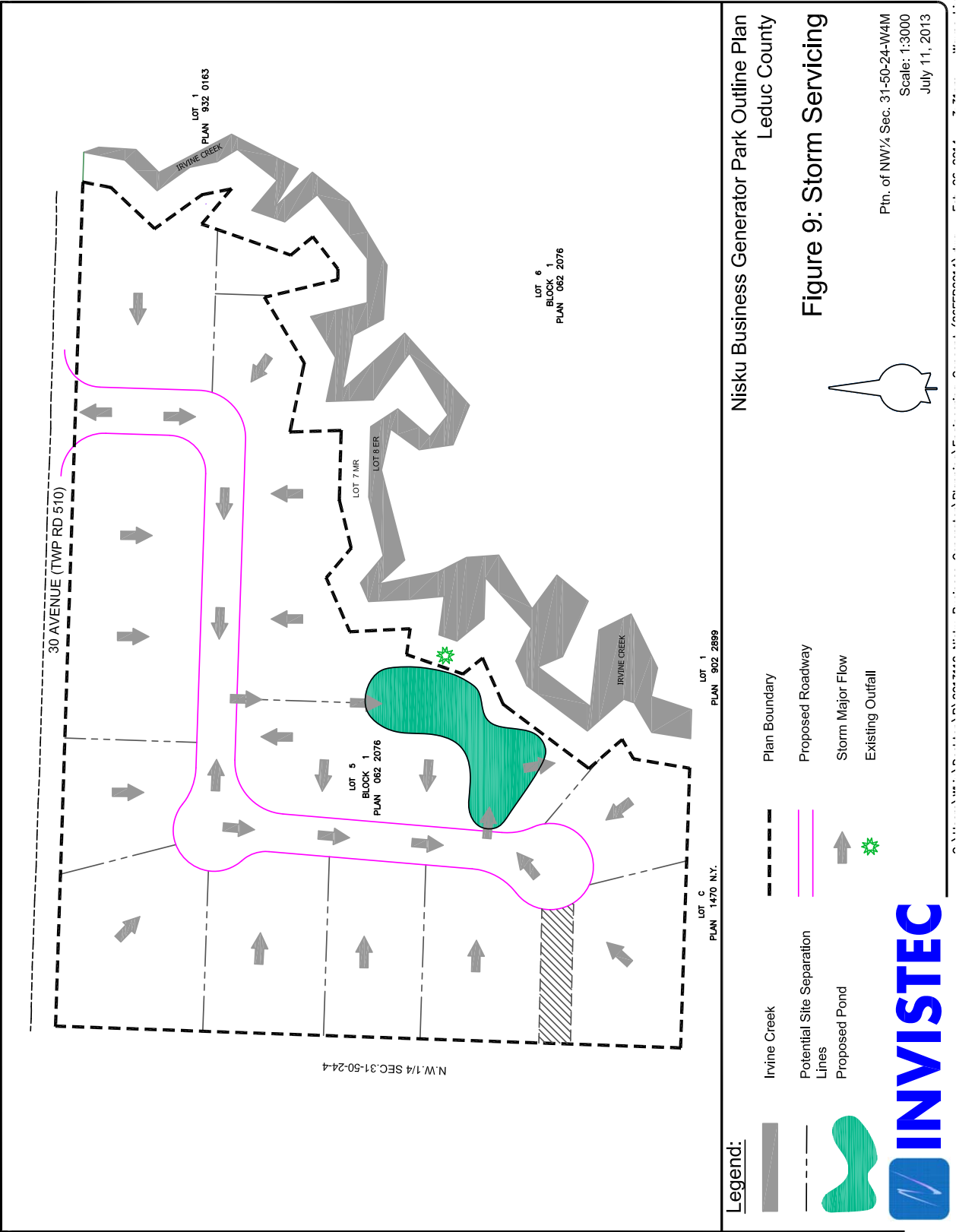


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### 4.3 Sanitary Servicng

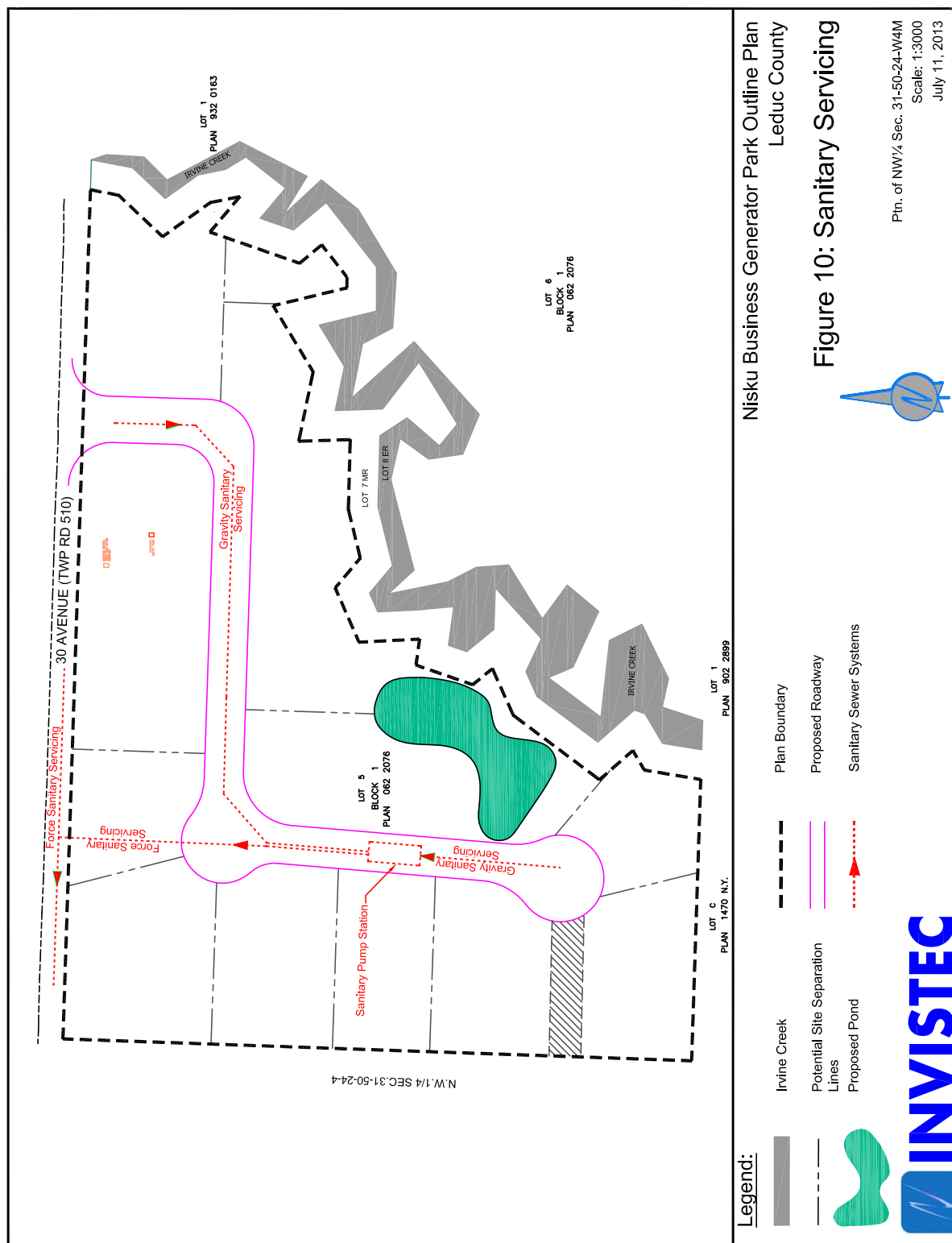
The plan area will be serviced via a conventional gravity sewer system which will tie to the proposed sanitary pump station, as shown on Figure 9 – Sanitary Servicing. Force mains will connect the pump station to the main sanitary truck line located on Township Road 510. The gravity sanitary system will be designed utilizing the Leduc County Design Guidelines and Construction Standards.

At the time this Outline plan was prepared, Leduc County does not have a master plan in place for this area in terms of sewer strategy.

Within the interim, on-site sewer storage and mobile disposal system may be utilized to accommodate the immediate development needs, while Leduc County develops a Regional Sewer Strategy.



## Leduc County



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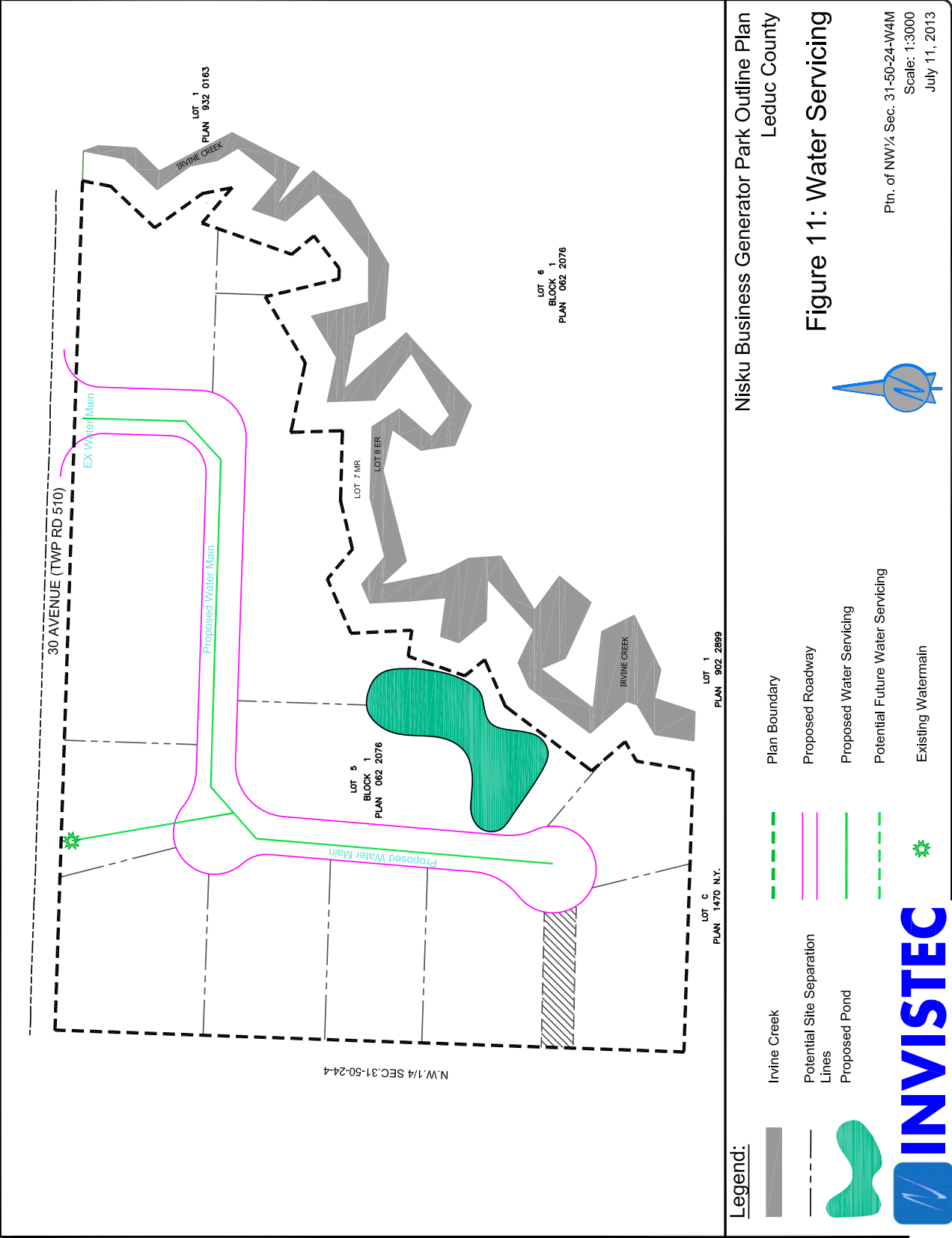
**4.4**  
**Water**  
**Servicng**

The proposed water system will be extended from the existing water main located along Township Road 510 at the north boundary. The proposed alignment of the future water main will be within the internal road right-of-way, as illustrated on Figure 11 – Water Servicing. A water loop will be provided at the north west side of the subject parcel. The water servicing system design will follow the Leduc County Design Guildelines and Construction Standards.

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### 5.0 Implementation

### 5.1 General Staging

The general staging trend will be from east to west and from north to south. This is supported by the logical extension of the required infrastructure and financial resources. Figure 12 – Phasing presented a general staging scenario. The exact staging of the project will be decided and implemented at a later date, based on the market demand, economic and other factors at the time of development.



# Nisku Business Generator Outline Plan

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