

Queens Business Park NE 35 & SE 35 Industrial Area Structure Plan

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1. INTRODUCTION

1.1 Purpose

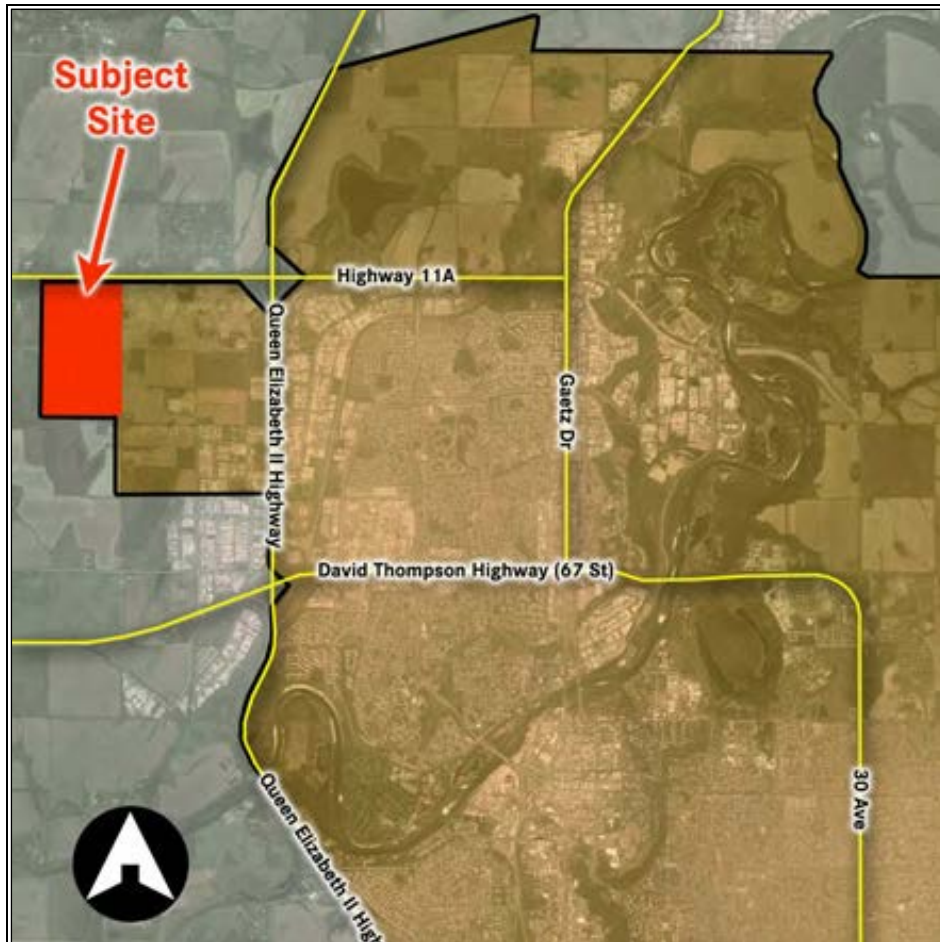
The plan is intended as an Industrial Area Structure Plan (IASP) for NE & SE 35-38-28-W4, located within the ***West QE2 Major Area Structure Plan***. IASPs for industrial subdivisions, generally covering one (1) or more quarter section of development, are prepared by developers to demonstrate the proposed application of the Major Area Structure Plan (MASP), Council policy, and Municipal and Intermunicipal Development Plans.

This plan describes the sequence of development, industrial land uses and location of transportation routes and utilities within the plan area, guided by the ***West QE2 Major Area Structure Plan***.

1.2 Area Location

As illustrated in Image 1, the plan area is comprised of two (2) quarter sections of land totalling 125.78 hectares (310.8 acres). It is located west of the Queen Elizabeth II Highway and south of Highway 11A, within NE 35-38-28-W4 and SE 35-38-28-W4, along the western boundary of the City of Red Deer. The subject lands are presently owned by the City of Red Deer.

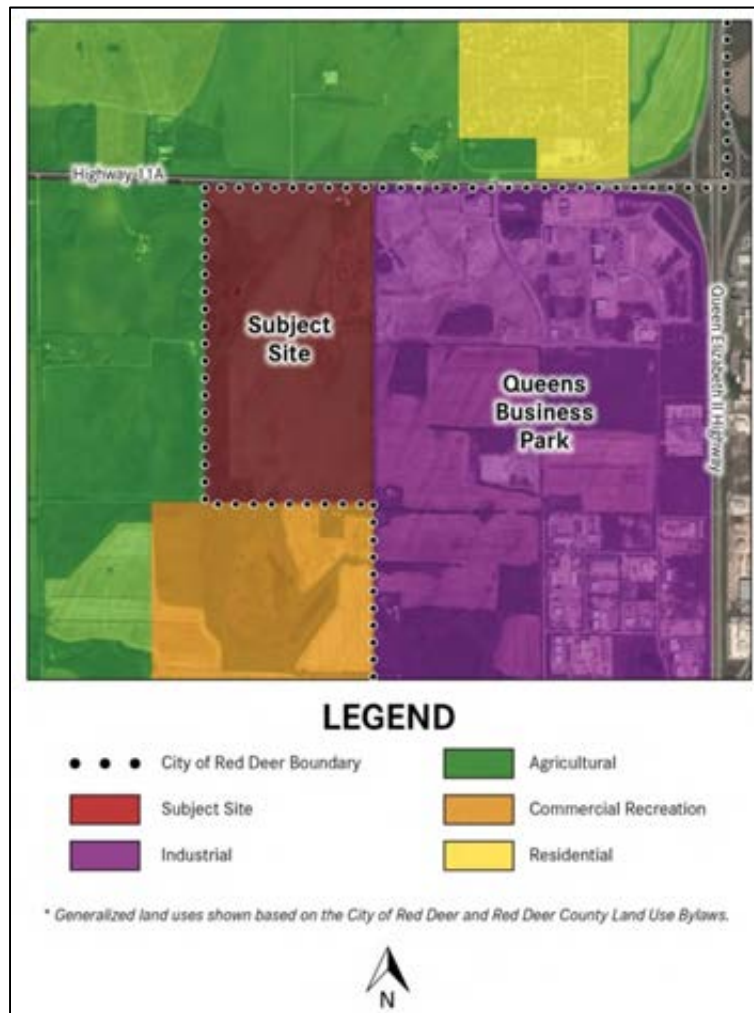
Image 1: Site Location



1.3 Surrounding Land Uses

The property is currently used for agricultural purposes and features an existing homestead in the northeast corner. Immediately south of the homestead is a natural wetland measuring approximately 13.1 hectares (32.3 acres) in area. The property is bounded to the east by previously approved phases of Queens Business Park. Abutting properties to the north, south and west of the subject site are currently within Red Deer County but located in the City's intended Growth Boundary. This means they are planned to be annexed by the City at some point in the future. These adjacent properties are currently designated by the County for Agricultural and Commercial Recreation uses, though the City may change the designation upon annexing them. A 2.5 metre high berm with landscaping and/or a sound wall has been included as part of the street cross section for the undivided arterial road along the southern boundary. As part of the servicing study, a noise analysis will be conducted and submitted by the Developer to determine the extent of required sound attenuation. Image 2 highlights the land uses surrounding the subject property based on the Land Use Bylaws of both the City and County.

Image 2: Surrounding Land Uses



1.4 Planning Framework

The Queens Business Park (NE & SE 35-38-28 W4) Industrial Area Structure Plan (IASP) will be adopted by the City as a statutory plan in accordance with Section 633 of the ***Municipal Government Act (MGA)***. This Section of the *MGA* describes Area Structure Plans (ASP) as providing the framework for the subsequent subdivision and development of an area of land. Additionally, the *MGA* stipulates that ASPs must describe the sequence of development, land uses and location of transportation routes and utilities for the proposed area.

The Queens Business Park (NE & SE 35-38-28 W4) IASP implements the scope and intent of the City of Red Deer's **West QE2 Major Area Structure Plan, Industrial Planning Guidelines & Standards**, and the **Regional Ecological Profile – Proposed Industrial Lands and Associated Natural Areas (2005/2007)**.

The **West QE2 Major Area Structure Plan** indicates that Queens Business Park should be a primarily industrial area. The Queens Business Park (NE & SE 35-38-28 W4) IASP proposed land uses for the plan area generally conform to those included in the **West QE2 Major Area Structure Plan**.

The **Regional Ecological Profile – Proposed Industrial Lands and Associated Natural Areas (2005/2007)** provides a detailed overview of the natural environmental features within the plan area along with recommendations for their preservation. In addition, the City of Red Deer's **Industrial Planning Guidelines & Standards** provides guidelines and standards based on Smart Growth principles for the planning and design of industrial areas, including the natural environment, land use, roadways, servicing, heritage, and safety. This document provides the requirements for IASPs and the subdivision approval process.

2. EXISTING SITE CHARACTERISTICS

2.1 Site Description

The majority of the site consists of agricultural land and a large natural wetland, along with an existing tree stand located along the west boundary in NE 35. An existing residential acreage is located in the northeast corner of NE 35. The site elevation ranges from 923m in the northeast corner of NE35, down to 917m at the existing wetland, and 916m in the southwest corner of SE 35. The majority of the site drains to the existing wetland along the east side of NE 35, while the southwest corner of SE 35 drains southwards to a natural wetland located in NE 26.

2.2 Soils

A desktop soils review was undertaken for the subject properties. This assessment was based on data gathered as part of previously drilled wells on the subject and adjacent properties. Soils are generally luvisolic material with the surface ranging from mineral to isolated but there is a significant site with organic soils. Well drill lithology for water wells indicates the underlying strata to be a till or clay till material for the upper 5 m to 15 m with shale layers developing with depth. Shale is encountered in the 20 m to 30 m range with layering evident. The shale is intermixed with till and clay based soils.

No evidence of shallow aquifers was noted in the data gathered as part of previous wells. Saturated surface conditions do occur in the areas indicated as wetlands in the *Regional Ecological Profile - Proposed Industrial Lands & Associated Natural Areas (2005/2007)*. There have been several developments on adjacent lands which should have been categorized in the updates to this same document. The version made available to WSP for reference does not indicate these changes.

There are no surface indications of soil instability from slides or slumps in the area. Surface saturated sites do exist and these areas are typically highly organic in the surface horizons. As such, any area indicated as wetland soils should be investigated for suitability for footings prior to any construction activity. Mineral soils have a varied texture and although no indications of issues are present, a footing design should be carried out to assure that there are no subsurface soils issues which may affect footing or piling designs and bearing capacity after leveling and contouring have occurred.

In summary, areas previously shown as wetland should be investigated for remnant organics after grading has occurred and for the presence of a perched water table from imperfect drainage or impounded water released from the subsurface pores. Mineral soils will be altered during construction and a footing investigation is recommended to assure the compaction measures were successful in the lands for development during the grading of the site.

2.3 Tree Stands and Wetlands

In preparing this plan, the **West QE2 Major Area Structure Plan** (MASP) and the *Regional Ecological Profile - Proposed Industrial Lands & Associated Natural Areas (2005/2007)* were consulted. Appendix 1 of the MASP identifies key natural features within the Queens Business Park which must be preserved and incorporated into the individual IASPs. With respect to the Queens Business Park (NE & SE 35-38-28 W4) IASP, two natural features were identified within the MASP. These include a natural wetland in the northeast corner measuring approximately 13.1 hectares (32.3 acres) and a tree stand along the western boundary measuring 3.3 hectares (8.2 acres) in size. Figure 1 illustrates the location of natural features which have been incorporated into the development concept.

2.4 Resource Extraction

The subject properties include a number of active pipelines, abandoned pipelines and abandoned wells as illustrated in Figure 1. In preparing the Queens Business Park (NE & SE 35-38-28 W4) IASP, a Phase 1 Environmental Site Assessment for Queens Business Park (Phases 4-9) NE & SE 35-038-28 W4M was prepared by WSP, dated March 2014. The findings of this initial assessment revealed no evidence of spills or impact from contaminants of potential concern on the property.

A Supplemental Phase 1 Environmental Site Assessment, amended with pipeline information, for the Queens Business Park Oil and Gas Wells NE & SE 35-038-28 W4M, was prepared by WSP in August 2015 to provide more detail on the well sites and abandoned pipelines. The follow-up report recommended Phase II ESA's for the 2 abandoned well sites within NE35/SE35 and monitoring wells be installed adjacent to the offsite well locations, to determine if any contamination has occurred. A Phase 2 Environmental Site Assessment shall be completed prior to issuance of a grading permit and subdivision approval. Regarding the abandoned pipelines, an information review indicated no abandonment concerns and as such no associated Phase II investigation is required.

Table 1 provides information on the individual oil & gas facilities on the property. Based on previous experience, the required setback for pipelines is considered to be the right-of-way, although proximity approvals are required for any work within 30m of the pipeline. The setback distance for abandoned well sites is considered to be a 5m radius around the well site. This information will be confirmed during detailed discussions with the associated companies, as well as in accordance with Alberta Energy Regulator (AER) guidelines, and adjusted accordingly during the Servicing Study and Detailed Design stages of development.

Table 1: Oil & Gas Facilities		
Facility Information	Type	Status
Alberta Products Pipe Line Ltd. (# 7634-106)	Hydrocarbon Pipeline	Operating
Atco Gas and Pipelines Ltd. (# 5754-1)	Natural Gas Pipeline	Operating
Westridge Petroleum Corp. (# 22045-23)	Natural Gas Pipeline	Abandoned
Westridge Petroleum Corp. (# 22045-24)	Natural Gas Pipeline	Abandoned
ALTAGAS Ltd. (# 37029-2)	Natural Gas Pipeline	Operating
Atco Gas and Pipelines Ltd. (# 2595-13)	Natural Gas Pipeline	Operating
Rimbey Hydrocarbons Inc. (#0112547)	Crude Oil Well	Abandoned
Rimbey Hydrocarbons Inc. (#0121870)	Crude Oil Well	Abandoned

In accordance with City of Red Deer guidelines for developments, the requirements for Directive 079 must be met prior to any development approval. Directive 079 will be completed as part of the Detailed Design stage of development.

2.4.1 ATCO Pipelines

ATCO Pipelines objected to the configurations of the Divided and Undivided arterial roadways, as no part of their utility ROW is to fall within a road ROW except at perpendicular crossings.

The alignment of the undivided arterial road was adjusted to place their utility ROW outside the road ROW. But the divided arterial roadway could not be realigned to remove their pipeline from the road ROW. As such, follow-up discussions with ATCO Pipelines led to the decision to realign their pipeline to create a perpendicular crossing. Detailed discussions on this realignment, and the associated costs, will be completed during the Detailed Design stage of development.

2.4.2 AltaGas Ltd.

AltaGas initially provided a list of conditions regarding their utility ROW. Initially, the divided arterial road alignment was modified to remove a "corner cut" of AltaGas' utility ROW from the road ROW. During follow-up conversations with AltaGas to clarify their comments, they indicated that their utility ROW was to be fenced off from all public access, and they would not accept their utility ROW being sold as part of a lot.

Alternatives for their utility ROW that were discussed included: lowering of their line to allow for additional earthworks; maintaining their line as-is; relocation of their line. Further discussions with AltaGas will be held during the Servicing Study and Detailed Design stages of development. Currently, the AltaGas utility ROW is shown as PUL on Figure 2 Land Uses and the land use table in Section 3.3 reflects this. This land designation is subject to change based on future discussions with AltaGas. If the PUL designation for the AltaGas ROW is removed, an amendment to the IASP will not be required.

2.4.3 Trans-Northern Pipelines Inc.

Trans-Northern operates the Alberta Products pipelines that run north-south through the development. Trans-Northern submitted comments in April 2015 on the IASP. It was also noted that the City of Red Deer and Trans-Northern had completed some initial conversations about possible relocation of the pipeline due to the City growth.

During a follow-up meeting with Trans-Northern, it was agreed that their initial comments had assumed that a brand new pond was proposed for construction, whereas the intent was to enhance the existing wetland located within NE35. During follow-up conversations with Trans-Northern, they expressed some concerns with the potential water levels, and therefore weight of water, that may impact the pipeline. Not enough information was known at IASP stage to adequately respond to their concerns. It was agreed to follow up with Trans-Northern during the Servicing Study and Detailed Design stages, to provide detailed information on the design changes to the wetland, and Trans-Northern would be better able to determine potential impacts on their pipeline currently running under the existing wetland.

Trans-Northern also noted that any potential line relocation would be a number of years away, depending on project priorities along the entire pipeline.

3. DEVELOPMENT CONCEPT

3.1 Vision

The vision of Queens Business Park is to create a business/industrial park which supports a high-quality built and natural environment encouraging sustainable economic growth through increased economic opportunities and principles of industrial ecology, which fosters vibrancy within the community.

3.2 Objectives

Key objectives for the Queens Business Park (NE & SE 35-38-28 W4) IASP are as follows:

- (1) To facilitate the establishment of highly desirable businesses and employment area by providing infrastructure and a planning framework to support a high quality industrial subdivision.
- (2) To support the development of an eco-industrial park in the northeast portion of the plan area through incorporating principles of industrial ecology and environmental sustainability into the design concept.
- (3) To protect and preserve natural features of high ecological value which have been identified in the plan area.
- (4) To support the intent, goal and objectives of the **West QE2 Major Area Structure Plan**.

In pursuing these objectives, the plan complies with the City of Red Deer's **Industrial Area Planning Guidelines & Standards**.

3.3 Land Use

The land use concept for the IASP is presented in Figure 2. The focus of the plan is the supply of lands for business/industrial uses. The overall layout has been based on the previously approved *West QE2 Major Area Structure Plan* with adjustments required due to existing oil & gas facilities, which present significant constraints on the property, thereby limiting the flexibility in road layout. Through provisions of the Land Use Bylaw and through developer controlled guidelines, a high quality built and natural environment will be achieved. The following tables outline key land use statistics for each quarter section.

Land Use Category / Component	AREA AND PERCENTAGE OF PLAN AREA (+/-)		
	NE 35-38-28-4	SE 35-38-28-4	Total
Plan Area (total)	61.37 ha (100%)	64.41 ha (100%)	125.78 ha (100%)
Environmental Reserve	11.73 ha (19.1%)	0 ha (0%)	11.73 ha (9.3%)
Addition to Alberta Transportation Service Road	2.84 ha (4.6%)	0 ha (0%)	2.84 ha (2.3%)
Arterial Roadway	3.27 ha (5.3%)	6.77 ha (10.5%)	10.04 ha (8.0%)
Net Developable Area	43.53 ha (70.9%)	57.64 ha (89.5 %)	101.17 ha (80.4%)

Table 3: Land Use Statistics			
Land Use Category / Component	AREA AND PERCENTAGE OF PLAN AREA (+/-)		
	NE 35-38-28-4	SE 35-38-28-4	Total
Net Developable Area (total)	43.53 ha	57.64 ha	101.17 ha
Industrial and Business Services	22.52 ha (53.4%)	47.98 ha (83.2%)	70.50 ha (69.7%)
Eco-Industrial	8.19 ha (19.4%)	0.99 ha (1.7%)	9.18 ha (9.1%)
Collector and Local Road ROW's	3.85 ha (9.1%)	5.02 ha (8.7%)	8.87 ha (8.8%)
Municipal Reserve	6.54 ha (15.0%)	1.37 ha (2.4%)	7.91 ha (7.8%)
Municipal Reserve w/active pipeline ROWs	0.44 ha (1.0%)	0.03 ha (0.1%)	0.47 ha (0.5%)
Public Utilities*	1.98 ha (4.6%)	2.25 ha (3.9%)	24.23 ha (4.2%)

* The final location and number of public utility lots will be determined as part of the engineering detailed design and subdivision of the property.

3.3.1 Industrial and Business

The majority of the plan area will be subdivided into lots of varying size and developed for the purposes of a range of industrial and business uses. This could include light industrial, warehousing, storage and industrial support services. It is anticipated that uses will have a low nuisance factor given the industrial development on adjacent properties or use of buffers along the western boundary. The lot configuration will respect the illustrated road layout and feature a range of lot sizes based on market demand. Some potential lots range between 230 and 255 metres in depth. While lots will front onto both the divided arterial and collector, it is the intent for services to the individual lots to come from the collector roads. Based on a preliminary review, each of these deeper lots will meet the City requirements related to the sanitary servicing. Following a confirmation of the servicing during the Servicing Study stage, the Developer will be responsible for addressing any areas of non-conformance as needed.

3.3.2 Eco-Industrial Park

As shown in Figure 2, 9.2 hectares of land along the eastern boundary of the site has been designated as Eco-Industrial Park. The intent of this area is to accommodate industries with enhanced green building designs and practices while encouraging the collaboration between industries through by-product exchange, shared resources, co-energy generation and other synergies. Development proposals for the lands which are identified as eco-industrial within the Queens Business Park (NE & SE 35-38-28 W4) IASP will be presented in a manner which exemplifies the intent of the City of Red Deer's Eco Industrial Park Overlay District. The City of Red Deer's "Eco Industrial Park Information Package" provides a wealth of information, including details on the application process, requirements for development of an eco-industrial lot, and benefits to businesses for developing eco-industrial lots.

In 2011, the City adopted an **Environmental Master Plan** that sets out goals and targets for protecting air quality, water resources, soil resources and promotes reduced waste, in addition to striving to meet greenhouse gas (ghg) targets. The development of an eco-industrial park is seen as one method that can be utilized to work towards meeting these goals.

The **Environmental Master Plan** has a set of guiding principles that are being used by the City to pursue an environmental vision. Some key linkages to this IASP are the development of a walkable, bike friendly and transit orientated community, the protection of green spaces, parks and trails as well as the creation of the eco-industrial park that is likely to adopt low impact development initiatives. To that end, the eco-industrial lands have been located adjacent to the existing wetland, and adjacent to the proposed asphalt trail along the Divided Arterial Roadway, to facilitate implementation of the Environmental Master Plan.

3.3.3 Municipal Reserve / Public Utility Lots

Based on the requirements of the *Municipal Government Act*, the subject lands within the IASP are required to provide ten percent (10%) municipal reserve allocation at the time of subdivision or as cash-in-lieu of land, or a combination of the two. As shown in Figure 2, the development sets aside 7.8% (7.91 hectares) of the net developable area for municipal reserve. The remaining 2.2% (2.2 hectares) of required Municipal Reserve dedication will be provided via cash-in-lieu. These areas will include:

- The existing tree stand along the western boundary;
- A 20 metre wide buffer along the entire western boundary;
- Additional space along the western edge for the existing wetland to allow for some green space and potential seating areas;
- A buffer along the eastern boundary of the property, just south of the ER, encompassing two active pipelines; and

It is important to note that the area of any active pipeline within the MR has not been included in the 10% calculation.

One SWMF has been proposed in the northeast portion of the Plan Area; the forebay portion of this facility will be designated as a public utility lot (PUL). The forebay portion of a SWMF functions as a pollutant filter by trapping sediment near the inlet and allowing this sediment to settle prior to circulating into the rest of the pond. As indicated on Figure 2, the AltaGas ROW, as well as lands encompassing the ATCO Pipelines ROW along the south boundary has been shown as PULs. Should any additional PULs become necessary, they will be determined as part of the engineering detailed design and subsequent subdivision.

3.3.4 Environmental Reserve

In accordance with the **Municipal Government Act** and **West QE2 Major Area Structure Plan** (MASP), and as outlined on Figure 1, there are environmental features which qualify for environmental reserve dedication, as shown on Figure 2. Specifically, the existing natural wetland was noted in the MASP for environmental reserve dedication, as well as for use as a stormwater management facility. Section 677 of the *Municipal Government Act* allows the use of reserve land for public utilities if the interests of the public will not be adversely affected.

As discussed in Section 4.1 (Stormwater and Drainage), the existing wetland will be utilized as a stormwater management facility, as per reports prepared by Westhoff Engineering in conjunction with the MASP, including *Wetland Ecological Assessment (2005)*, *Wetland Assessment for the Queens Industrial Business Park (NE 1/4 Sec 35-38-28-W4M and NW 1/4 Sec 36-38-28-W4M) (2007)*, and *Master Drainage Plan for Queens Business Park (2007)*. Enhancements will be incorporated to the periphery of the wetland including the construction of a forebay to filter sediment and pollutants prior to entering the wetland; and Best Management Practices will be followed to maintain the integrity of the wetland as much as possible during and after construction. The current outlet pipe located underneath Range Road 281 (and tied to the storm trunk system running through Queens Business Park NW and NE 36-38-28-4) was set to closely match the old existing culvert, thereby maintaining the historical normal water level for the area. Water Act approvals will be required from Alberta Environment and Parks prior to constructing a stormwater management facility within the existing wetland. An analysis to determine the classification of the wetland shall be completed prior to subdivision approval.

3.4 Pedestrian and Vehicular Circulation

The IASP area is primarily planned for industrial and business service land uses (I1). In order to accommodate the motorized and non-motorized traffic flows associated with this type of land use, a planned system of roadways, transit routes and trails will effectively manage circulation within the plan area and connect to the external arterial / highway system.

A traffic impact assessment (TIA) entitled ***West QE2 MASP Update Traffic Impact Assessment Final Report (2009)*** was prepared by Bunt & Associates Engineering (Alberta) Ltd. as part of the **West QE2 Major Area Structure Plan**. Specifically relating to this IASP area, the TIA report recommended a north/south four-lane divided arterial roadway connecting with Highway 11A to the north, and a four-lane undivided arterial roadway running east/west along the south side of the IASP area. The major vehicular access to the IASP area will be obtained via the north/south four-lane divided arterial.

In order to create a fully integrated, efficient and safe circulation system, all planned vehicular and pedestrian circulation routes shall be constructed according to the City of Red Deer's **Engineering Design Guidelines** and **Industrial Area Planning Guidelines & Standards**.

3.4.1 Roadways

The development concept illustrated in Figure 2 identifies the IASP roadways in accordance with the major road network determined in the **West QE2 Major Area Structure Plan**. Typical roadway cross sections are illustrated in Figure 7. Proposed Local and Collector roads are identified in Figure 2; their alignments are largely dictated by the constraints presented by the oil and gas pipelines located throughout the property. The local roads may not be ultimately constructed as illustrated in the development concept as the construction of local roads is heavily dependent on market trends and needs (for example, large lot development compared to smaller lot development).

Where a local road is deemed unwarranted it will not be constructed. In the event that a local road or portion thereof is to be developed, it is to be constructed within the roadway boundaries and access locations as shown in the development concept (Figure 2). The elimination or addition of any public road, or reclassification of a road, will require an amendment to the IASP. The type of amendment will be determined at the time of application. In the event that the complete local roadway network is not constructed, rights-of-way and easements may be required to accommodate future roads, public utility lots and municipal services. All lot sales will be such that any proposed lot will have direct access to a local or collector roadway with the exception of a single proposed lot located in the southeast corner of the site. Due to the AltaGas request to be fenced off from all public accessibility and to not have their ROW sold as an easement within a lot (thereby shown as a PUL in this IASP), this has created a section of land that is only accessible from the divided and undivided arterial roads. Acceptable access to and from this lot will be discussed further during the Servicing Study and Detailed Design stages of development, as well as during further discussions with AltaGas regarding their pipeline ROW.

3.4.2 Highway 11A

The Future Highway 11A Widening, as shown on Figure 2, has been determined in consultation with Alberta Transportation. The intent of the widening is to reach a highway ROW width of 90m at the boundary of NE35 & SE35, as per the *Highway 11A Planning Study, Highway 20 – Highway 2, Final Functional Planning Report* prepared by MMM Group Limited in April 2011. The widening as shown may be impacted by the detailed highway widening design, specifically the ditch design along the south side of the new eastbound lanes.

The proposed intersection treatment for the Divided Arterial/RR280 and Highway 11A intersection is anticipated to be similar to the existing 75 Avenue/Highway 11A signalized intersection, consisting of dual-left turn lanes for westbound-to-southbound movements and dedicated left turn lanes for all other movements, as well as incorporating twinning of Highway 11A.

During discussions with Alberta Transportation, it was requested that a Roundabout investigation be completed for the new arterial road intersection with Highway 11A. This will be completed as part of the Servicing Study preparation.

3.4.3 Trail System

Trails and other multi-use corridors were established as part of the ***West QE2 Major Area Structure Plan***. In accordance with the MASP, a 3.0 meter paved trail will be located adjacent to the arterial roadways. In addition to trails, 1.5 meter wide monolithic sidewalks will be provided along one side of all collector and local roadways within the plan area. Pedestrian crossings should be provided on arterials and collectors. Properly designed pavement markings and signs should be provided to minimize collision risks.

3.4.4 Transit

The arterial and collector roadway structures will suitably accommodate transit. In general, the feasibility and viability of transit service within the plan area will be dependent on demand/use projections and may also be dependent on partnerships with area businesses. Proposed transit stops will be located along one side of collector roadways and proposed locations are identified on Figure 2. These stop locations are subject to change during preparation of the servicing study.

3.5 Major Entry Area Designation

Lots along the northern boundary of NE 35-38-28-4 are designated as a 'Major Entry Area' under the Land Use Bylaw. Any development on these lots will be subject to additional building, landscaping and signage requirements as outlined in subsection 3.12 of the Land Use Bylaw.

4. SERVICING CONCEPT

The general servicing requirements for this IASP are described below. Details regarding servicing will be addressed at the servicing study stage. Along the Divided Arterial roadway, the storm and water mains are shown on the east side of the roadway due to parallel portion of the AltaGas Ltd. ROW located in SE35 on the west side of the roadway, as well as to follow the general water main alignment approved in the SW36-NW25 IASP. The final alignments for deep utilities along the divided arterial will be reviewed during the Servicing Study and Detailed Design stages of development.

4.1 Stormwater and Drainage

The majority of the subject lands generally drain east and north, and pre-development run-off generally flows towards the natural wetland. As noted earlier, a portion of SE 35 naturally flows southward. The post-development drainage plan (Figure 3) anticipates re-grading the site so all lands within the plan boundary will flow towards the natural wetland.

The natural wetland will be incorporated into the overall system as a stormwater management facility, with enhancements as needed to provide functionality -- such as berming to the desired high water level, installation of the forebay -- as well as maintaining as much as possible the natural existing vegetation. The outlet will tie to the existing storm trunk system already constructed eastward through previous phases of Queens Business Park, with the discharge rate held to pre-development rates or to levels defined by the City of Red Deer. The construction of a forebay will transform the natural wetland into a stormwater management facility, while maintaining the integrity of the wetland, by allowing sediments and debris to settle prior to entering the pond; thereby acting as a filter for pollutants. Given the limited disturbance to the wetland, the impact on the existing Alberta Products Ltd. Pipeline running underneath the wetland will be minimal. This is the only stormwater management facility proposed for these two phases. In reviewing the potential lot grading for NE 35-38-28-4, every attempt will be made to keep the grades adjacent to the wetland at or above the required freeboard level. All building footings will be built above the high water level.

In accordance with the Eco Industrial Park Overlay District guidelines, it is anticipated that Low Impact Development techniques will be adopted by eco-industrial lots to reduce runoff from the site, enabling natural recharge and to allow for the utilization of stormwater within the properties (e.g. irrigation of landscaped areas).

Figure 3 is intended to outline the generalized drainage direction for the plan area as a whole. Detailed overland drainage for individual lots will be determined at the Servicing Study stage. Stormwater will not be allowed to drain overland through other lots.

4.2 Sanitary Sewer

All sanitary servicing for the development will be required to tie into the City of Red Deer sewer services, and new private servicing will not be permitted. As shown in Figure 4, servicing for the entire site will tie to an existing 375mm main located along 79 Street. The proposed sanitary system is not contingent on future development around the site.

The sanitary system has been designed in accordance with the report **Queens Industrial Park & Future Industrial Lands Sanitary Sewer and Storm Sewer Trunks Project**, prepared by Al-Terra Engineering Ltd., dated May 2007. In this report, it is discussed that the flows for the entire West QE2 MASP area would utilize excess capacity at 3 existing tie-ins: North Edgar, South Edgar and Gaetz/11A. The flows for this development (64 L/s) were to utilize the excess capacity in the Gaetz/11A tie-in; as such, a trunk main extension along Highway 11A is required to service the site. Currently, the sanitary trunk main servicing Queens Business Park NE & NW 36-38-28-W4 ties to the North Edgar Industrial sanitary system.

From the report, the capacity in the North Edgar tie-in was assumed to be used by Queens NE 36-38-28-W4, Queens NW 36-38-28-W4 and Queens SW 36-38-28-W4 (Jeffries IASP). Depending on the timing of the development of Queens SW 36-38-28-W4 (Jeffries IASP), Queens NE 35-38-28-W4 may be able to proceed prior to construction of the trunk extension to Gaetz Avenue. The City of Red Deer is currently reviewing the timeline to construct the trunk extension.

4.3 Water Distribution

All water servicing for the development will be required to tie into the City of Red Deer water services, and new private servicing will not be permitted. As shown in Figure 5, water servicing will be provided to this area through existing and future water mains running along 79 Street, across from Quinton drive, via a PUL located in SW 36-38-28-W4 and along the undivided arterial roadway.

Alternate or interim alignment/connections based on the surrounding development areas not being available will be addressed at the servicing study stage. Servicing stubs have been shown to the south for future development. As per the current water model study (**Queens Business Park Water Distribution System**, GENIVAR, Feb 2013), all lands to the west are not to be serviced by this system.

4.4 Shallow Utilities

General shallow utility alignments' are shown in Figure 7 with the location of these being generally based on the previously approved phases of the Queen's Business Park.

4.4.1 Power Distribution

The power distribution will consist of an underground electric distribution network which will be extended to the plan area. Power for these two quarters of land will be distributed along planned road right-of-ways and easements. The owner/developer will contact EL&P for their electrical servicing needs. The developer will be required to have whoever is responsible for planning the Boulevard landscaping in the study area to contact EL&P to coordinate their efforts and to help avoid clearance and alignment issues with planned electrical facilities.

The service will be extended from the bordering Queens Business Park. The details of tie-in locations and required easements will be determined at the subdivision approval phase.

4.4.2 Natural Gas Distribution

ATCO Gas will service the plan area. The details of tie-in locations and required easements will be determined at the subdivision approval stage.

4.4.3 Telecommunications

High capacity, high speed telecommunication infrastructure such as fibre optics will be encouraged in the plan area to maximize communication efficiencies and economic opportunities for businesses located within the subject lands.

Telus and Shaw have provided telecommunications service for Queens Business Park NE and NW 36-38-28-4, and it is anticipated this will continue into NE and SE 35-38-28-4. Coordination by Telus and Shaw is required in order to obtain the joint use of the trench with EL&P. Locations of tie-ins and required easements will be determined during the subdivision approval stage.

5. SAFETY

5.1 Emergency Services

The plan area will be serviced by Emergency Service Station No. 5 within the Johnstone Crossing neighbourhood. This Emergency Service Station is in close proximity to the plan area enabling a four (4) to five (5) minute response time, falling within the City's planning guideline for a four (4) minute travel time to a fire or medical emergency. The station also has a full-staffed vehicle ninety percent (90%) of the time.

5.2 CPTED

Crime Prevention through Environmental Design (CPTED) is a comprehensive approach to design of the built environment that can lead to reduced opportunities for crime. CPTED principles incorporate modifications to the physical environment during the planning and building phase of development and may include:

- Providing unobstructed views from buildings of the surrounding area to increase natural surveillance;
- Provide appropriate lighting for streets, trails and parks;
- Avoid landscaping that may conceal offenders;
- Encouraging use of public space by legitimate users, and avoid placing dark, and or hidden areas, near activity nodes;
- Identifying ownership by delineating private from public space through real or symbolic boundaries (e.g. low shrubbery, alternative paving stone colour and changes in grade); and
- Using physical barriers, security devices and tamper resistant materials to restrict entrance.

In addition to modifying the physical environment, CPTED also considers behavioural elements as part of a comprehensive approach to crime prevention. Fostering interactions between business to promote vigilance and control over the area, ensuring an area is being maintained and kept free of graffiti, and establishing a Block Watch programme, are all examples of community-based behaviours which complement CPTED design principles.

Queens Business Park recognizes the importance of considering principles of CPTED in its design. In order to incorporate CPTED principles at an appropriate scale, and in an effective way, such design considerations will take place at the sub-division phase. Where possible and appropriate, development within Queens Business Park will incorporate CPTED design elements

6. IMPLEMENTATION

6.1 Development Phasing

The stages of development within Queens Business Park (NE & SE 35-38-28 W4) will occur in accordance with the development phasing plan illustrated in Figure 6. However, development phasing may vary in order to more efficiently accommodate municipal servicing needs or to accommodate changing market and development trends.

As the plan area develops, the existing access from Highway 11A to the country residential property in the northeast corner will be closed. As shown in Figure 2, a 12 metre wide alternate access will be provided off the cul-de-sac in the northeast corner of the subdivision. The country residential property will be in transition as development occurs.

6.2 Amendments to This Plan

All amendments to this IASP shall be prepared in accordance with procedures as outlined in *Section 63 and 64* of the *Municipal Government Act* and *Appendix "A"* of the *City's Industrial Areas Planning Guidelines & Standards*.

Provided the intent of the IASP is maintained, minor plan adjustments to the proposed land use, boundaries or road or servicing alignments, or land use boundaries, may be incorporated where necessary without a plan amendment.



FIGURES:

Figure 1 – Existing Conditions

Figure 2 – Proposed Land Use & Roads

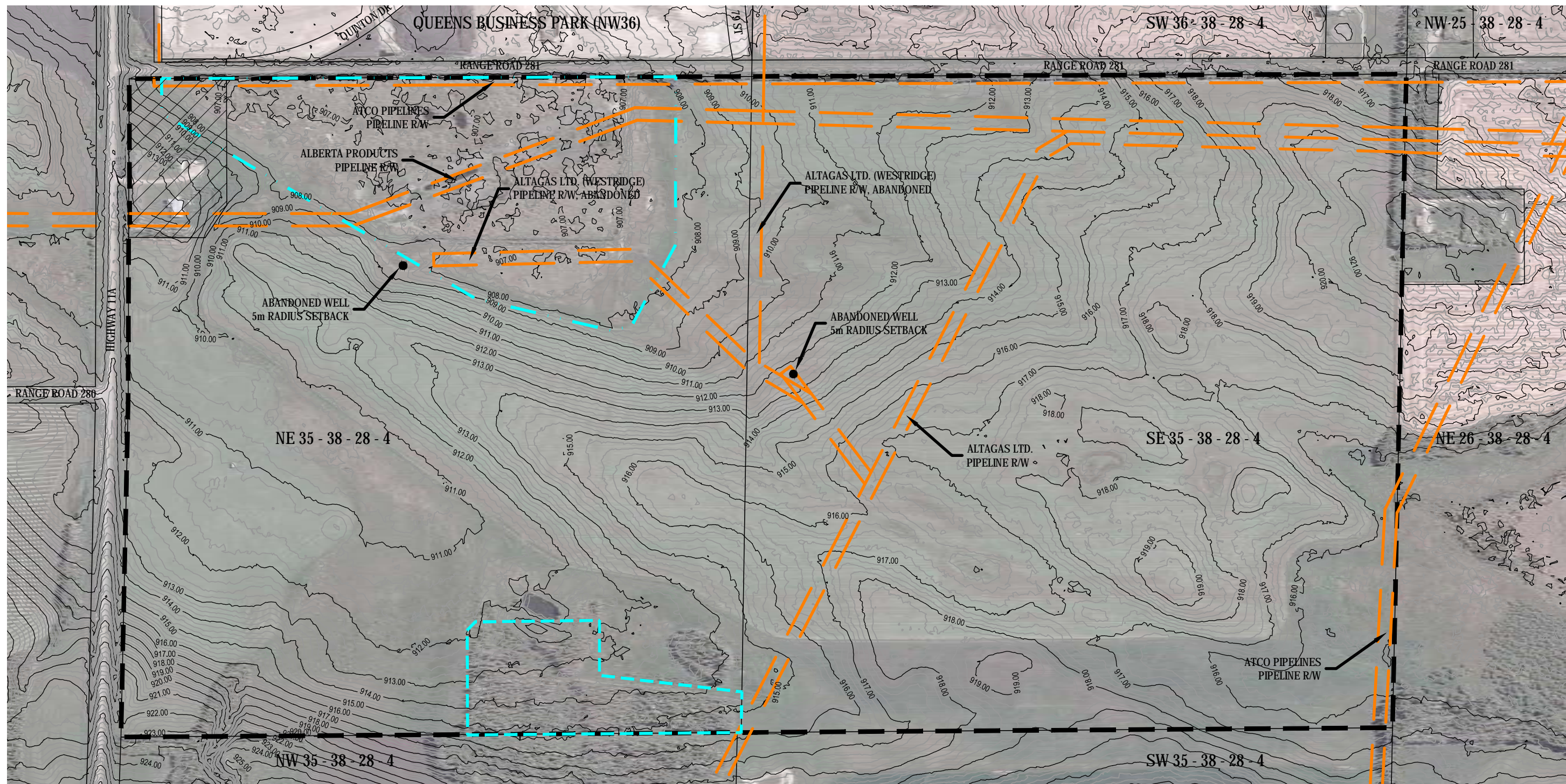
Figure 3 – Stormwater Servicing

Figure 4 – Sanitary Servicing

Figure 5 – Water Servicing

Figure 6 – Proposed Phasing



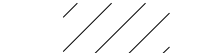


Figure 7 – Typical Road Sections

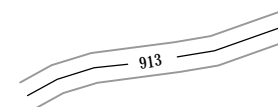


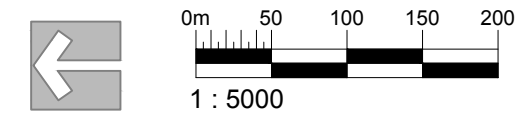
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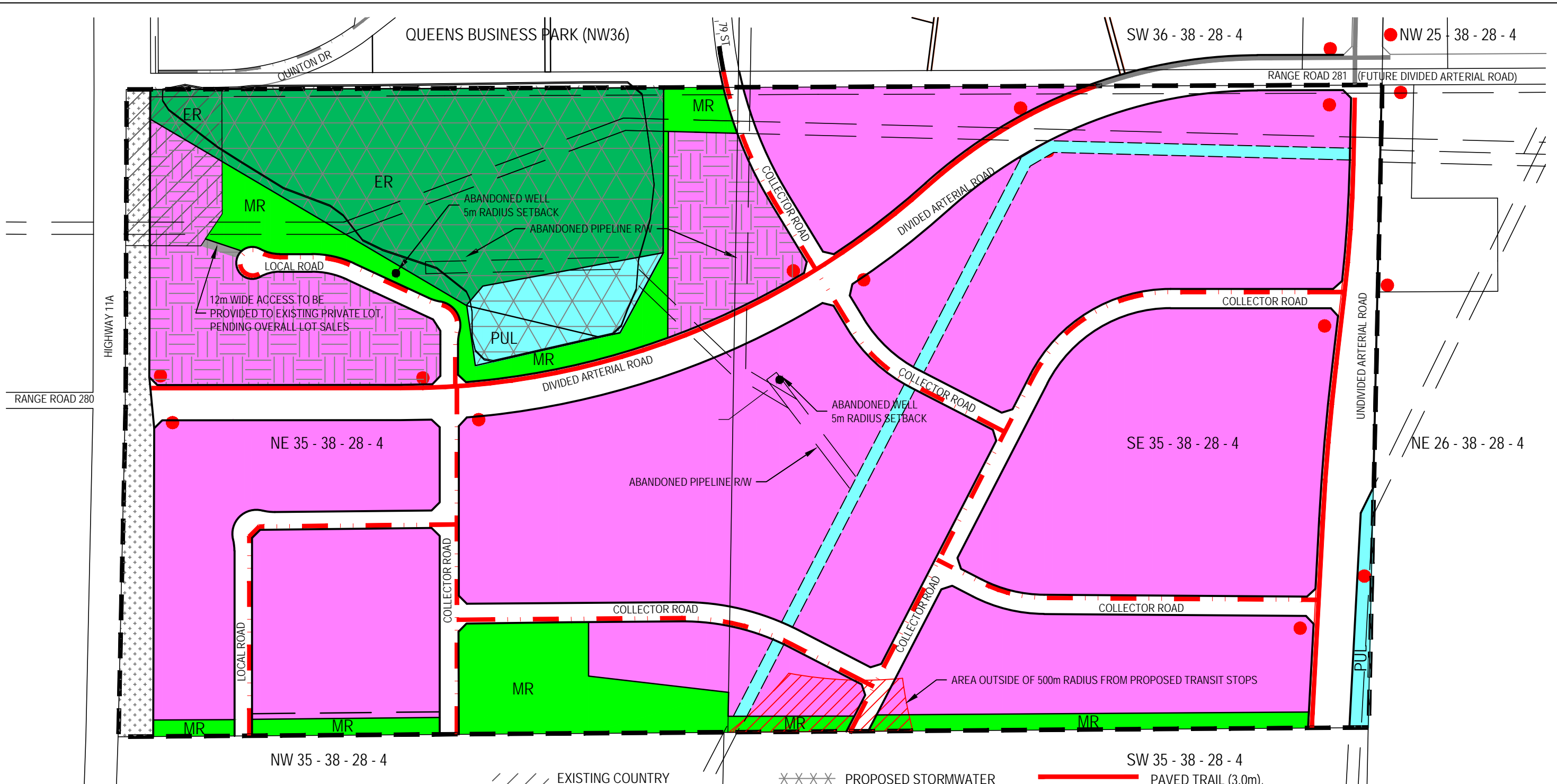
FIGURE 1 - EXISTING CONDITIONS

-  PLAN BOUNDARY
-  EXISTING PIPELINE R/W
-  EXISTING COUNTRY RESIDENTIAL LOT
-  TREES TO REMAIN AS MUNICIPAL RESERVE
-  WETLAND TO REMAIN AS ENVIRONMENTAL RESERVE AND STORMWATER FACILITY

 EXISTING GROUND CONTOURS, 0.25m INTERVAL (2009 LIDAR SURVEY DATA)




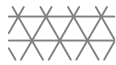











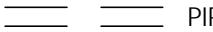

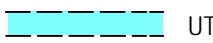

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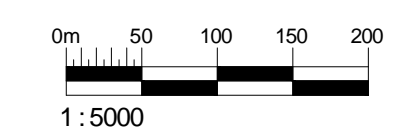


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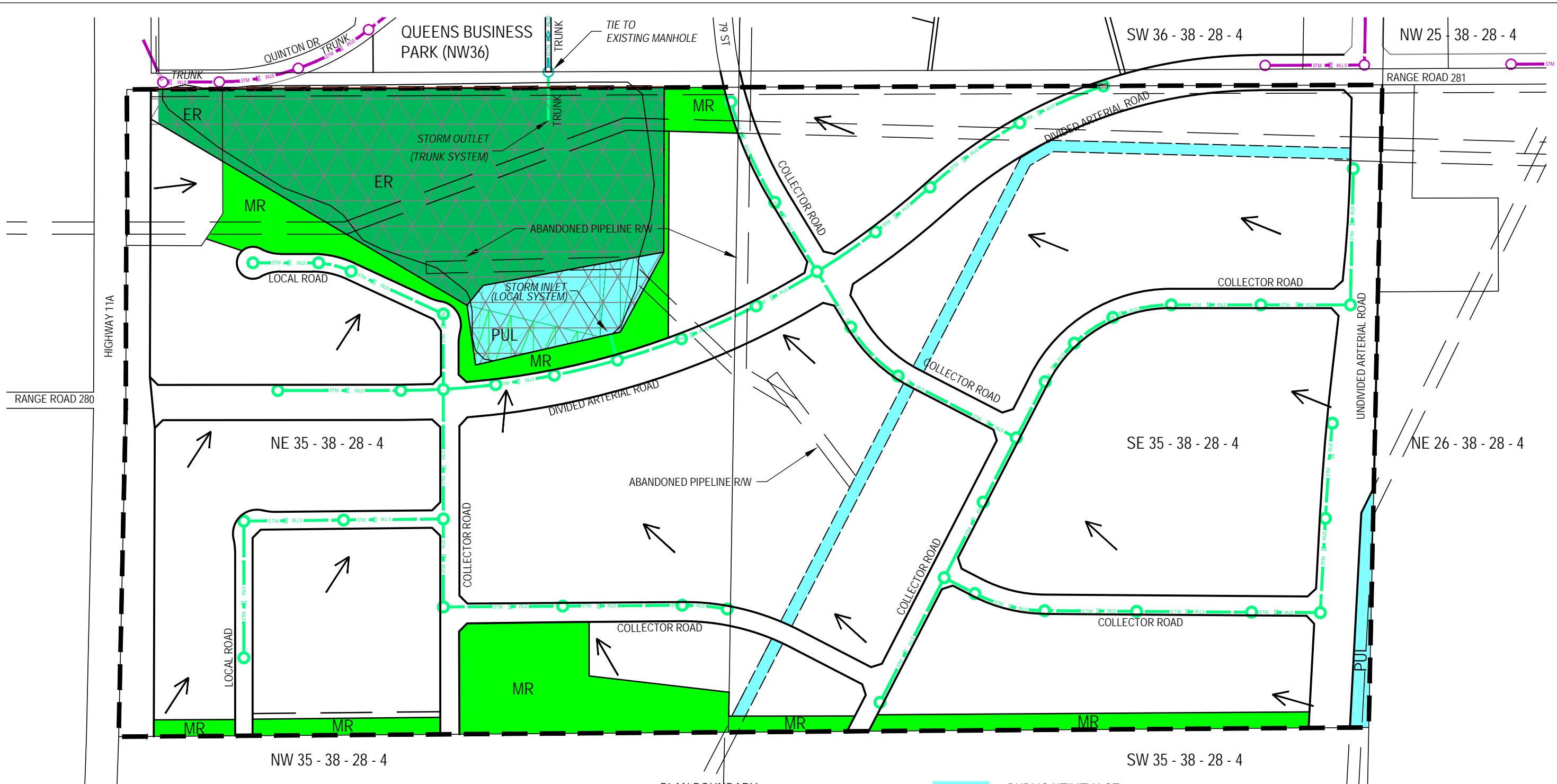
QUEENS BUSINESS PARK NE35/SE35 INDUSTRIAL AREA STRUCTURE PLAN

FIGURE 2 - PROPOSED LAND USE & ROADS

- | | | | | | |
|---|--|---|---|---|---------------------------------|
|  | EXISTING COUNTRY RESIDENTIAL |  | PROPOSED STORMWATER MANAGEMENT FACILITY |  | PAVED TRAIL (3.0m), PROPOSED |
|  | INDUSTRIAL AND BUSINESS SERVICE (I1) |  | MUNICIPAL RESERVE |  | PAVED TRAIL, FUTURE (BY OTHERS) |
|  | ECO INDUSTRIAL PARK (I1) |  | FUTURE HIGHWAY 11A WIDENING |  | SIDEWALK (1.5m), PROPOSED |
|  | ENVIRONMENTAL RESERVE AND EXISTING WETLAND |  | PROPOSED TRANSIT STOP |  | SIDEWALK, EXISTING |
|  | PUBLIC UTILITY LOT |  | PIPELINE R/W |  | SIDEWALK, FUTURE (BY OTHERS) |
| | |  | UTILITY LOT OR EASEMENT |  | PLAN BOUNDARY |













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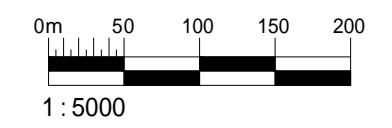


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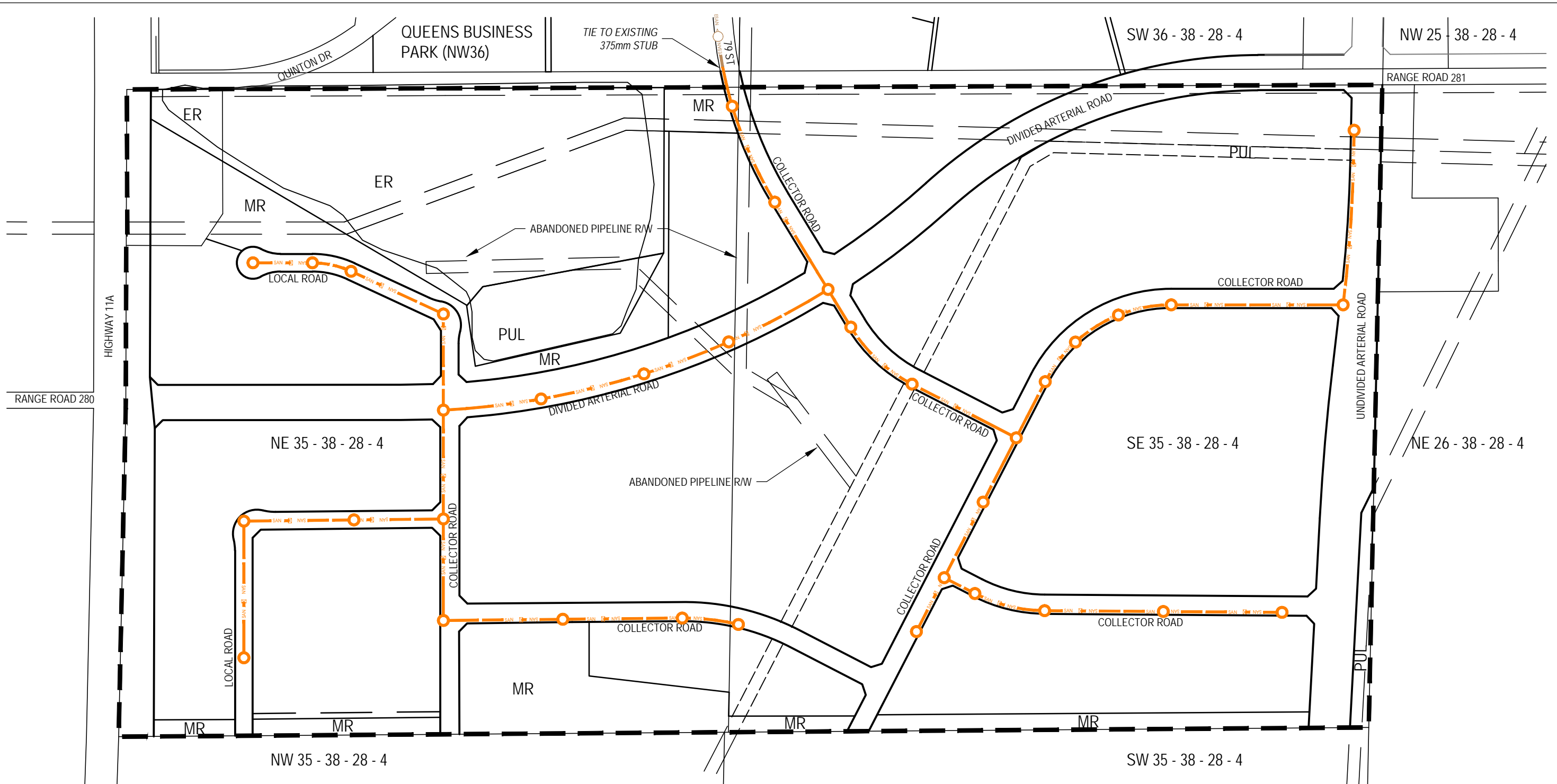
QUEENS BUSINESS PARK NE35/SE35 INDUSTRIAL AREA STRUCTURE PLAN

FIGURE 3 - STORMWATER SERVICING

-  PLAN BOUNDARY
-  PROPOSED STORM MAIN, MANHOLE AND FLOW DIRECTION
-  EXISTING STORM MAIN, MANHOLE AND FLOW DIRECTION
-  FUTURE STORM MAIN, MANHOLE AND FLOW DIRECTION (BY OTHERS)
-  ENVIRONMENTAL RESERVE AND EXISTING WETLAND
-  PUBLIC UTILITY LOT
-  MUNICIPAL RESERVE
-  PROPOSED STORMWATER MANAGEMENT FACILITY
-  GENERAL STORMWATER FLOW DIRECTION
-  PIPELINE R/W
-  UTILITY LOT OR EASEMENT






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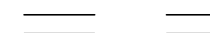
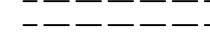


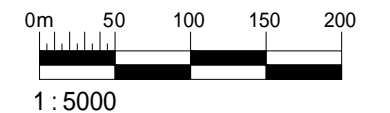
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FIGURE 4 - SANITARY SERVICING

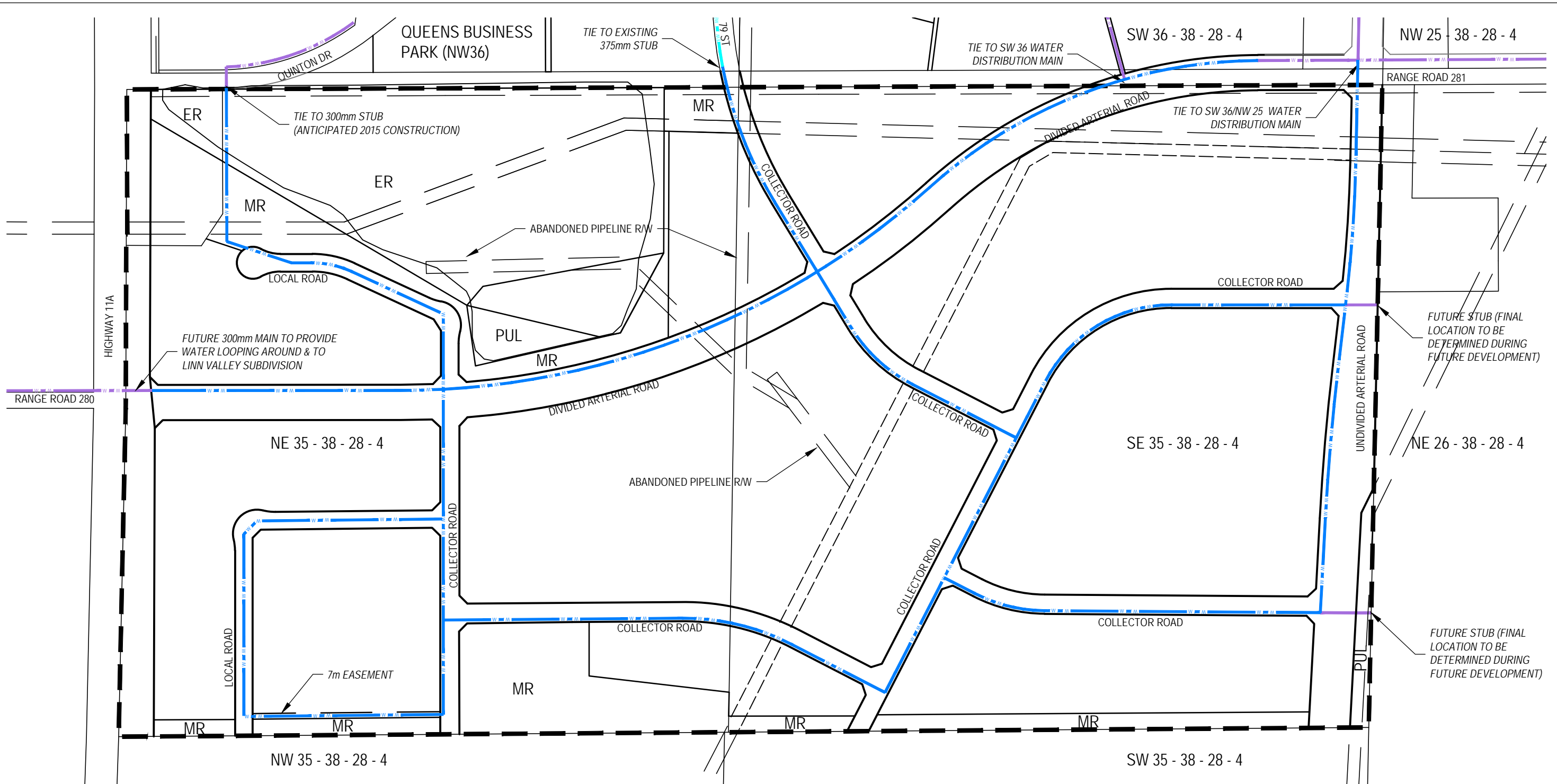
-  PLAN BOUNDARY
-  PROPOSED SANITARY MAIN, MANHOLE AND FLOW DIRECTION
-  EXISTING SANITARY MAIN, MANHOLE AND FLOW DIRECTION

-  PIPELINE RW
-  UTILITY LOT OR EASEMENT



NOTE: PRIOR TO FULL BUILDOUT OF THE WEST QEII MASP AREA, THE SANITARY SYSTEM WILL REQUIRE UPGRADES TO AND/OR CONSTRUCTION OF THE TRUNK LINE ALONG HIGHWAY 11A UP TO GAETZ AVENUE.






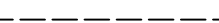
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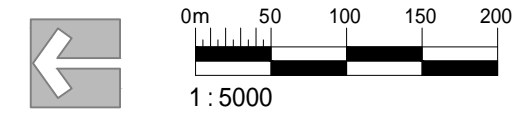


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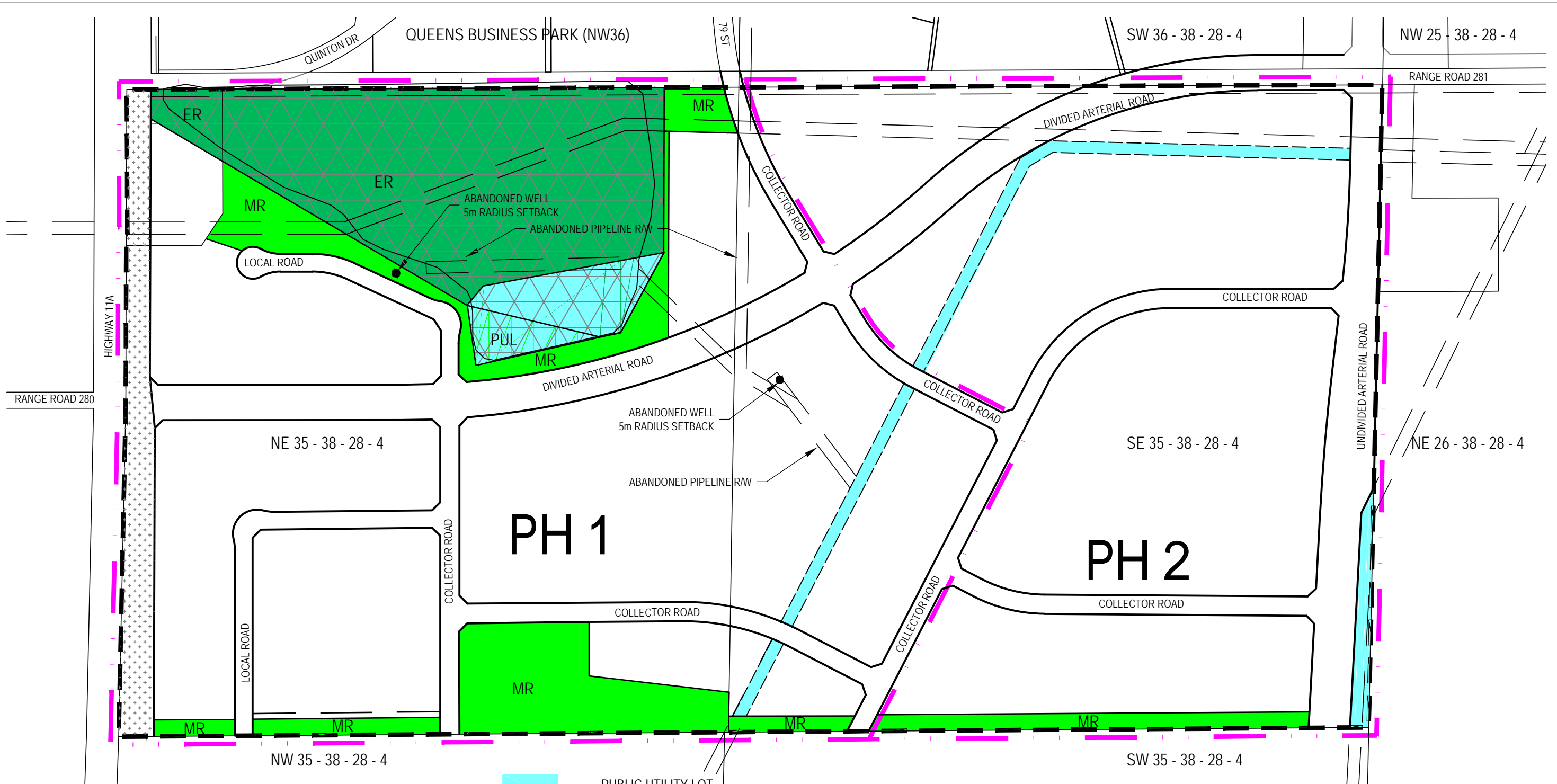
FIGURE 5 - WATER SERVICING

-  PLAN BOUNDARY
-  PROPOSED WATERMAIN
-  EXISTING WATERMAIN
-  FUTURE WATERMAIN (BY OTHERS)
-  PIPELINE R/W
-  UTILITY LOT OR EASEMENT



NOTE: WATER MODEL LIMITS END AT EAST BOUNDARY, THEREFORE NO STUBS ARE SHOWN FOR FUTURE DEVELOPMENT.








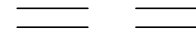

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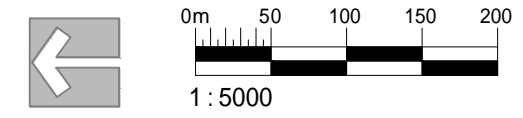


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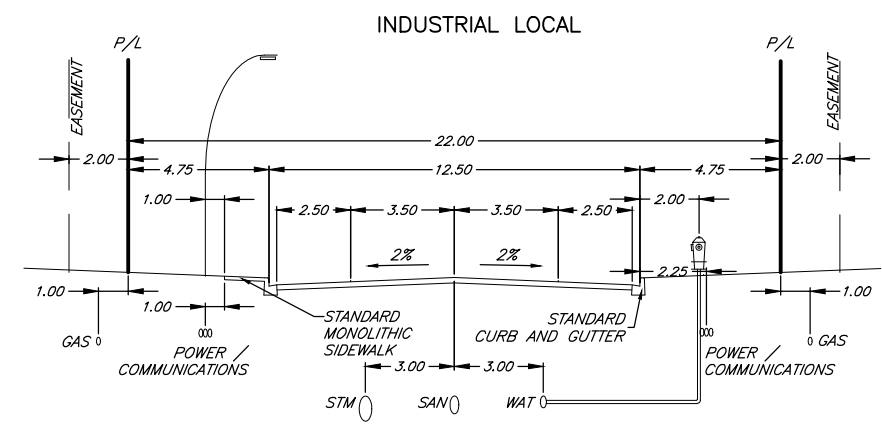
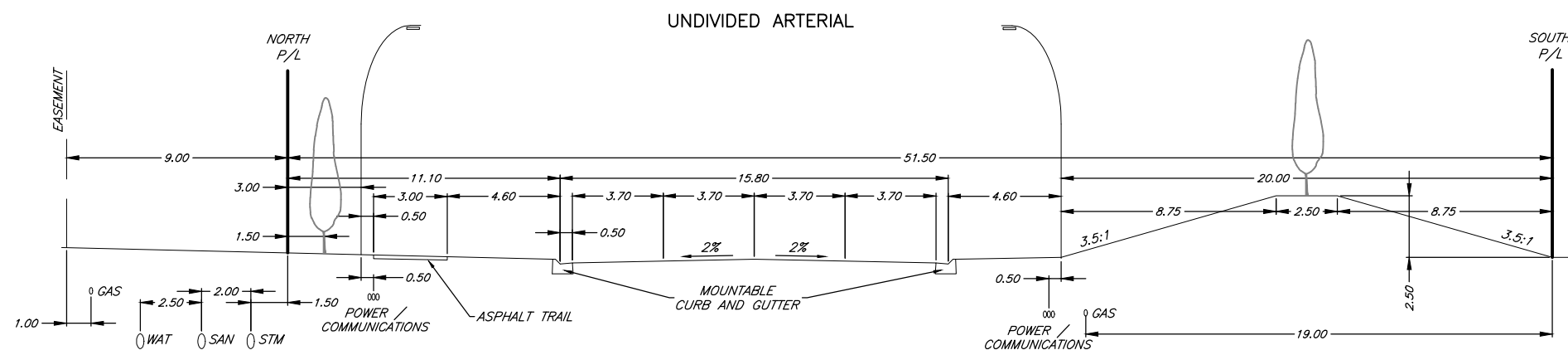
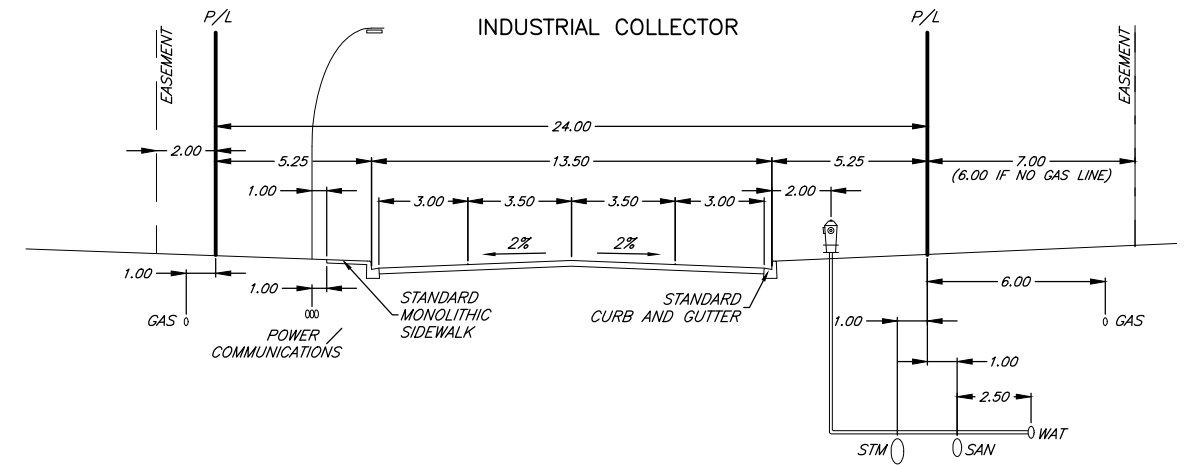
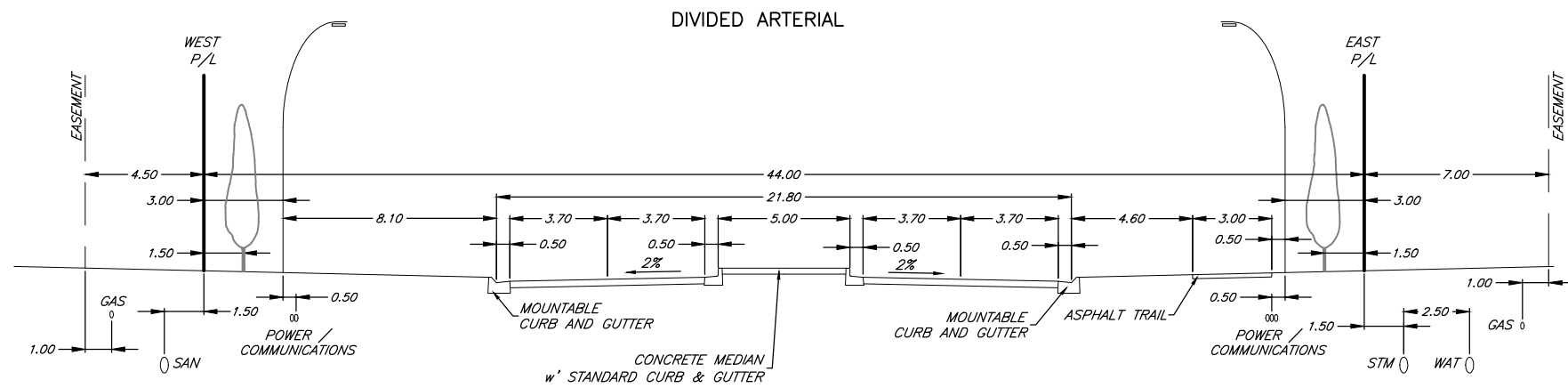
FIGURE 6 - PROPOSED PHASING

-  PUBLIC UTILITY LOT
-  ENVIRONMENTAL RESERVE AND EXISTING WETLAND
-  PROPOSED STORMWATER MANAGEMENT FACILITY
-  MUNICIPAL RESERVE
-  FUTURE HIGHWAY 11A WIDENING
-  PHASE BOUNDARY
-  PLAN BOUNDARY
-  PIPELINE R/W
-  UTILITY LOT OR EASEMENT



NOTE: ACTIVE PIPELINES ARE NOT INCLUDED IN MR DEDICATION CALCULATION

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**QUEENS BUSINESS PARK NE35/SE35
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FIGURE 7 - TYPICAL SECTIONS



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