

Black Wolf Stage 2 Outline Plan



AUGUST, 2014



AMENDED, MARCH 2021



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TABLE OF CONTENTS

SECTION	PAGE NO.
Table of Contents	i
1 Introduction	1
2 Location & Area Context	2
2.1 Location	2
2.2 Site Topography and Grading	2
2.3 Existing Land Use & Zoning	2
2.4 Future Shadow Planning	6
3 Land Ownership	7
4 Policy Context	8
4.1 Integrated Community Sustainability Plan / Municipal Development Plan	8
4.2 Hardieville / Legacy Ridge / Uplands Area Structure Plan	10
4.3 Planning Considerations and Principles	10
5 Community Vision & Design	12
5.1 Community Vision	12
5.2 Internal Road System	12
6 Open Space Design	13
6.1 Open Space	13
6.2 Connectivity	13
6.3 Reserve Dedication Analysis	14
6.4 Seasonal Wet Areas	14
7 Residential Land Use Density	16
7.1 Land Use Summary and Statistics	17
8 Architectural Standards	19
9 Transportation	20
9.1 Arterial Road Development	20
9.2 Road Classification and Intersection Treatments	20
9.3 Traffic Impact Assessment	21
10 Transit & Mail Box Service	23
10.1 Transit Routes	23
10.2 Community Mailbox Locations	23
11 Site Servicing	24
11.1 Water Servicing	24
11.2 Sanitary Servicing	25
11.3 Stormwater Management	26

11.4	Shallow Utilities	31
12	Proposed Phasing	36
13	Fire Protection	38
14	Sustainability	39
15	Conclusion	40
Appendix A - Certificates of Title		
Appendix B - Traffic Impact ASsessment		
Appendix C - Original Outline Plan		

Note: Appendix D to Appendix G can be found in the original OLP Document located in Appendix C.

Figure 2-1 Area Context Plan (Location Plan)	3
Figure 2-2 Neighbourhood Context Plan (Existing Landuse)	4
Figure 2-3 Site Constraints	5
Figure 6-1 Open Space Network	15
Figure 7-1 Land Use Plan	18
Figure 9-1 Preliminary Transportation Network	22
Figure 11-1 Water Servicing and Connection Points	32
Figure 11-2 Sanitary Servicing and Connection Points	33
Figure 11-3 Stormwater Management and Drainage	34
Figure 11-4 Stormwater Management and Conceptual Minor System	35
Figure 12-1 Development Phasing	37

1 INTRODUCTION

BlackWolf Stage 2 is located in the northern sector of the City. Comprising of 59.8 Ha, BlackWolf Stage 2 forms a part of the Hardieville/Legacy Ridge/Uplands Area Structure Plan adopted by the City of Lethbridge on May 6, 2002 and most recently amended on May 13, 2013. All edits done by Associated Engineering have been written in green for quick reference.

The BlackWolf Stage 2 Outline Plan provides an extension to the recently developed community of BlackWolf Stage 1 located to the east and the well-established Hardieville subdivision and growing Legacy Ridge community to the west with Uplands lying south of the plan area. The design of the Outline Plan is consistent with the policies and intent of the Hardieville/Legacy Ridge/Uplands Area Structure Plan as further identified in Section 4, Policy Context.

The concept will follow the modified grid road layout established in BlackWolf Stage 1 with the defined goal of “providing a balance between vehicular and pedestrian movement and creating safe, sociable streets and easy connectivity to community facilities.” As the core focal point of the community, Legacy Park comprises of approximately 44% of the gross developable area. Safe, accessible crossings provide walkable linkages to Legacy Park and promote community and neighbourhood interactions in a safe and healthy environment.

The other principal land use in BlackWolf Stage 2 is residential, providing a broad variation in housing product appealing to a wide range of demographic and socioeconomic groups. Residential land uses include low and medium density developments. The opportunity for secondary suite development is planned in appropriate locations within BlackWolf Stage 2. Secondary suites retain the appearance of single detached residential development while supporting increased density, improved housing affordability and accessibility.

2 LOCATION & AREA CONTEXT

2.1 Location

The BlackWolf Stage 2 Outline Plan development boundary is located in North Lethbridge, north of the existing community of Uplands, west of the BlackWolf Stage 1 community, east of future Scenic Drive North (currently designated 13th Street North) and south of future 44th Avenue North. The site is comprised of approximately 59.78 Ha (147.72 Acres) excluding arterial road right of ways and falls within the Hardieville/Legacy Ridge/Uplands Area Structure Plan.

2.2 Site Topography and Grading

The BlackWolf Stage 2 Outline Plan site drains from a plateau area (El. 916.50 – 917.00) in the southeast quadrant of the plan area to the north, north-west and west. Existing drainage flows to natural low areas. The maximum elevation difference on the site is approximately 6.5 metres. Refer to **Figure 2.3 Site Constraints**. Special consideration with regard to existing drainage will need to be considered during detailed design along the existing 13 Street right of way, BlackWolf Stage 1 and Uplands development boundary.

Site grading designs will attempt to match existing terrain as much as possible in order to reduce excessive earthwork quantities and maintain grades/drainage around existing properties, roadways and infrastructure. In addition, future designs should strive to maintain existing grades and drainage along the ATCO Pipelines alignment on the west boundary.

Appendix C – contains the **Geotechnical Evaluation**.

Appendix D – contains the **Environmental Site Assessment**.

2.3 Existing Land Use & Zoning

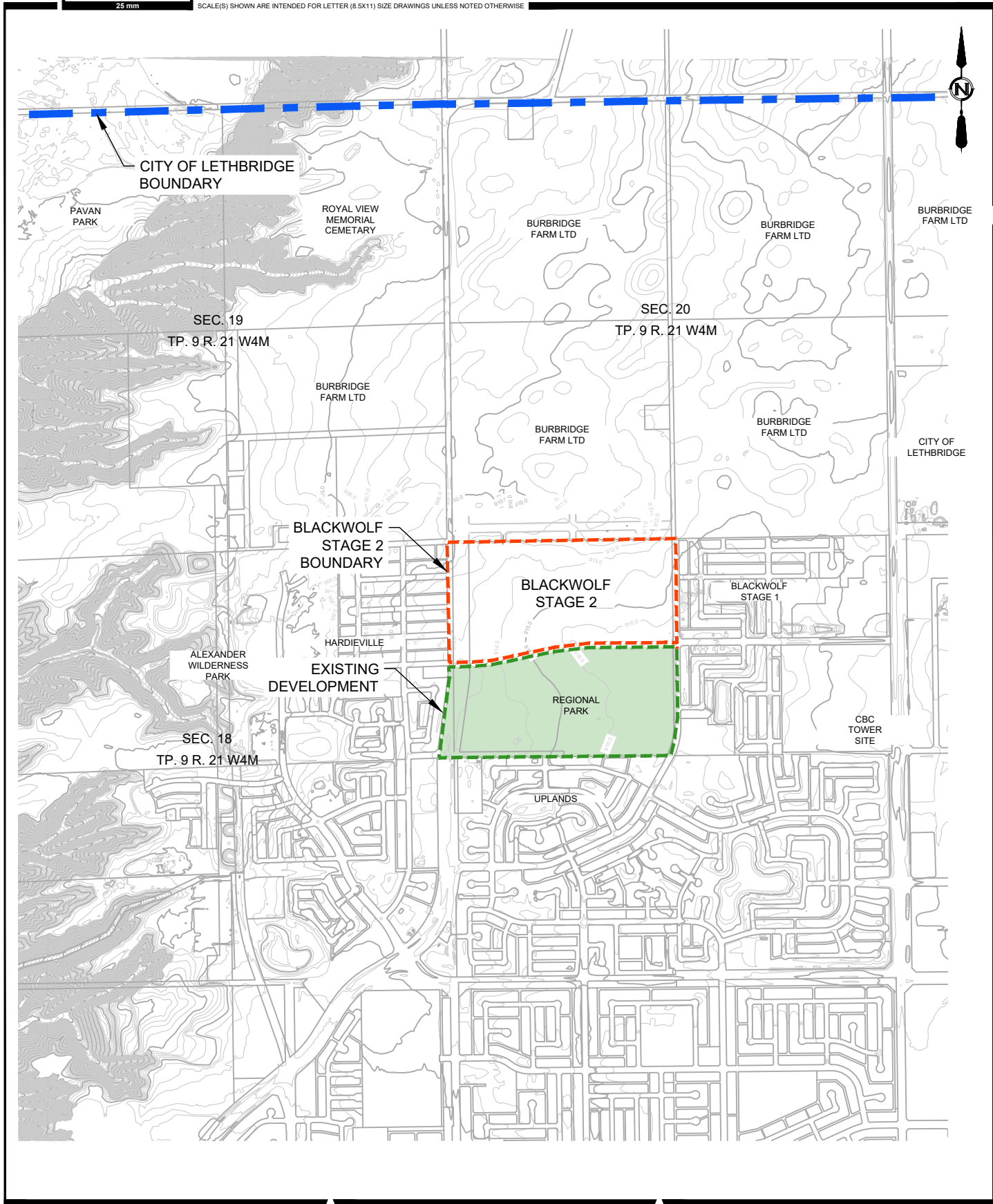
The present zoning of the BlackWolf Stage 2 Outline Plan area is designated as a mix of Parks and Recreation (P-R) and Future Urban Development with provision presently for cropland endeavors. The existing Legacy Park is zoned as Parks and Recreation (P-R).

The immediate surrounding land uses consist of existing residential housing to the east, west and south and continued agricultural pursuits in the lands to the north.

Figure 2.1 Area Context Plan – illustrates the location of BlackWolf Stage 2 within North Lethbridge.

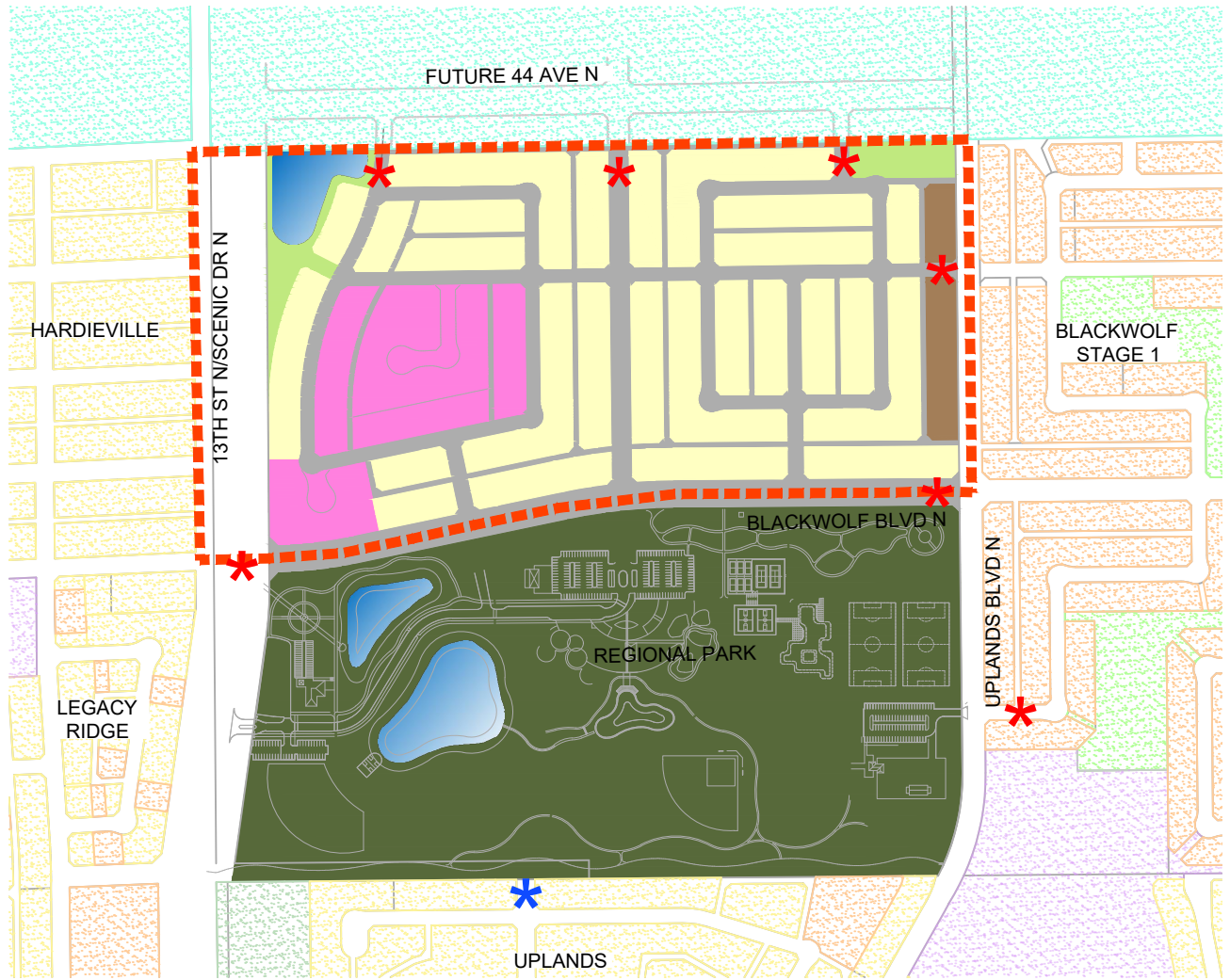
Figure 2.2 Existing Land Use – illustrates the current land uses within and surrounding the plan area.

Figure 2.3 Site Constraints – illustrates the plan area constraints.



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FIGURE 2-1
BW2 DEVELOPMENTS
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AREA CONTEXT PLAN



LEGEND

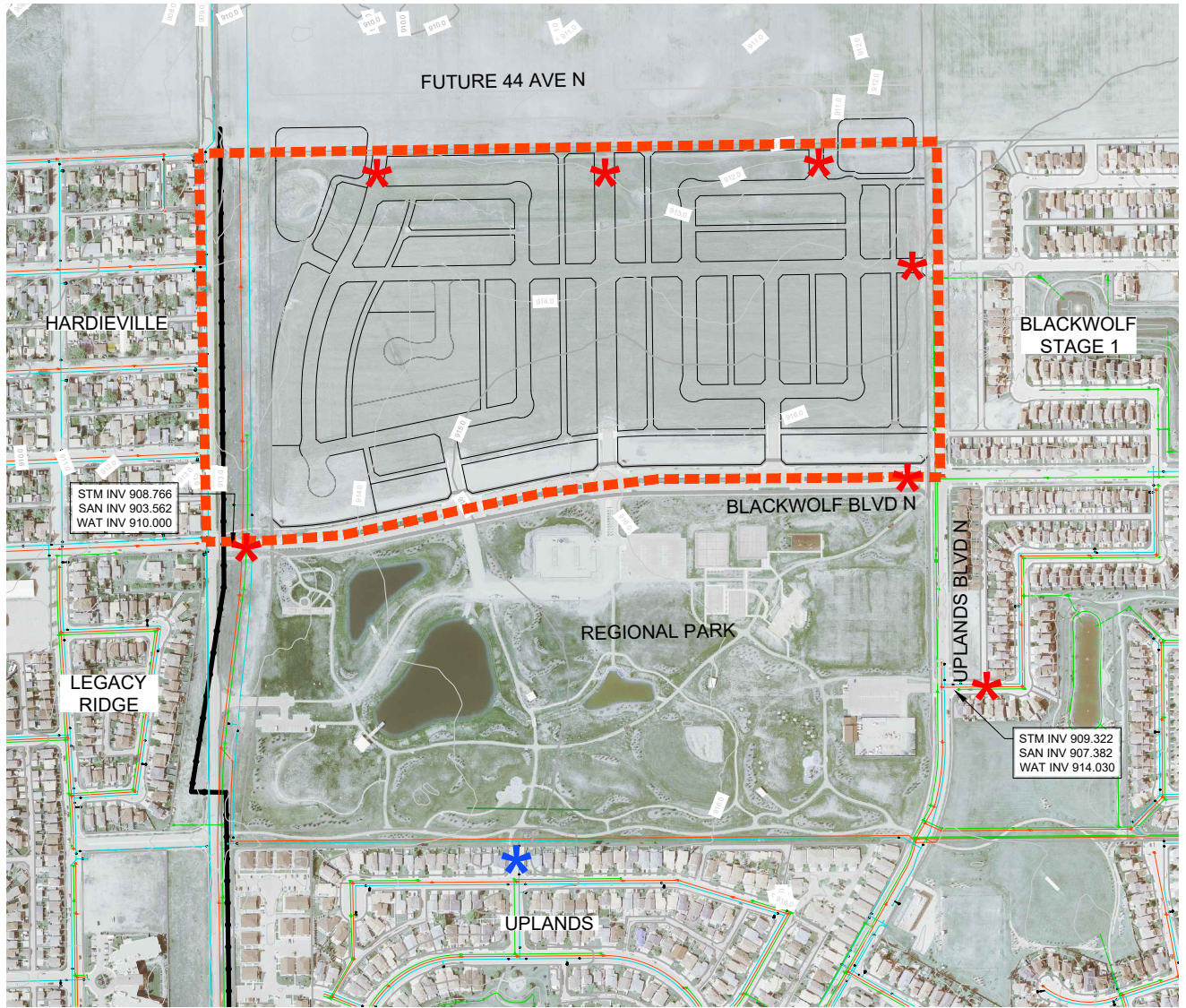
- BLACKWOLF STAGE 2 BOUNDARY
- LOW DENSITY
- SWING SITE
- MEDIUM DENSITY
- NON-CREDIT OPEN SPACE
- STORMWATER MANAGEMENT
- PUBLIC OPEN SPACE
- FUTURE URBAN DEVELOPMENT
- EXISTING LOW DENSITY
- EXISTING MEDIUM DENSITY
- PUBLIC BUILDING

- * TRANSPORTATION ACCESS POINT
- * EXISTING PATHWAY CONNECTION TO UPLANDS



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FIGURE 2-2
 BW2 DEVELOPMENTS
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 NEIGHBOURHOOD CONTEXT PLAN



LEGEND

- - - BLACKWOLF STAGE 2 BOUNDARY
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER MAIN
- EXISTING HIGH PRESSURE GAS MAIN
- * TRANSPORTATION ACCESS POINT
- * EXISTING PATHWAY CONNECTION TO UPLANDS



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FIGURE 2-3
 BW2 DEVELOPMENTS
 CIVIL
 SITE CONSTRAINTS

2.4 Future Shadow Planning

Future shadow planning is identified in the strip of land located north of the Outline Plan area and south of the future 44th Avenue North which is currently envisioned to become a collector road structure. This includes the extension of low-density residential land use and stormwater management facilities.

The shadow plan has been prepared to facilitate coordination of land planning to the north of BlackWolf Stage 2 within the Royal View Area Structure Plan.

3 LAND OWNERSHIP

The BlackWolf Stage 2 Outline Plan area consists of two separate ownership parcels all under the ownership of the City of Lethbridge and BW2 Developments Ltd. The following indicates the legal descriptions for the parcels within the Plan boundary.

- ▶ City of Lethbridge – C. of T. 151 320 442 +1 being Plan 1513322 Block 1 Lot 1MR (Municipal Reserve) containing 29.03 ha (71.73 ac).
- ▶ BW2 Developments Ltd. – C.of T. 161 013 335 being Plan 1513322 Block 1 Lot 2 containing 28.455 ha (70.31 ac).

The Certificates of Title have been provided in **Appendix A – Certificates of Title**.

4 POLICY CONTEXT

The underlying framework of the BlackWolf Stage 2 Outline Plan is based on the hierarchy of higher order municipal land use planning documents: The City of Lethbridge’s Integrated Community Sustainability Plan/Municipal Development Plan (ICSP/MDP) and the Hardieville/Legacy Ridge/Uplands Area Structure Plan. Contextually, the BlackWolf Stage 2 Outline Plan also acts to fulfill the overall planning vision of the ASP by complementing the planning principles and concepts initiated by the first Stage of Blackwolf.

4.1 Integrated Community Sustainability Plan / Municipal Development Plan

The ICSP/MDP is a general policy document intended to guide development of the community “over the next 40 years”. Several key policies of the ICSP/MDP offer context and general direction to the BlackWolf Outline plan. These policies and the Outline plan’s relationship to them are described as follows:

6.2: A Healthy and Diverse City

○ Providing a range of housing types to accommodate different needs

The proposed land use plan offers a mix of housing types – single detached, semi-detached, townhouse, apartment units, a comprehensively planned residential site, and innovative secondary suite opportunities - in order to meet the demand for different lifestyles and living needs. (See **Section 6.2.1: Lethbridge has a Range of Housing that Meets Everyone’s Needs**: Policy # 2: “Integrate a range of housing types throughout the City”)

○ Offering Opportunities for a Healthy Lifestyle

Legacy Park with its many recreation opportunities (both passive and active) for all ages creates excellent opportunities to develop a lifestyle that supports physical and emotional wellbeing. These opportunities are intended to benefit not only the future residents of BlackWolf Stage 2, but the extended neighbourhoods of North Lethbridge as well (See **Section 6.2.3 : Everyone in Lethbridge has Opportunities for Personal Development and Social Well Being**: Policy #3 : “Encourage and provide opportunities for health living”)

6.4 A Well Designed City

○ Commitment to an extensive park system that meets the recreational needs of residents

Legacy Park proposed as part of this Outline Plan represents a significant component of that of the overall park system contemplated for North Lethbridge. The intent of the Policies under **6.4.6-“Lethbridge has a Diverse Parks and Open Space System”**- speak to an open space system that responds to the needs of a current and future generation of residents.

○ Ensuring contiguous growth and expansion of the built environment

This outline plan is a logical extension of the first stage of BlackWolf and the existing Uplands residential community to the south (See **Section 6.4.4: Lethbridge is Expanding in a Responsible Manner: Policy # 1:** “Discourage non-contiguous growth and expansion of the built environment within the City”)

○ Developing parks to encourage community gathering

With potential major recreational opportunities and attractions, Legacy Park forming part of this Outline Plan is the principal gathering site for the Lethbridge community (See **Section 6.4.6: Lethbridge has a Diverse Parks and Open Space System: Policy # 3:** “Develop parks to encourage community gathering”).

(See **Section 6.4.5: Lethbridge is a Planned City that Exhibits Quality Urban Design: Policy # 9:** “Encourage and promote the creation of city and neighbourhood focal points that provide opportunities for community gathering”)

○ Maximization of the use of existing infrastructure

The established extensive infrastructure network in the area ensures that there is maximum utilization of the existing system. (See **Section 6.4.4 Lethbridge is Expanding in a Responsible Manner: Policy # 5** “Encourage and promote growth patterns that maximize the use of existing infrastructure and services in order to avoid or delay the construction of new infrastructure”).

6.5 An Environmentally Responsible City

○ Preparing an Outline Plan that is attentive to the need to use resources both efficiently and creatively

Legacy Park and the parks areas of the BlackWolf neighbourhood will be irrigated with irrigation water from the St. Mary Irrigation District. The water will also be utilized to recharge ponds and provide circulation which will enhance water quality (See **Section 6.5.2 Lethbridge Conserves its Natural Resources: Water Quality Policies: Policy #1:** “Develop programs and practices that encourage water conservation and overall water quality”)

○ Meeting Province of Alberta stormwater regulations

The standards for stormwater management in the BlackWolf Outline Plan are designed to meet provincial requirements (See **Section 6.5.2 Lethbridge Conserves its Natural Resources: Water Quality Policies: Policy # 4:** “Design future stormwater management facilities to meet or exceed Province of Alberta standards”)

○ Planning and designing the open space system to efficiently manage water

The stormwater management plan for BlackWolf Stage 2, incorporates storm ponds as part of the open space system in Legacy Park and at key community access points along the north boundary. (See **Section 6.4.6: Lethbridge**

has a Diverse Parks and Open Space System: Policy # 4: “Plan and design the Open Space System to efficiently manage water”).

4.2 Hardieville / Legacy Ridge / Uplands Area Structure Plan

The Hardieville / Legacy Ridge / Uplands Area Structure Plan sets out more specific directives for the BlackWolf Outline Plan. The most recent amendments to the ASP (April 2013) identify the Regional Park, low density residential uses in the northern sector of the plan area, and a prospective multifamily site. The Stage 2 BlackWolf Outline Plan proposes a land use scheme that is based on this overall pattern and on the objectives of the ASP. Among the ASP’s objectives that are applicable to the BlackWolf Outline Plan are:

- ▶ Accelerating residential growth in this area of Lethbridge
- ▶ Providing a site for a regional park
- ▶ Ensuring that new development is compatible with existing neighbourhood development

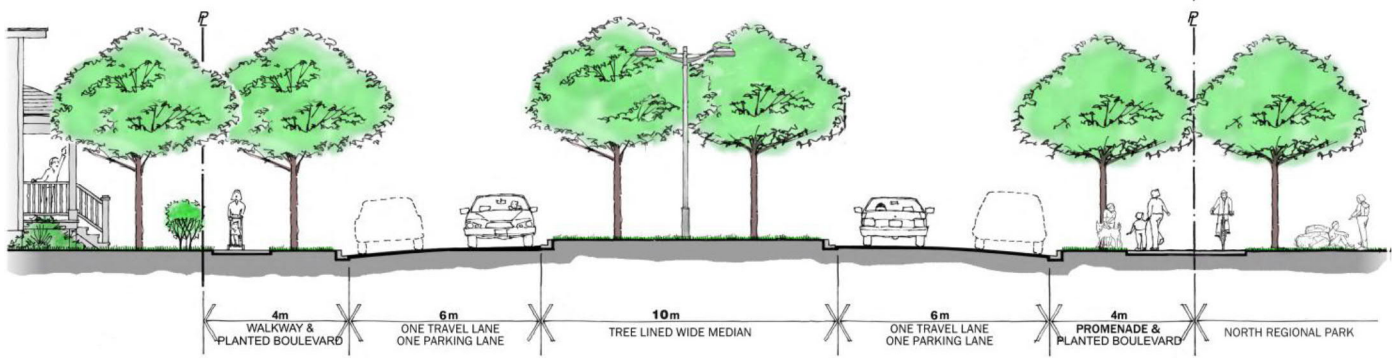
In sum, the BlackWolf Plan addresses these ASP objectives in the following manner:

- ▶ The development of the Stage 2 project will contribute to the ongoing successful growth of north Lethbridge
- ▶ Legacy Park is within the Outline boundary area
- ▶ The Outline Plan is consistent with the development plans for Stage 1 BlackWolf; moreover, it reflects the general residential character of recently developed neighbourhoods in the Uplands and Legacy Ridge communities.

4.3 Planning Considerations and Principles

4.3.1 Legacy Park Proximity

The development of a residential community close to a major recreational activity centre creates perceived lifestyle issues, both positive and negative. To reduce potential tension between these land uses and to create an appealing visual setting, the BlackWolf Stage 2 developer has developed a high landscaping standard for the roadway separating the Park and the residential community. The original conceptual cross section of the BlackWolf Boulevard collector is shown below.



Given its anticipated amenities and design elements, the Regional Park, will create an exceptional environment and lifestyle for its neighbouring BlackWolf residents.

4.3.2 Residential Mix and Design

Consistent with the Hardieville/Legacy Ridge/Uplands ASP, the Stage 2 Outline Plan will offer a residential mix of single detached development and multifamily opportunities to lot purchasers. The form of multifamily development will be determined based upon market conditions at the time of development but is expected to include semi-detached, and townhouse style development.

To manage and control parking and driveway access along BlackWolf Boulevard, the following requirements are recommended at the time of subdivision through a comprehensive site plan layout of BlackWolf Boulevard.

- ▶ Driveways should be paired on common lot lines allowing parallel parking opportunities and tree lined boulevards
- ▶ Corner lots should consider the option of driveway access from the flankage of the lot rather than the front.

5 COMMUNITY VISION & DESIGN

5.1 Community Vision

The BlackWolf Stage 1 Outline Plan of 2009 laid the groundwork for the community focus for this newest stage of the BlackWolf Plan. One major element however, that contributes to the differing vision for this stage of BlackWolf is its proximity to **Legacy Park** which results in a park-oriented vision for this neighbourhood.

The modified grid layout directs the residents of BlackWolf to **Legacy Park**. The Park in turn permits a continuation of active pedestrian movement opportunities to the schools, sports fields and other park and recreational attractions in adjoining neighbourhoods. The park-like focus of BlackWolf Stage 2 is further enhanced by complementary storm ponds which will serve in a multi- functional capacity, not only as storm management tools, but also as buffers, pedestrian linkages, passive recreation and visually aesthetic elements.

Housing opportunities offered in this neighbourhood will ensure that accessibility to the park-like focus is available to a demographic cross-section of home owners and renters.

5.2 Internal Road System

The community design continues the design principles established in BlackWolf Stage 1 to “provide a balance between vehicular and pedestrian movement and to create safe, sociable streets and easy connectivity to community facilities.” Planning principles supporting this community design include:

- ▶ Sustainability
- ▶ Walkability
- ▶ Health, safety and well-being
- ▶ Open space

The modified grid road network initiated in BlackWolf Stage 1 and continued throughout this next stage promotes safe and accessible pedestrian connections while strategically accommodating the private automobile and efficient land use practices.

Open space nodes surrounding the stormwater management facilities connect with adjacent neighbourhood roads and sidewalks to provide linkages throughout the community between residential areas, **Legacy Park** and local amenities. Enhancement of safety in the neighbourhood is provided through an unconnected street network that deters non-local traffic from using the internal street network yet welcomes and promotes easy access to **Legacy Park** through area collector roads.

6 OPEN SPACE DESIGN

With the dominance of the Legacy Park within BlackWolf Stage 2, local open space connectivity as well as regional linkages are paramount for both community users and visitors to the park.

6.1 Open Space

Open Space is a defining feature that establishes our City's character, sense of place and quality of life. Most commonly these spaces provide avenues for passive or active recreation; educational and preservation opportunities; and social and aesthetic contributions.

6.1.1 Regional Park

Consisting of 29.05 Ha, Legacy Park contributes to the City of Lethbridge's parks system on the north side of the City and acts as a destination park for the entire City. It complements the other two existing regional parks while being unique and distinctive. The design of the Park provides for a number of activities which appeal to a wide variety of users. The park functions for all seasons and is being rolled out in a phased process. Legacy Park activity options include; a skate park, sports courts, a children's discovery park, a spray park, an amphitheater and sledding hill, pathways and outdoor fitness circuit as well as passive recreation alternatives such as storm pond, picnic areas and public art viewing.

6.1.2 Stormwater Management Facilities

The stormwater management facilities consist of two wet ponds (one existing) and one dry pond that will be utilized as an aesthetic amenity and function to enhance the visual park experience as well as ensuring adequate stormwater capacities.

6.2 Connectivity

With the Legacy Park as the access hub for BlackWolf Stage 2, an enhanced connector network supports strong pedestrian linkages in all directions – both entering and exiting the plan area. The BlackWolf Stage 2 Outline Plan offers multiple cross neighborhood pedestrian connections into the area via 13th Street North, future 44th Avenue North, Uplands Blvd. North and through the Uplands community to the south. These connections that unify and strengthen all neighbourhoods in the plan area are indicated on **Figure 6.1**. BlackWolf Boulevard invites access into Legacy Park via eight pedestrian cross walks that connect with proposed linkages throughout the open space. In both the northeast and northwest corners of the plan area, non-credit open space offers local connector pathway circuits to adjacent neighbourhoods as well as contributes to enhanced Regional Pathway connections.

The modified grid layout in BlackWolf Stages 1 and 2 as well as in the Hardieville and Legacy Ridge developments provide cohesive and complimentary connectivity and multi-modal linkages for community members and visitors. Along 13th Street North, a 15 metre wide buffer for sound attenuation provides a key linear connection to the Regional

Pathway encouraging alternative travel moving in both north and south directions. This arterial road, landscaped to City standards, encourages an efficient and scenic commute to other significant areas of the City.

6.3 Reserve Dedication Analysis

The provision of public parks and open space within BlackWolf Stage 2 is represented by 44% of the Outline Plan area, which satisfies the reserve obligation required by the Municipal Government Act.

6.4 Seasonal Wet Areas

The developer shall submit Alberta Environment approval concurrent with any request to begin area grading on seasonal wet areas as noted and identified as low points on **Figure 2.3 Site Constraints**. The ESA has suggested that buried organic soils should be removed in the areas of future building development. In addition, further investigations may be warranted at the time of site redevelopment should evidences of coals slags, petroleum hydrocarbon staining or odours, or water well sites be encountered.

Additionally, the supporting study, "Wetland Classification and Delineation Assessment" has been completed and is included in **Appendix F**. The assessment concludes that the area indicates a low value with respect to wetland function and upon review by ESRD, it is unlikely that an application to Alberta Water Act will be required. Approval requirements can be found in the Water Act and Provincial Wetland Restoration/Compensation Guide, Alberta Environment should they be deemed necessary.



LEGEND

- - - - BLACKWOLF STAGE 2 BOUNDARY
- - - - LOCAL CONNECTOR PATHWAY
- - - - REGIONAL MULTI-USE PATHWAY
- ↔ CROSS NEIGHBOURHOOD PEDESTRIAN CONNECTIONS
- *
 COMMUNITY ENTRANCE FEATURES



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FIGURE 6-1
 BW2 DEVELOPMENTS
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 OPEN SPACE NETWORK

7 RESIDENTIAL LAND USE DENSITY

The Hardieville/Legacy Ridge/Uplands Area Structure Plan Bylaw No. 5164 was amended on April 2, 2013. Amending Bylaw 5800 contained the following changes:

- ▶ Reduction to 2 schools within the area based on most recent School District enrollment projections
- ▶ Revision of the Land Use Concept Plan and Open Space System resulting from the above School District needs

The approval by Council [previously](#) included an increase in the size of [Legacy Park](#) to approximately 73 acres and subsequent change to the residential footprint.

The BlackWolf Stage 2 Outline Plan incorporates Residential Land Uses to provide a range of housing opportunities and levels of affordability. The land use densities selected provide the opportunity for single detached homes both laned and laneless, multi-family units including townhouse style developments. Pending further directive from City Council or the Land Use Bylaw, secondary suites may be permitted provided they are located only in areas with lane access, preferably on corner parcels and not on cul-de-sac bulbs or roundabouts where parking will not be an issue.”

The proposed development is intended to include low and medium density residential development providing for a variety of housing types, styles and lot shapes considering the modified grid street layout and providing flexibility to respond to changing market conditions. Secondary suite development will be supported in appropriate areas to increase density, promote greater housing affordability and accessibility across a broad spectrum of socioeconomic levels.

To further market flexibility in this stage of development, two swing sites have been introduced. The intention of these areas is to enable consideration of either low or medium density residential development, or potential condominium sites in a location where the road network has enough capacity to accommodate either form of development.

Figure 7.1 Proposed Land Use Designations - identifies the layout and proposed land uses within the BlackWolf Stage 2 Outline Plan boundary.

7.1 Land Use Summary and Statistics

Table 7-1 Land Use Summary and Statistics

Land Use and Population Estimates	Area (Ha)	% of GDA			
Gross Area	67.28				
Environmental Reserve	-				
Gross Developable Area	67.28				
Public Land Use					
Public Right of Ways (R/W)	17.45	25.9%			
Open Space	29.01	43.1%			
Open Space (non-credit)	1.67	2.5%			
Public Subtotals	48.13	71.5%			
Net Developable Area	19.15	28.5%			
Population Estimates					
			Density (UPHa)	Total Units	Area Population
Residential					
Low Density (Lower Limit	14.08	20.9%	33	465	1,349
Medium Density	0.86	1.3%	37	32	61
Swing Site	4.21	6.3%	50	211	401
Residential Sub Total	19.15	28.5%		708	1,811
Total	67.28	100.0%			
Net Density					
	People/NDA		94	Persons per Ha	
	Dwelling Units/NDA		37	Units per Ha	

Notes:

NDA: Net Developable Area

UPH: Units per hectare

Low Density Residential: 2.9 persons per unit

Medium Density Residential: 1.9 persons per unit



LEGEND

- BLACKWOLF STAGE 2 BOUNDARY
- LOW DENSITY
- MEDIUM DENSITY
- SWING SITE
- PARKS AND RECREATION
- NON-CREDIT OPEN SPACE
- ROAD ROW

	AREA	% OF GDA
GROSS AREA	67.28 ha	
ENVIRONMENTAL RESERVE	0.00 ha	
GROSS DEVELOPABLE AREA	67.28 ha	
PUBLIC LAND USE		
PUBLIC RIGHTS-OF-WAY	17.45 ha	25.9%
OPEN SPACE	29.01 ha	43.1%
NON-CREDIT OPEN SPACE	1.67 ha	2.5%
PUBLIC SUB-TOTAL	48.13 ha	71.5%
NET DEVELOPMENT AREA (NDA)	19.15 ha	28.5%

<u>RESIDENTIAL LAND USE</u>		<u>UPH</u>	<u>TOTAL UNITS</u>	<u>AREA POPULATION</u>
LOW DENSITY (LOWER LIMIT)	14.08 ha	33	465	1,349
MEDIUM DENSITY	0.86 ha	37	32	61
SWING SITE	4.21 ha	50	211	401
RESIDENTIAL SUB-TOTAL	19.15 ha		708	1,811
TOTAL	67.28 ha			



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FIGURE 7-1
 BW2 DEVELOPMENTS
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 LAND USE PLAN

8 ARCHITECTURAL STANDARDS

The built form of the development will be subject to architectural standards and design guidelines. These guidelines will be initiated and implemented by the development team and will include design guidelines such as:

- ▶ Minimum/Maximum building footprints
- ▶ Requirements for attached/detached garages
- ▶ Fencing design and materials
- ▶ Roofing materials
- ▶ Diversity of building design
- ▶ Exterior finish
- ▶ Landscaping requirements

The detailed design guidelines will be developed and enforced at the subdivision stage of development. It is anticipated that homes fronting **Legacy Park** will demonstrate appealing architectural styles and forms to promote an aesthetically pleasing unique roadway corridor.

9 TRANSPORTATION

Access points have been defined by Uplands, BlackWolf Stage 1 and the Hardieville Access Management Study and are identified on **Figure 9.1 – Preliminary Transportation Network**. Access points will meet City of Lethbridge requirements with regard to intersection spacing for roadways. Road drainage along the Outline Plan boundary will be accommodated by internal storm water management facilities up to the centerline of the adjacent roadway; drainage will be considered from beyond the centerline.

9.1 Arterial Road Development

The existing 13th Street R/W adjacent to BlackWolf Stage 2 is anticipated to be developed into a modified arterial roadway Cross-Section. This arterial road will become Scenic Drive North and surface infrastructure will be modified to maintain access and service for the residents of the Hardieville area.

Development and detailed design of this new roadway will require close coordination with ATCO Pipelines whose high pressure gasline is currently installed within an easement just east of 13th Street. It is anticipated that a majority of the line in this area could remain in its current location within a proposed “green-strip” between 13th Street and Scenic Drive North; the remainder to be realigned appropriately to follow the new Scenic Drive North alignment.

9.2 Road Classification and Intersection Treatments

The development of BlackWolf Stage 2 **included** the extension of BlackWolf Boulevard in Stage 1. This Roadway **was** developed as a modified major collector with driveway access, landscaped medians and boulevards that complement the themes developed in the **Legacy Park** Design. Although only shadow planned, 44th Avenue has been shifted north to allow for additional residential development. This Road will be developed to a Community Entrance and Collector Roadway Cross- Section.

The following are suggested for the intersections reviewed:

- ▶ 40 Avenue (BlackWolf Boulevard)/Scenic Drive: the intersection is expected to operate at an acceptable level of service as a roundabout.
- ▶ 44 Avenue/Scenic Drive: the intersection is expected to operate at an acceptable level of service as a roundabout.
- ▶ 44 Avenue/Uplands Boulevard: the intersection is expected to operate at an acceptable level of service as a signalized intersection.
- ▶ BlackWolf Boulevard/Uplands Boulevard: the intersection will operate at an acceptable level of service as a four-way stop intersection.
- ▶ All BlackWolf Stage 2 internal area intersections were shown to operate within acceptable operational parameters as unsignalized intersections.

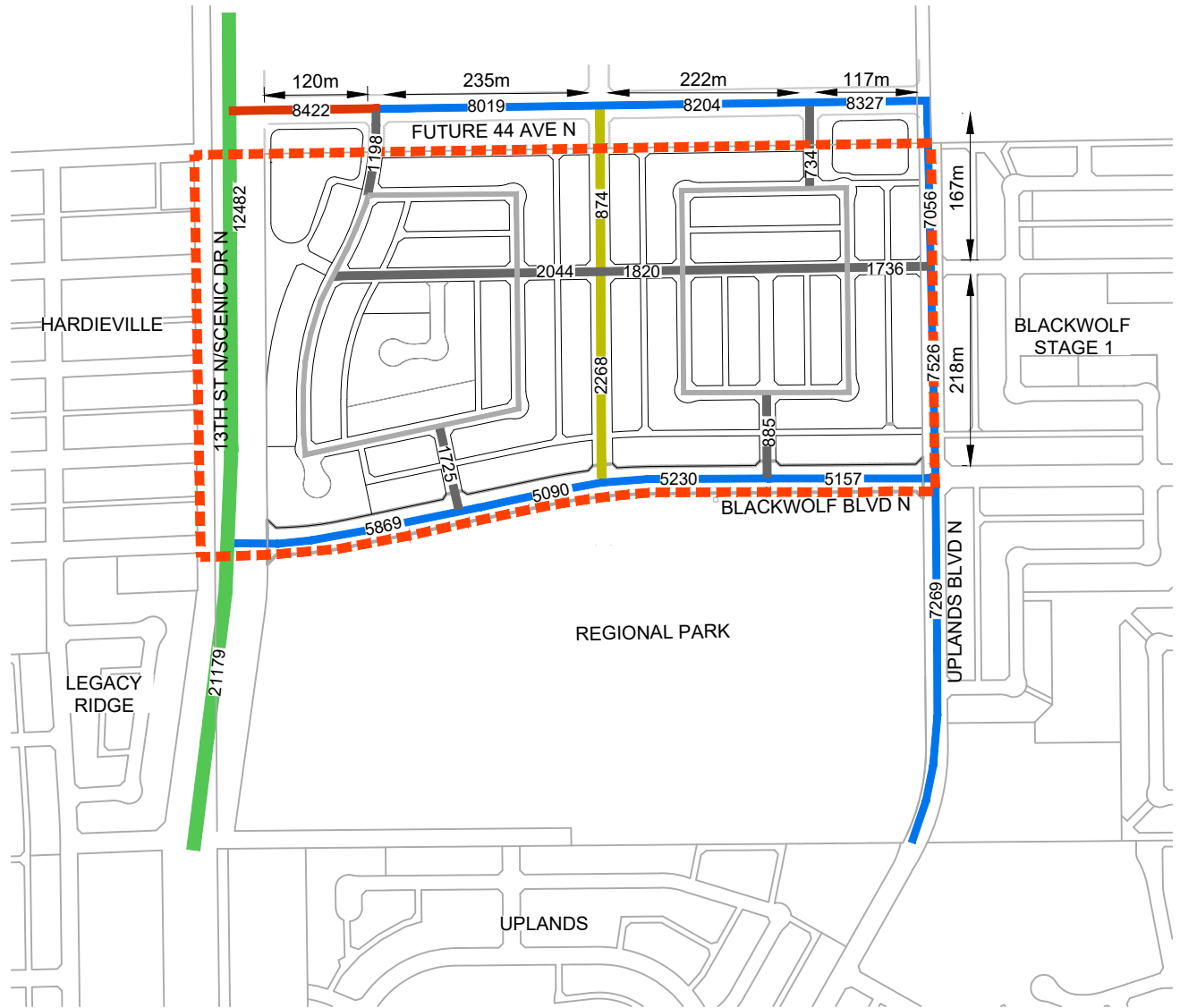
Figure 9.1 – Preliminary Transportation Network identifies roadway classifications and intersection spacings.

9.3 Traffic Impact Assessment

A Transportation Impact Assessment revision has been prepared for the BlackWolf Stage 2 Outline Plan based on the revised land use forecast and included as Appendix B – Transportation Impact Assessment Revision. The objectives of this study include:

- ▶ Update the background traffic conditions in the vicinity of the proposed development included in the previous TIA
- ▶ Estimate the magnitude and characteristics of peak hour traffic generated by the proposed development at the full-build horizon
- ▶ Evaluate the impacts of vehicular traffic generated by the proposed development on the roadway system at the full-build horizon
- ▶ Identify and recommend appropriate traffic operation and/or infrastructure improvements necessary to accommodate the full-build horizon traffic volumes
- ▶ Estimate the two-way traffic volumes to confirm the classification of the road network within the study area

The TIA revision concluded that the revisions to the proposed land uses within the BlackWolf Stage 2 Outline Plan do not significantly impact traffic within the proposed development. Intersections within the development are expected to continue to operate acceptably with the configurations and intersection controls outlined in the 2014 TIA.



LEGEND

- - - BLACKWOLF STAGE 2 BOUNDARY
- ARTERIAL
- COMMUNITY ENTRANCE
- MAJOR COLLECTOR
- MINOR COLLECTOR
- LOCAL 18.50m
- LOCAL 16.50m

*FORECASTED TRAFFIC VOLUMES AS NOTED



AE PROJECT No. 2018-3292
SCALE NTS
APPROVED B CRAWFORD
DATE 2021MAR25
REV A
DESCRIPTION ISSUED FOR REVIEW

FIGURE 9-1
 BW2 DEVELOPMENTS
 CIVIL
 PRELIMINARY TRANSPORTATION NETWORK

10 TRANSIT & MAIL BOX SERVICE

10.1 Transit Routes

Transit routes are preferably placed on public collector roads. A route may be placed on a local road either temporarily or permanently depending on the circumstance and at the discretion of the Transit Manager. Public collector roadways will be designed to meet the current City of Lethbridge Design Standards to ensure adequate space and durability for transit vehicle passage. Transit routes and stop locations will be determined as the neighbourhood develops and may be subject to change. Transit Standards may change between the Outline Plan approval and the implementation of a transit route in a new neighbourhood.

10.2 Community Mailbox Locations

The final location of community mailboxes will be determined in conjunction with Canada Post at the time of detailed design. Community mailboxes are typically located adjacent the City sidewalk along the long frontage of corner lots, or along the openings to park space. Transit bus stop locations will not be combined with community mailbox sites.

11 SITE SERVICING

11.1 Water Servicing

11.1.1 Background

The water distribution system of BlackWolf Stage 2 will be serviced through connections to existing waterlines along 13th Street, along the north boundary of Uplands and an existing Uplands Boulevard water stub.

11.1.2 Design Assumptions

The following acceptable delivery pressures are stated in the City of Lethbridge Design Standards, Level of Service Objectives:

- ▶ No less than 310 kPa (45 psi) during Peak Hour Demand
- ▶ No less than 345 kPa (50 psi) at Maximum Day Demand
- ▶ Maximum Delivery Pressure will not exceed 620 kPa (90 psi)
- ▶ Average Day Demand (ADD) = 415L/Cap/day
- ▶ Maximum Day Demand (MDD) = 2.2 x ADD
- ▶ Peak Hour Demand (PHD) = 3.5 x ADD

The development will be flanked on all sides by major distribution lines along road right of ways. Internal distribution networks will be grid style systems that allow for water looping during development phasing.

Table 11.1: Estimated Water Demands

Scenario	Design Flow
Average Day Demand (415L/cap/day)	0.75 ML/d
Maximum Day Demand (2.2 x ADD ¹)	1.64 ML/d
Peak Hour (3.5 x ADD ¹)	2.61 ML/d

Note 1: ADD – Average Day Demand

Note: Water Usage based on an upper limit estimated population of 1,798 from Table 7.1 – Land Use and Population Estimates.

11.1.3 SMRID Raw Water Supply

Legacy Park within BlackWolf Stage 2 is irrigated with irrigation water from the St. Mary’s River Irrigation District. In addition, this water will be utilized to recharge ponds and provide circulation which will enhance water quality. It is anticipated that a raw water pumping station will be installed along the east boundary of the City, and water will be delivered to the BlackWolf development via a pipe system that is to be installed in BlackWolf Boulevard.

11.2 Sanitary Servicing

11.2.1 Background

Currently, the BlackWolf Stage 2 Outline Plan Area has three possible sanitary sewer connection points.

Connections A and C: The first two connection points for the BlackWolf Stage 2 have been identified on 13 Street and 40 Avenue North and 13 Street and 44 Avenue North. The connection points along 13 Street will service sanitary catchments A and C.

This 750mm sanitary sewer is installed at a depth of approximately 9-10m. This sewer currently receives sewage from the Sherring Industrial Park forcemain. This connection will be removed with the completion of the North Lethbridge Sanitary Siphon project. The City of Lethbridge has indicated that this sewer has the capacity to receive sewage from approximately 429 Ha of undeveloped land which is well above the residential area within our Outline Plan boundary. Given the depth of the installation of the sewer, servicing of the plan area can be accommodated by the gravity sewer from 13th Street – Sanitary Catchments “A” and “C”.

Connection B: The third connection point is located at the termination of Uplands Boulevard North in the SW corner of BlackWolf Stage 1. This 675mm diameter sanitary sewer is installed at a depth of approximately 7-8m and currently services BlackWolf Stage 1 and Uplands. There is sufficient residual capacity in the Uplands sanitary trunk to allow the connection of eastern portions of the Blackwolf Stage 2 Outline Plan area. The connection point in Uplands Blvd will service sanitary catchment B.

11.2.2 Design Standards

City of Lethbridge Design Standards for residential flows has been used for analysis.

- ▶ Dry Weather Flow: 400 L/cap/day
- ▶ Wet Weather Flow: 500 L/cap/day
- ▶ Infiltration: 150 L/cap/day
- ▶ Harmon’s Peaking Factor: $14/(4+\sqrt{P})+1$

Table 11.2: Sanitary Sewage Flow Estimates

Sewershed	Design Population	Peak Flow (l/s)
A – (Scenic Drive Connector Trunk)	562	14.5 l/s
B – (Uplands Trunk)	489	12.7 l/s
C – (Blackwolf Blvd Trunk)	747	19.0 l/s

With respect to the 675 mm diameter connection on Uplands Boulevard, there is a downstream capacity constraint of 205 L/s in the Uplands Boulevard trunk sewer, east of 13th Street. This constraint was previously exceeded, with

commitments of 100 L/s of peak wet weather flow from the Uplands area and 110 L/s from the Sherring sanitary lift station. The discharge point of the forcemain from the Sherring sanitary lift station was relocated west, to the trunk sewer on 13th Street.

The areas that can currently be serviced by the 675mm diameter Uplands Boulevard trunk sewer are:

- ▶ Blackwolf Outline Plan Area – 43.1 l/s
- ▶ Blackwolf Stage 2 Outline Plan Area – 12.7 l/s
- ▶ Future development of the adjacent (SE) ¼ Section (CBC Site) – 13.1 l/s
- ▶ Existing Uplands Development
- ▶ There is a residual capacity of 36 l/s remaining in the Uplands Trunk Sewer.

11.3 Stormwater Management

11.3.1 Background

Where practical, catchment boundaries will be defined by natural topography in an effort to minimize excessive earthwork; these boundaries will extend to the centerline of the adjacent roadways thereby allowing for the combined control of runoff from the development and boundary roads.

Currently, the BlackWolf Stage 2 Outline Plan Area has two possible storm sewer connection points.

- ▶ The first connection point for the Lands North of Uplands has been identified on 13th Street and 40th Avenue. The residual capacity of this line is 2.45m³/s. Based on the depth of 1200mm diameter storm line, It is anticipated that approximately 75% of the BlackWolf Stage 2 can be serviced from this location by a gravity system.
- ▶ The second storm trunk connection point for the northwest corner of BlackWolf Stage 2 has yet to be constructed. It is anticipated that a new outfall will be constructed to the Oldman River with service trunks extending to the south towards BlackWolf Stage 2.

Prior to the completion of a new outfall to the Oldman River, the use of an interim lift station that pumps to the existing 13th Street storm trunk could be considered.

The existing storm line in Uplands Boulevard extending north has no residual capacity for this Outline Plan Area. Refer to **Figure 11.3 – Storm Water Management & Drainage Boundaries** and **Figure 11.4 – Storm Water Management Conceptual Minor System**.

11.3.2 Design Assumptions

As specified in the City of Lethbridge 2013 Design Standards, storm water ponds must be designed to fully accommodate runoff from the 1:100-year, 24-hour rain event.

In the case of BlackWolf Stage 2, three sets of design criteria will be utilized to manage rainfall events up to the 1:100 year event.

The first set of criteria relates to Zones A1, A5 and A6. Design Criteria for these zones will be based upon a 90L/s/Ha release rate. Overland Flow has been estimated at 200 L/s/Ha for these areas. Zone A1 will discharge directly to the Existing Scenic Drive Storm Water Management Trunk Line.

The second set of criteria relates to Zones A2, A3 and A4 (BlackWolf Boulevard). Design Criteria for these zones are based upon an allowable 1:100 year release rate of 10L/s/Ha from Pond A. Please refer to **Appendix G – BlackWolf Boulevard Storm Water Management Preliminary Design** for a preliminary storm water management design option that could be considered during detailed design. Storm Water Storage for the Zone A (A1-A6) residential area is 600m³/Ha as derived from the preliminary storm water design presented in **Appendix G**.

The third set of criteria relates to Zones B and C. Design Criteria for these zones will be based upon 1000m³/Ha active storage for storm water management facilities and a minor system that accommodates 90L/s/Ha. Overland Flow has been estimated at 200 L/s/Ha.

Overland flow routes are to be designed to convey the 1:100 year storm event and not exceed Alberta Environment guidelines for safe velocities and depths. During Detailed Design, lane conveyance capacity needs to be considered and addressed especially where two lanes converge at a “tee”. Overland flow routes will incorporate trapped lows at strategic locations. Trapped lows will:

- ▶ Increase surface run-off capture
- ▶ Provide for energy dissipation during extreme rain fall events (“stilling” basins)
- ▶ Allow for the practical creation of overland flow routes given localized topographical constraints
- ▶ Meet City of Lethbridge design guidelines for maximum depth of 300mm.

In addition to the above, overland flow within a drainage boundary will be proportioned in a way that evenly distributes the flow routes throughout the drainage boundary. Special attention at the detailed design stage may be required where two intersecting overland flow routes meet. Where possible, this point of intersection will occur in close proximity to a storm water management facility.

11.3.3 Proposed Storm Water Management Systems

The BlackWolf Stage 2 Community has been divided into three drainage catchments each serviced by its own storm water management facility. Ponds and catchment areas are identified on **Figure 11.3 Table 11.3 - Pond Statistics** summarizes drainage areas and required storage volumes, and **Table 11.4 – Minor and Major Storm Flows** identifies storm water run-off conditions at key nodes within the plan area.

Zone A

Zone A includes approximately 49.15 Ha (20.30 Ha Residential and 28.85 Ha Regional Park). Pre-existing drainage in this area generally flows from the SE corner of the Plan area to the north and west. The creation of a large water feature within **Legacy Park** will be utilized as the storm water management facility for this Zone.

Overland Flow to Pond A should be designed to enter the pond in multiple locations as identified on **Figure 11.3 – Stormwater Management & Drainage Boundaries**. The development of a landscaped median along BlackWolf Boulevard will need to accommodate overland flow from the north side to the south. Overland flow will not be permitted to cross the median as identified in Section 4.3.1. It is anticipated that the median will be eliminated or depressed at overland flow crossings, or that low points will be adjusted during detailed design to locations that are not impacted by the median. Outflow from this pond will be directed to an existing storm trunk in 13th Street. An option for a dry pond at the northeast corner of **Legacy Park** should be considered during detailed design as indicated on **Figure 11.3** to accommodate overland flow from Node 5. The intent of this pond would be to manage and control the effects of overland flow across **Legacy Park** to the wet pond. Controlled discharge from this pond could then be released to the BlackWolf Boulevard Storm Trunk Line or managed through an internal park storm sewer system.

Zone A (BlackWolf Boulevard/Regional Park)

With reference to **Figure 11.4** and specifically drainage along BlackWolf Boulevard, future detailed design of stormwater management infrastructure shall consider the following:

- ▶ Total Upstream Drainage Catchments to BlackWolf Boulevard should not exceed 5.Ha for each of the three storm crossing points.
- ▶ Minor System Designs at these nodes will promote additional minor system inflow from upstream catchments so that there is no overland flow across Blackwolf Boulevard for up to the 1:25 year rainfall event. This will likely be accomplished through the twinning of catch basins, the oversizing of leads and the oversizing of the minor storm sewer system.
- ▶ Drainage easements will be required in **Legacy Park** along overland flow routes at the subdivision stage of development.
- ▶ Storm Water release rates from this pond will be limited to 10 L/s/Ha.

- ▶ Trapped low designs that accommodate 100m³ to 150m³ of storage. Please refer to **Appendix G – BlackWolf Boulevard Storm Water Management Preliminary Design** which outlines a preliminary storm water management solution for Zones A2, A3 and A4 that could be considered at detailed design.

Zone B

Zone B includes approximately 15.80 Ha of residential drainage. Pond B has been located near an existing low area in the NW corner of the plan area.

Outflow from this dry pond will require either:

- ▶ The completion of a new storm water management system and Outfall to the Oldman River from the north of Blackwolf Stage 2
- ▶ An interim solution whereby water is pumped back to the existing Storm Trunk in Scenic Drive / 13th Street North

Ultimately, storm water release rates from this pond will be limited to 4 L/s/Ha.

The ultimate design of the pond has considered the area shadow planned to the north of Blackwolf. However, an interim development of this facility to the North Boundary of Blackwolf Stage 2 could be considered at detailed design along with the pumped discharge of storm water.

Zone C

Zone C includes approximately 6.41 Ha of residential drainage along Uplands Boulevard. Pond C has been located near an existing low area in the NE corner of the plan area.

Ultimately, outflow from this dry pond will be directed to a future storm outfall in North Lethbridge. Storm Water Release rates from this pond will be limited to 4 L/s/Ha.

The ultimate design of the pond has considered the area shadow planned to the north of Blackwolf. However, an interim development of this facility to the North Boundary of Blackwolf Stage 2 could be considered at detailed design.

Pond Development

The BlackWolf Outline Plan proposes three ponds as outlined in **Table 11.3**.

Table 11.3: Pond Statistics

Pond	Pond Type	Catchment Area	Active Storage Pond Volume
A	Wet Pond	20.30 Ha @ 600 m ³ /Ha*	12,1804 m ^{3**}
B	Wet Pond	15.02 Ha	15,020 m ³
C	Dry Pond	6.71 Ha	6,710 m ³

* Storage rate derived from **Appendix G – BlackWolf Boulevard Storm Water Management Preliminary Design**

** Storage volume excludes Legacy Park storage requirement.

Please note that the development of ponds B and C is contingent upon Land Use Planning to the north of BlackWolf Stage 2. Section 12.0 “Proposed Phasing” will describe planning and infrastructure that will be required for subdivision to occur in these areas. Subdivision of these lands is not anticipated until 2018.

Table 11.4: Minor & Major Storm Flows

Catchment		Sub Catchment*		Minor System	Major System
ID	Area (Ha)	ID	Area (Ha)	Flow (m ³ /ha)	Flow (m ³ /ha)
A	20.30	A1	4.54	0.41	0.91
		A2	4.94	Refer to Appendix	G for design flows
		A3	6.04	Refer to Appendix	G for design flows
		A4	4.03	Refer to Appendix	G for design flows
		A5	0.21	0.02	0.04
		A6	0.54	0.05	0.11
B	15.02	B1	2.05	0.18	0.41
		B2	4.48	0.40	0.90
		B3	4.88	0.44	0.98
		B4	3.61	0.32	0.72
C	6.71	C1	2.15	0.19	0.43
		C2	2.50	0.22	0.50
		C3	2.06	0.19	0.41
A	20.30	A1	4.54	0.41	0.91
		A2	4.94	Refer to Appendix	G for design flows
		A3	6.04	Refer to Appendix	G for design flows
		A4	4.03	Refer to Appendix	G for design flows
		A5	0.21	0.02	0.04
		A6	0.54	0.05	0.11

11.4 Shallow Utilities

11.4.1 ATCO Pipelines

An existing ATCO high pressure gas line is currently installed along the east side of the 13th Street R/W. Based on the ultimate development of 13th Street to a 75m R/W, these existing facilities will be located just west of the new R/W centerline. (Refer to **Figures 9.2 and 9.3.**) Two options that are available to the ultimate development of this R/W are the accommodation of ATCO Pipelines Infrastructure, or the relocation of the infrastructure within the new arterial alignment.

11.4.2 ATCO Gas

It is anticipated that the existing ATCO gas facilities will be relocated and integrated into the community at the subdivision detailed design stage.

11.4.3 Telus

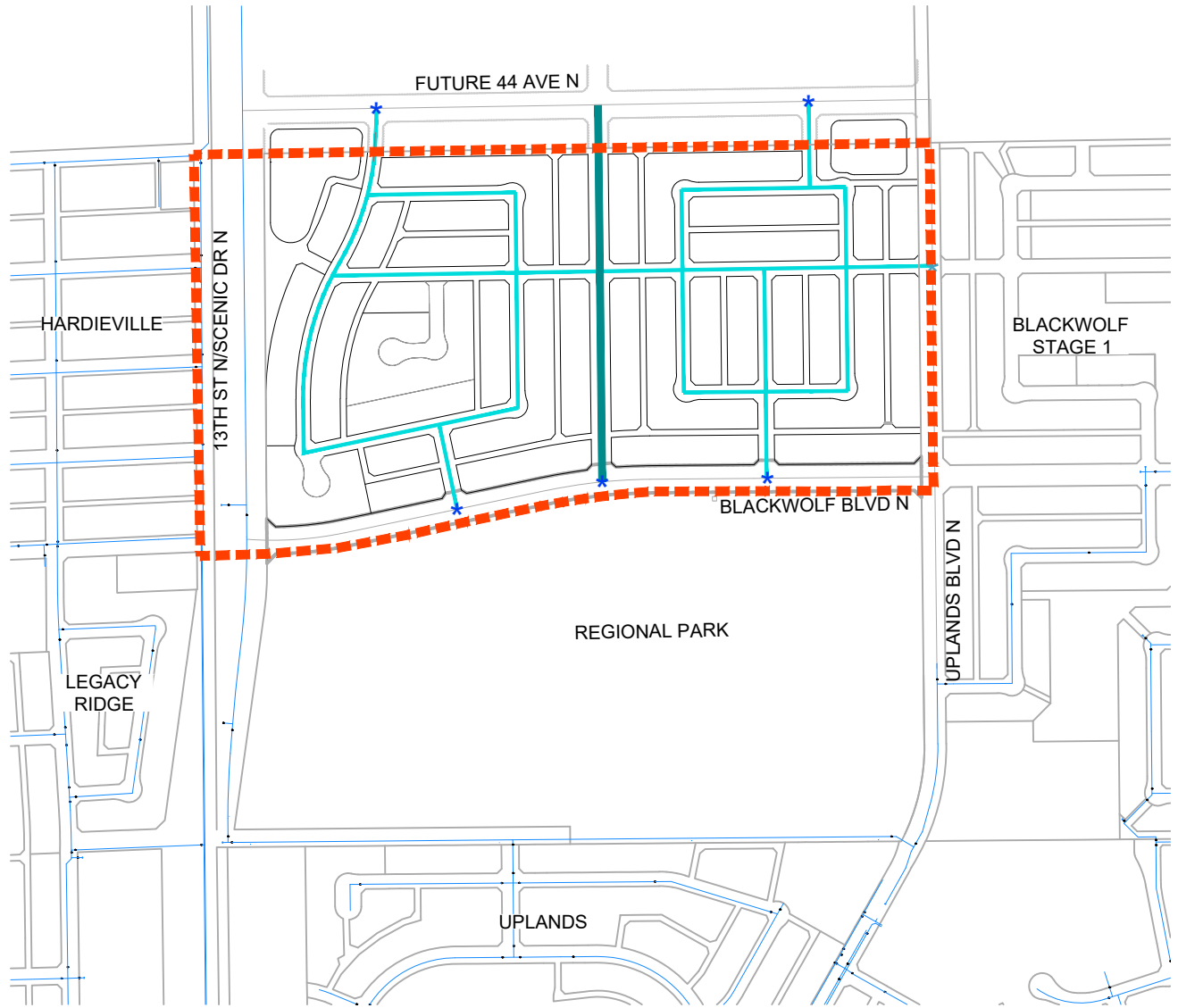
It also is anticipated that the existing TELUS facilities will be relocated and integrated into the community at the subdivision detailed design stage. TELUS has indicated that they may require a line assignment along the north boundary of Uplands.

11.4.4 Shaw

Shaw has indicated that they may require a line assignment along the north boundary of Uplands.

11.4.5 Fortis

It is anticipated that the existing Fortis facilities will be relocated and integrated into the community at the subdivision detailed design stage by the City of Lethbridge and their Electrical Department.



LEGEND

- BLACKWOLF STAGE 2 BOUNDARY
- PROPOSED 200mm WATER MAIN
- PROPOSED 250mm WATER MAIN
- EXISTING WATER MAIN
- CONNECTION POINT

*FORECASTED TRAFFIC VOLUMES AS NOTED



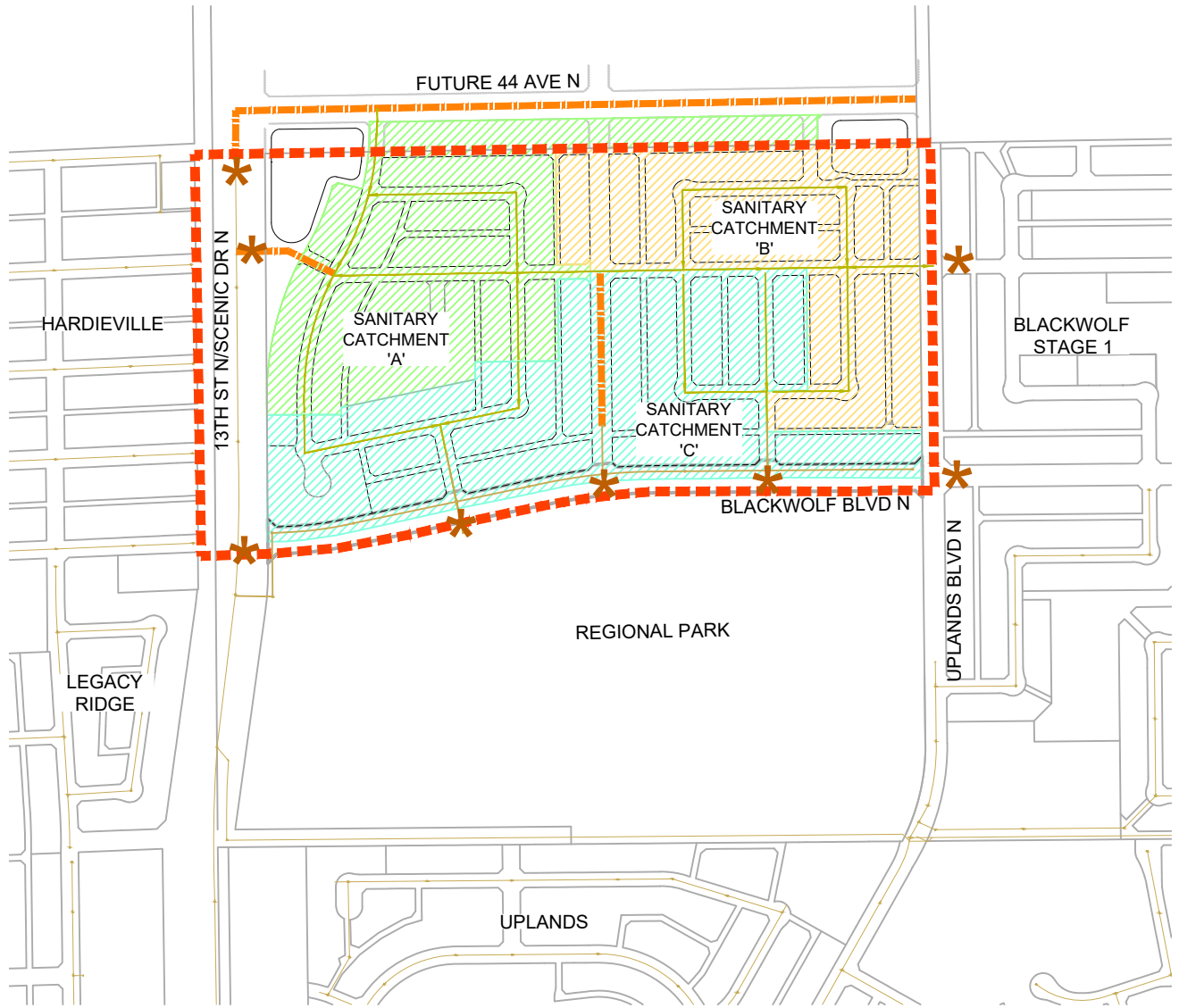
AE PROJECT No.	2018-3292
SCALE	NTS
APPROVED	B CRAWFORD
DATE	2021MAR01
REV	A
DESCRIPTION	ISSUED FOR REVIEW

FIGURE 11-1

BW2 DEVELOPMENTS

CIVIL

WATER SERVICING AND CONNECTION POINTS



LEGEND

- BLACKWOLF STAGE 2 BOUNDARY
- FUTURE SANITARY TRUNK
- PROPOSED 200mm SANITARY
- CONNECTION POINT
- EXISTING SANITARY



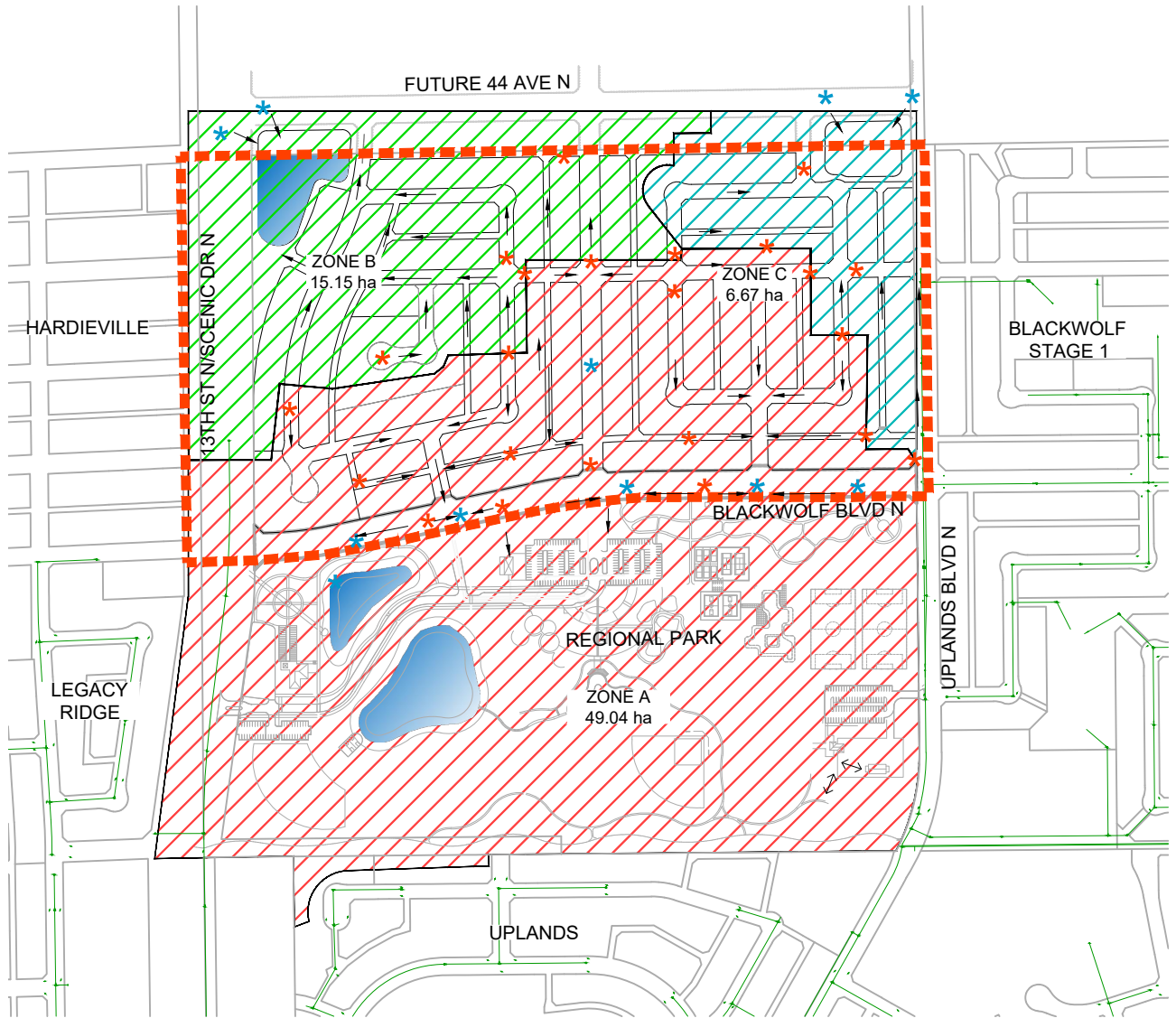
AE PROJECT No. 2018-3292
SCALE NTS
APPROVED B CRAWFORD
DATE 2021MAR01
REV A
DESCRIPTION ISSUED FOR REVIEW

FIGURE 11-2





BW2 DEVELOPMENTS

CIVIL

SANITARY SERVICING AND CONNECTION POINTS



LEGEND

-  BLACKWOLF STAGE 2 BOUNDARY
-  FLOW DIRECTION
-  HIGH POINT
-  LOW POINT



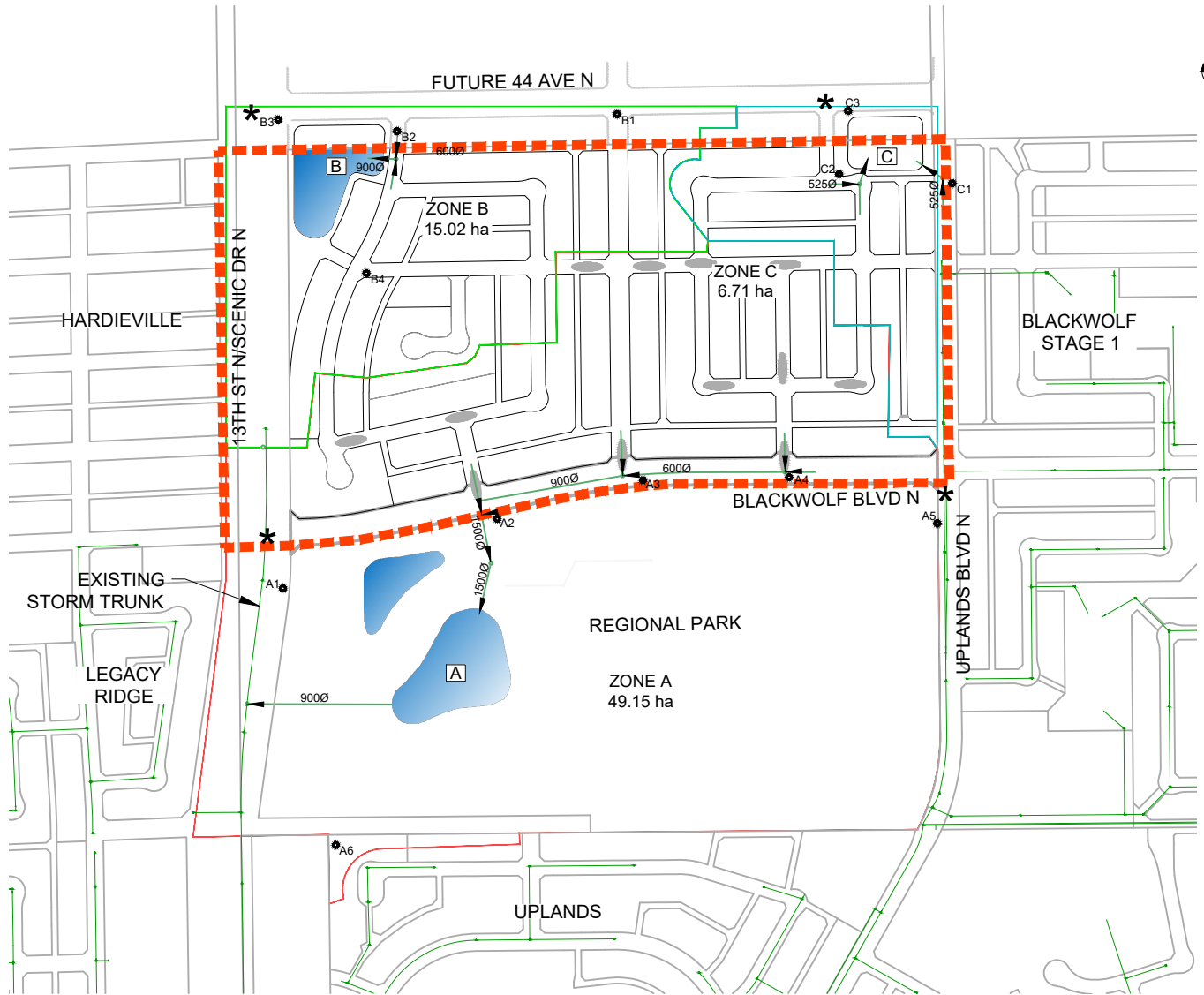
AE PROJECT No. 2018-3292
SCALE NTS
APPROVED B CRAWFORD
DATE 2021MAR01
REV A
DESCRIPTION ISSUED FOR REVIEW

FIGURE 11-3

BW2 DEVELOPMENTS

CIVIL

STORMWATER MANAGEMENT AND DRAINAGE



LEGEND

- ▬▬▬ BLACKWOLF STAGE 2 BOUNDARY
- * STORM TRUNK CONNECTION POINTS
- 9000 MAJOR STORM SYSTEM AND PIPE SIZE
- TRAPPED LOWS
- ∞ DUAL CATCHBASIN
- SINGLE CATCHBASIN
- A POND IDENTIFICATION



Platinum member

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SCALE NTS
APPROVED B CRAWFORD
DATE 2021MAR01
REV A
DESCRIPTION ISSUED FOR REVIEW

FIGURE 11-4

BW2 DEVELOPMENTS

CIVIL

SWMG AND CONCEPTUAL MINOR SYSTEM

12 PROPOSED PHASING

In general, the development will proceed North and West from BlackWolf Boulevard, maximizing the use of existing storm and sanitary infrastructure. The following phases will proceed following the development of the additional storm ponds shown in the plan. Tentative plan staging is shown in **Figure 12-1**. This staging plan does not represent the order in which development may occur. It only reflects suggested phase boundaries. As noted above, development may occur concurrently along the boundaries of either BlackWolf Boulevard or Uplands Boulevard proceeding in a north and west direction.

Development must consider City of Lethbridge Standards with respect to Infrastructure looping and access. Completion of individual phases of development will require careful consideration of the location and availability of services. Looping requirements for water services must ensure adequate level of service for users as areas are completed.

The details of boundary conditions for cost sharing of the collector roadways, stormwater management facilities and their appropriate recoveries will be negotiated and reflected in future Service Agreements. As the area transitions from existing to the future urban uses, no small remnant parcels are left that may impede the future utility servicing, transportation network or development of the area. Determination of this shall be made at the subdivision stage.

The BlackWolf Stage 2 Outline Plan is intended to provide a detailed description and illustration of development such as land use, circulation, parks, open space and pathways development. However, the plan remains conceptual and is subject to alterations and adjustments as a result of market conditions, new standards and consumer demand at the time of development. It is therefore important to create a flexible plan that still provides certainty to the City of Lethbridge, neighbourhoods and their residents.



LEGEND

--- BLACKWOLF STAGE 2 BOUNDARY



Platinum member

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DATE 2021MAR01
REV A
DESCRIPTION ISSUED FOR REVIEW

FIGURE 12-1

BW2 DEVELOPMENTS

CIVIL

DEVELOPMENT PHASING

13 FIRE PROTECTION

Public roadways will be designed to meet the current City of Lethbridge Design Standards to ensure safe emergency vehicle passage.

The City of Lethbridge “Emergency Response Time Modeling” for BlackWolf Stage 2 will need to be reviewed at the time of subdivision in order to meet applicable provincial regulations. Refer to **Appendix H - High Intensity Fire Response Analysis City of Lethbridge**.

14 SUSTAINABILITY

BlackWolf Stage 2 has incorporated principles of sustainable design into the community. The plan area accommodates a mix of housing styles to address a wide range of market demographics. The land uses also provide opportunities to implement secondary suites, innovative design and creativity.

As the core focal point of the plan area, **Legacy Park** creates a sense of place while promoting active and passive recreational opportunities for current and future generations. The pedestrian and cycling corridor enhance connectivity within BlackWolf Stage 2 as well as to adjacent communities, ensuring balanced vehicular/pedestrian movement.

The layout of the community was strategically designed to minimize grading, including locating stormwater management facilities in natural low areas. These facilities ensure adequate storm capacity while efficiently managing water resources. Raw water from St. Mary River Irrigation District will be utilized to irrigate open space areas, recharge ponds and provide circulation to enhance water quality.

15 CONCLUSION

The BlackWolf Stage 2 Outline Plan provides a logical extension to development in the BlackWolf Stage 1 community. Encompassing a substantial portion of the Plan, Legacy Park is a core focal point of the immediate community as well as destination for all City neighbourhoods. The design of the Outline Plan conforms to the policies and intent of the Hardieville / Legacy Ridge / Uplands Area Structure Plan.

BW2 Developments Ltd., respectfully requests Outline Plan approval by the Municipal Planning Commission and subsequent Land Use approval by the Lethbridge City Council to accommodate commencement of the BlackWolf Stage 2 development.

This BlackWolf Stage 2 Outline Plan Amendment was approved by the City of Lethbridge Municipal Planning Commission on _____.

APPENDIX A – CERTIFICATES OF TITLE

\\s-let-fs-01\projects\20189292\00_BW2_OLP__Amend\Urban_Planning\04.03_Progress_Issued\20210325_olpsubmission3\ypt_bw2_olp_amendment_20210331.docx

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

151 320 442 +1

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

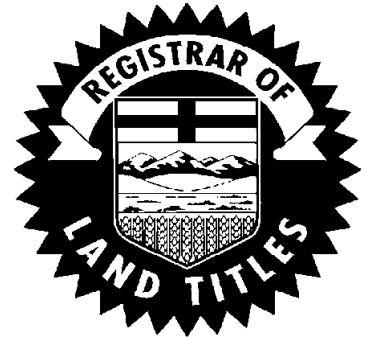
101 282 716	22/09/2010	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE. AS TO PORTION OR PLAN:1013532
121 255 933	01/10/2012	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE. AS TO PORTION OR PLAN:1212840
141 234 307	03/09/2014	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE. AS TO PORTION OR PLAN:1411526
181 053 545	09/03/2018	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE. AS TO PORTION OR PLAN:1810579
191 200 693	02/10/2019	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE. AS TO PORTION OR PLAN:1911929

TOTAL INSTRUMENTS: 007

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF
SEPTEMBER, 2020 AT 01:14 P.M.

ORDER NUMBER: 40109101

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
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SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
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APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0036 990 919 1513322;1;2 161 013 335

LEGAL DESCRIPTION
PLAN 1513322
BLOCK 1
LOT 2
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 28.455 HECTARES (70.31 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;21;9;17;NW
ATS REFERENCE: 4;21;9;17;NE

MUNICIPALITY: CITY OF LETHBRIDGE

REFERENCE NUMBER: 151 320 442

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
161 013 335	15/01/2016	TRANSFER OF LAND		\$5,273,250	\$5,273,250

OWNERS

BW2 DEVELOPMENTS LTD.
OF 1111 3RD AVE SOUTH
LETHBRIDGE
ALBERTA T1J 0J5

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		
861 088 521	30/05/1986	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE.
871 177 437	28/09/1987	UTILITY RIGHT OF WAY GRANTEE - THE CITY OF LETHBRIDGE. AS TO PORTION OR PLAN:8711228 "LSD 14"

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

161 013 335

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

161 013 336 15/01/2016 MORTGAGE
MORTGAGEE - ALBERTA TREASURY BRANCHES.
601 MAYOR MAGRATH DRIVE SOUTH
LETHBRIDGE
ALBERTA T1J4M5
ORIGINAL PRINCIPAL AMOUNT: \$12,000,000

161 013 337 15/01/2016 CAVEAT
RE : ASSIGNMENT OF RENTS AND LEASES
CAVEATOR - ALBERTA TREASURY BRANCHES.
ATTENTION: DIRECTOR
601 MAYOR MAGRATH DRIVE SOUTH
LETHBRIDGE
ALBERTA T1J4M5
AGENT - SCOTT W SANGSTER

161 013 338 15/01/2016 CAVEAT
RE : ASSIGNMENT OF INTEREST
CAVEATOR - ALBERTA TREASURY BRANCHES.
ATTENTION: DIRECTOR
601 MAYOR MAGRATH DRIVE SOUTH
LETHBRIDGE
ALBERTA T1J4M5
AGENT - SCOTT W SANGSTER

191 224 458 05/11/2019 UTILITY RIGHT OF WAY
GRANTEE - THE CITY OF LETHBRIDGE.
AS TO PORTION OR PLAN:1912181

TOTAL INSTRUMENTS: 006

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
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TITLE REPRESENTED HEREIN THIS 15 DAY OF
SEPTEMBER, 2020 AT 01:14 P.M.

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CUSTOMER FILE NUMBER:



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(CONTINUED)

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APPENDIX B – TRAFFIC IMPACT ASSESSMENT

Date: February 26, 2021 File: 2018-3292.E.04.00
 To: Adam St. Amant Page: Page 1 of 4
 From: Darryl Schalk Previous Issue Date: January 21, 2019
 Project: Blackwolf 2 OLP Amendment
 Subject: Blackwolf 2 TIA Revision

Dear Adam:

The original TIA for Blackwolf 2 (BW2) was completed in 2014. It outlined the intersection operation and roadway classifications of the development area. With the proposed update of increasing the density, a reassessment of the traffic in the BW2 development area was undertaken to confirm intersection operation and roadway classifications.

The following sections outline changes and updates from the 2014 TIA due to the increase in density. Most assumptions listed in the 2014 TIA will remain in this update.

1 TRIP GENERATION

	Area (ha)	DENSITY	Units
R-L	0	25	0
R-CM	0	37	0
R-37	0.9	37	33
R-M	17.99	50	900

Table 1a: Updated Land Use Density

	Area (ha)	DENSITY	Units
R-L	13.8	25	345
R-CM	0.88	37	33
R-37	0.90	37	33
R-M	3.31	50	166

Table 1b: 2014 Land Use Density

Trip Generation						
	AM			PM		
	Trip Rate	%in	%out	Trip Rate	%in	%out
Park	0.52	0.71	0.29	0.59	0.35	0.65
R-37	0.77	0.26	0.74	1.02	0.64	0.36
R-M	0.75	0.29	0.71	0.92	0.61	0.39

Table 2a: Trip Generation Values for AM and PM Peaks

Trip Generation						
	AM			PM		
	Trip Rate	%in	%out	Trip Rate	%in	%out
Park	0.52	0.71	0.29	0.59	0.35	0.65
Low	0.77	0.26	0.74	1.02	0.64	0.36
Med	0.75	0.29	0.71	0.92	0.61	0.39

Table 2b: 2014 TIA Trip Generation Values (Extracted from Table 2.1 and 3.2)

Memo To: Adam St. Amant

February 26, 2021

- 2 -

	AM			PM		
	TOTAL	IN	OUT	TOTAL	IN	OUT
Park	42	30	12	47	17	31
R-37	26	7	19	34	22	12
R-M	675	196	479	828	505	323
Total	742	232	510	909	543	366

Table 3a: Total Trips for the AM and PM Peaks

	AM			PM		
	TOTAL	IN	OUT	TOTAL	IN	OUT
<i>Park</i>	42	30	12	47	17	31
<i>Single Fam</i>	266	69	197	352	225	127
<i>Multi Fam</i>	174	50	124	213	130	83
Total	482	149	333	612	372	241

Table 3b: 2014 TIA Total Trips for the AM and PM Peaks (Extracted from Table 3.3)

2 TRIP DISTRIBUTION

There is no change to the trip distribution assumptions in the 2014 TIA.

For reference, the distributions are:

- 40% to/from Scenic Dr / 26 Ave Intersection (via Blackwolf Boulevard and Scenic Drive)
- 30% to/from the Scenic Dr / 26 Ave Intersection (via Uplands Boulevard)
- 20% to/from east 4 4A Ave
- 10% to/from north 13 St

3 TRIP ASSIGNMENT

Trip assignment of background traffic and site traffic were added to provide total traffic volumes at each study intersection.

- Background Traffic

No change from the 2014 TIA. The same values were used in the analysis.

- Site Generated Traffic

Trips were manually assigned at each study intersection based on the ratio of volumes in the 2014 TIA. The updated Trip values listed in table 2, above, were distributed according to the 2014 TIA distribution, and assigned manually to provide updated traffic volumes at each intersection.

Memo To: Adam St. Amant
 February 26, 2021
 - 3 -

4 INTERSECTION ANALYSIS

The intersections were analysed in Synchro 9 (and SIDRA for roundabouts) and followed City of Lethbridge Synchro Parameters. Intersections were given intersection control and lane configurations based on the results of the 2014 TIA to determine if the intersections would continue to operate acceptably with the added traffic. Scenic Drive and 40 Avenue and Scenic Drive and 44 Avenue were analysed in SIDRA and configured as a roundabout based on the proposed future configurations as presented in the Scenic Drive North Preliminary Design.

For both the AM and PM Peak, all intersections continue to operate acceptably, with intersection level of services C or better for unsignalized and signalized intersections. Refer to Table 4a and 4b below for the Intersection leg level of services and overall LOS (in black) compared to the 2014 results (in grey). Attached Figure 1 summarizes recommended intersection control and lane configurations. Synchro and Sidra output reports have not been included in this memo, but can be provided upon request.

		AM									
		EB		WB		NB		SB		Overall	
44 Ave	Scenic Dr	A	B	B	A	A	A	A	B	A	B
44 Ave	Access 4	A	A	A	A	C	B	-	-	A	A
44 Ave	Internal N-S	A	A	A	A	B	C	C	C	A	A
44 Ave	Access 3	A	A	A	A	B	B	-	-	A	A
44 Ave	Uplands Bv	A	B	D	B	D	B	C	B	C	B
Internal E-W	Internal N-S	A	A	A	A	B	A	B	A	A	A
Internal E-W	Uplands Bv	C	B	-	-	A	A	A	A	A	A
40 Ave	Scenic Dr	B	B	B	A	A	B	A	C	A	C
Blackwolf Bv	Access 1	A	A	A	A	-	-	A	B	A	A
Blackwolf Bv	Internal N-S	A	A	A	A	B	B	B	B	A	A
Blackwolf Bv	Access 2	A	A	A	A	-	-	B	B	A	A
Blackwolf Bv	Uplands Bv	B	B	B	B	C	B	C	B	C	B

Table 4a: Level of Service Summary – AM Peak

		PM									
		EB		WB		NB		SB		Overall	
44 Ave	Scenic Dr	A	B	A	A	A	A	A	C	A	B
44 Ave	Access 4	A	A	A	A	C	B	-	-	A	A
44 Ave	Internal N-S	A	A	A	A	C	B	C	C	A	A
44 Ave	Access 3	A	A	A	A	A	B	-	-	A	A
44 Ave	Uplands Bv	B	A	B	C	B	D	B	C	B	A
Internal E-W	Internal N-S	A	A	A	A	A	A	A	A	A	A
Internal E-W	Uplands Bv	B	B	-	-	A	A	A	A	A	A
40 Ave	Scenic Dr	B	B	B	B	A	B	A	C	A	B
Blackwolf Bv	Access 1	A	A	A	A	-	-	B	B	A	A
Blackwolf Bv	Internal N-S	A	A	A	A	B	B	B	B	A	A
Blackwolf Bv	Access 2	A	A	A	A	-	-	B	B	A	A
Blackwolf Bv	Uplands Bv	B	B	B	B	C	C	B	B	B	B

Table 4b: Level of Service Summary – PM Peak

Memo To: Adam St. Amant

February 26, 2021

- 4 -

5 ROADWAY CLASSIFICATIONS

The 2014 TIA assigned road classifications will continue to be acceptable with the increased land use density. The new ADT volumes were calculated by $(AM + PM) \times 5.6$.

The attached Figure 2 shows the resulting roadway classifications. There are no changes from the 2014 TIA. All roads marked as Local and Minor Collectors can continue to be classified as such. Blackwolf Boulevard was classified as a Major Collector road, and as the update results in ADT volumes of 5000-6000, it can continue to be classified as a Major Collector. Future 44th Avenue has updated ADT volumes of 8000-8300 vehicles per day. As per the Royal View ASP, 44th Avenue will be classified as a Modified Collector, and this is acceptable with the resulting volumes.

6 SUMMARY

Following a Synchro analysis in the AM and PM peaks using updated land use density values and updated trip values, it is found that the intersections continue to operate acceptably with the configurations and intersection controls outlined in the 2014 TIA. The two roundabout intersections along Scenic Drive are expected to operate acceptably. Please contact us for any questions or additional information.

Prepared by:



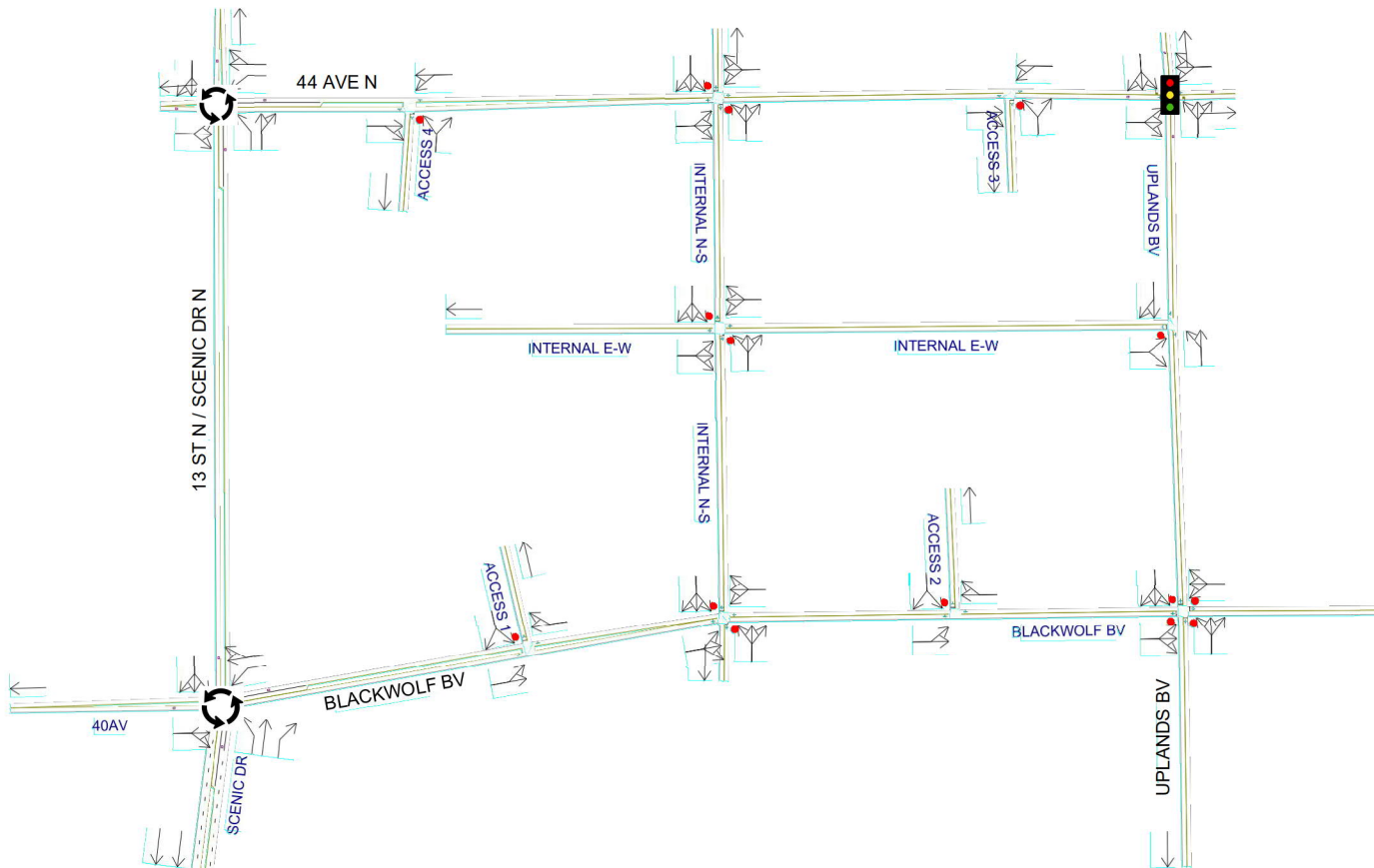
Breanna Jackson, E.I.T

Reviewed by:



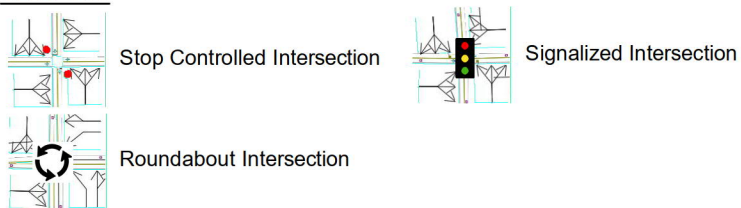
2021-03-01

Darryl Schalk, P.L. (Eng.)



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LEGEND



AVONLEA
H O M E S

Fig. 1
Projected Buildout
Intersection Controls
and Lane Configurations

FEB 2021

Feb 26, 2021 - 2:53pm



13 ST N / SCENIC DR N

8422 44 AVE N 8019 8204 8327

1198

734

7056

12482

874

2044

1820

1736

1725

2268

885

7526

5869

BLACKWOLF BLVD

5090

5230

5157

21179

REGIONAL PARK

UPLANDS BLVD

7269

LEGEND

-  Minor Collector
-  Major Collector
-  Super Collector
-  Arterial
-  Community Entrance Road
-  Local



AVONLEA
H O M E S

Fig. 2
Projected Buildout
Traffic Volumes (ADT)

JAN 2019

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Jan 21, 2019 - 2:03pm

APPENDIX C - ORIGINAL OUTLINE PLAN

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Black Wolf Stage 2 Outline Plan



AUGUST, 2014



Approved by the Municipal Planning Commission September 9, 2014

Table of Contents

1.0 INTRODUCTION	1
2.0 LOCATION & AREA CONTEXT	2
2.1 LOCATION	2
2.2 SITE TOPOGRAPHY AND GRADING	2
2.3 EXISTING LAND USE & ZONING	2
2.4 FUTURE SHADOW PLANNING	3

3.0 LAND OWNERSHIP	4
4.0 POLICY CONTEXT	5
4.1 INTEGRATED COMMUNITY SUSTAINABILITY PLAN / MUNICIPAL DEVELOPMENT PLAN	5
4.2 HARDIEVILLE / LEGACY RIDGE / UPLANDS AREA STRUCTURE PLAN	7
4.3 PLANNING CONSIDERATIONS AND PRINCIPLES	8
4.3.1 Regional Park Proximity	8
4.3.2 Residential Mix and Design	8

5.0 COMMUNITY VISION & DESIGN	9
5.1 COMMUNITY VISION	9
5.2 COMMUNITY DESIGN	9

6.0 OPEN SPACE DESIGN	10
6.1 OPEN SPACE	10
6.2 CONNECTIVITY	10
6.3 RESERVE DEDICATION ANALYSIS	11
6.4 SEASONAL WET AREAS	11

7.0 RESIDENTIAL LAND USE DENSITY	12
7.1 LAND USE SUMMARY AND STATISTICS	13

8.0 ARCHITECTURAL STANDARDS	14
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9.0 TRANSPORTATION	15
9.1 ARTERIAL ROAD DEVELOPMENT	15
9.2 ROAD CLASSIFICATION AND INTERSECTION TREATMENTS	15
9.3 TRAFFIC IMPACT ASSESSMENT	16

10.0 TRANSIT & MAIL BOX SERVICE	16
10.1 TRANSIT ROUTES	17
10.2 COMMUNITY MAILBOX LOCATIONS	17

**BLACKWOLF STAGE 2
OUTLINE PLAN**

11.0 SITE SERVICING	18
11.1 WATER SERVICING.....	18
11.2 SANITARY SERVICING.....	19
11.3 STORM WATER MANAGEMENT	20
11.4 SHALLOW UTILITIES	24

12.0 PROPOSED PHASING	26
13.0 FIRE PROTECTION.....	29
14.0 SUSTAINABILITY.....	30
15.0 CONCLUSION.....	31

APPENDICES

- A Certificates of Title
- B Transportation Impact Assessment
- C Geotechnical Evaluation
- D Environmental Site Assessment
- E Statement of Justification for Historical Resources Act
- F Wetland Classification and Delineation Assessment
- G BlackWolf Boulevard Storm Water Management Preliminary Design
- H High Intensity Fire Response Analysis City of Lethbridge.
- I Gate 1 Sign-Off
- J Gate 2 Sign-Off
- K Gate 3 Sign-Off



1.0 INTRODUCTION

BlackWolf Stage 2 is located in the northern sector of the City. Comprising of 59.8 Ha, BlackWolf Stage 2 forms a part of the Hardieville/Legacy Ridge/Uplands Area Structure Plan adopted by the City of Lethbridge on May 6, 2002.

The BlackWolf Stage 2 Outline Plan provides an extension to the recently developed community of BlackWolf Stage 1 located to the east and the well-established Hardieville subdivision and growing Legacy Ridge community to the west with Uplands lying south of the plan area. The design of the Outline Plan is consistent with the policies and intent of the Hardieville/Legacy Ridge/Uplands Area Structure Plan as further identified in Section 4, Policy Context.

The concept will follow the modified grid road layout established in BlackWolf Stage 1 with the defined goal of “providing a balance between vehicular and pedestrian movement and creating safe, sociable streets and easy connectivity to community facilities.” As the core focal point of the community, the North Regional Park comprises approximately 44% of the gross developable area. Safe, accessible crossings will provide walkable linkages to the Regional Park and promote community and neighbourhood interactions in a safe and healthy environment.

The other principal land use in BlackWolf Stage 2 is residential which provides density variations and appeal to a broad landscape of demographics. These land use classifications include Comprehensively Planned Medium Density, Low Density, and Medium Density that will complement a community sense of place with an inviting welcome to visitors of the Regional Park.



2.0 LOCATION & AREA CONTEXT

2.1 LOCATION

The BlackWolf Stage 2 Outline Plan development boundary is located in North Lethbridge, north of the existing community of Uplands, west of the BlackWolf Stage 1 community, east of future Scenic Drive North (currently designated 13th Street North) and south of future 44th Avenue North. The site is comprised of approximately 59.78 Ha (147.72 Acres) excluding arterial road right of ways and falls within the Hardieville/Legacy Ridge/Uplands Area Structure Plan.

2.2 SITE TOPOGRAPHY AND GRADING

The BlackWolf Stage 2 Outline Plan site drains from a plateau area (El. 916.50 – 917.00) in the southeast quadrant of the plan area to the north, north-west and west. Existing drainage flows to natural low areas. The maximum elevation difference on the site is approximately 6.5 metres. Refer to **Figure 2.3 Site Constraints**. Special consideration with regard to existing drainage will need to be considered during detailed design along the existing 13 Street right of way, BlackWolf Stage 1 and Uplands development boundary.

Site grading designs will attempt to match existing terrain as much as possible in order to reduce excessive earthwork quantities and maintain grades/drainage around existing properties, roadways and infrastructure. In addition, future designs should strive to maintain existing grades and drainage along the ATCO Pipelines alignment on the west boundary.

Appendix C – contains the **Geotechnical Evaluation**.

Appendix D – contains the **Environmental Site Assessment**.

2.3 EXISTING LAND USE & ZONING

The present zoning of the entire BlackWolf Stage 2 Outline Plan area is designated as Future Urban Development (FUD) with provision presently for cropland endeavors.

The immediate surrounding land uses consist of existing residential housing to the east, west and south and continued agricultural pursuits in the lands to the north.

Figure 2.1 Area Context Plan – illustrates the location of BlackWolf Stage 2 within North Lethbridge.

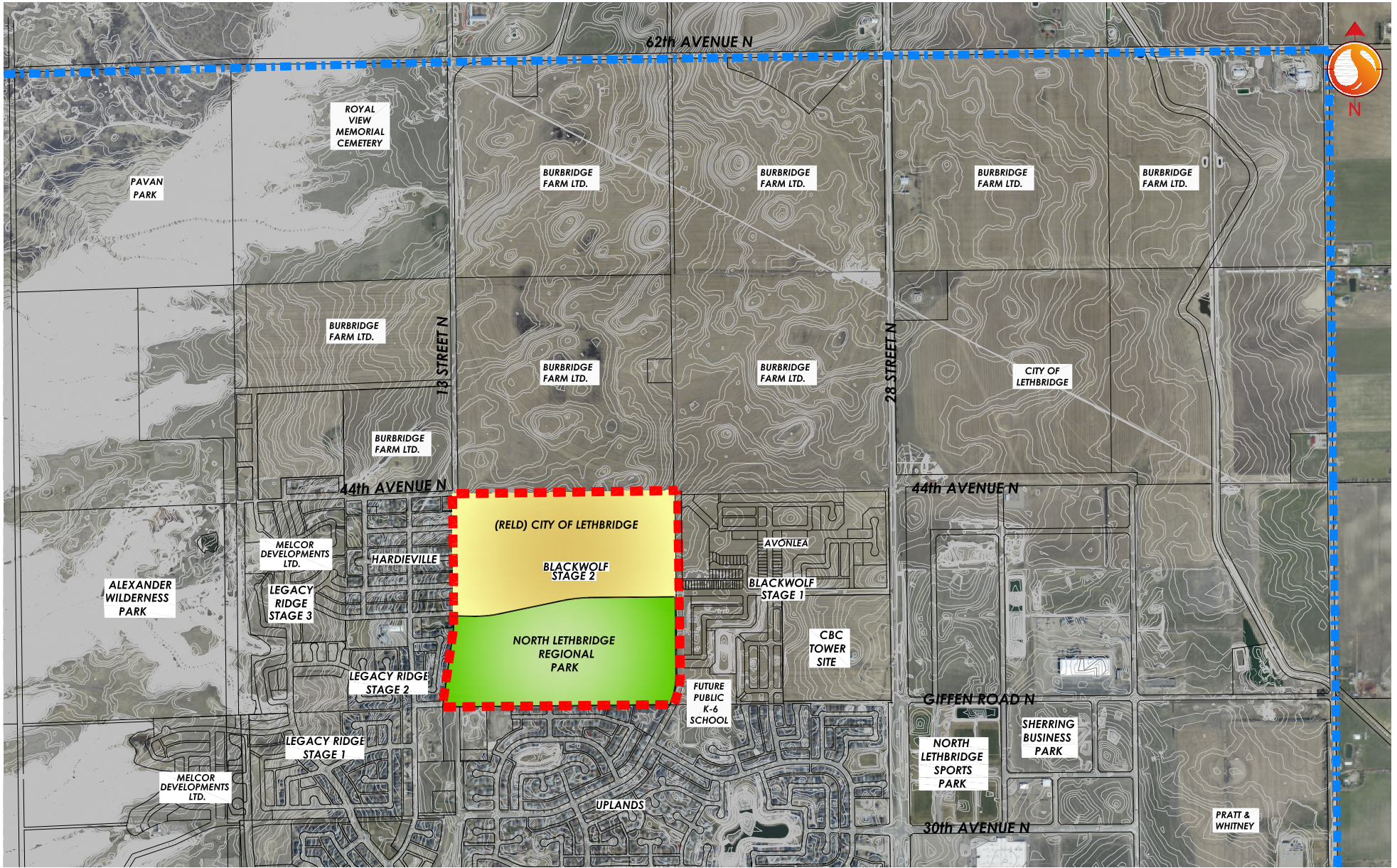
Figure 2.2 Existing Land Use – illustrates the current land uses within and surrounding the plan area.

Figure 2.3 Site Constraints – illustrates the plan area constraints.

2.4 FUTURE SHADOW PLANNING

Future shadow planning is identified in the strip of land located north of the Outline Plan area and south of the future 44th Avenue North which is currently envisioned to become a collector road structure. This includes the extension of R-L residential land use and stormwater management facilities.

The shadow plan has been prepared to facilitate coordination of land planning to the north of BlackWolf Stage 2 within the Royal View Area Structure Plan.



NTS



112945510
May 28, 2014

LEGEND

- ■ ■ ■ ■ BlackWolf Stage 2 Boundary
- ■ ■ ■ ■ City of Lethbridge Boundary

BLACKWOLF STAGE 2 | FIGURE 2.1

Outline Plan

Area Context Plan

PREPARED FOR: **CITY OF LETHBRIDGE - RELD**
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NOTE: All Faded Colors Represent Present/Future Zoning Outside of the Outline Plan Area

NTS
Stantec
 Design with community in mind
 112945510
 May 27, 2014

Lethbridge Land
 Community focus. Built with integrity.

LEGEND	
	BlackWolf Stage 2 Boundary
	Residential - Low Density
	Residential - Medium Density (37)
	Residential - Medium Density (75)
	Residential - Mixed Density
	Comprehensively Planned Medium Residential
	Public Building
	Swing Site
	Commercial
	Direct Control
	Future Urban Development
	Public Open Space with Activity Nodes
	Storm Water Management

- Transportation Access Point
- Dead end of Marmot Road North to be closed & converted into walkway access

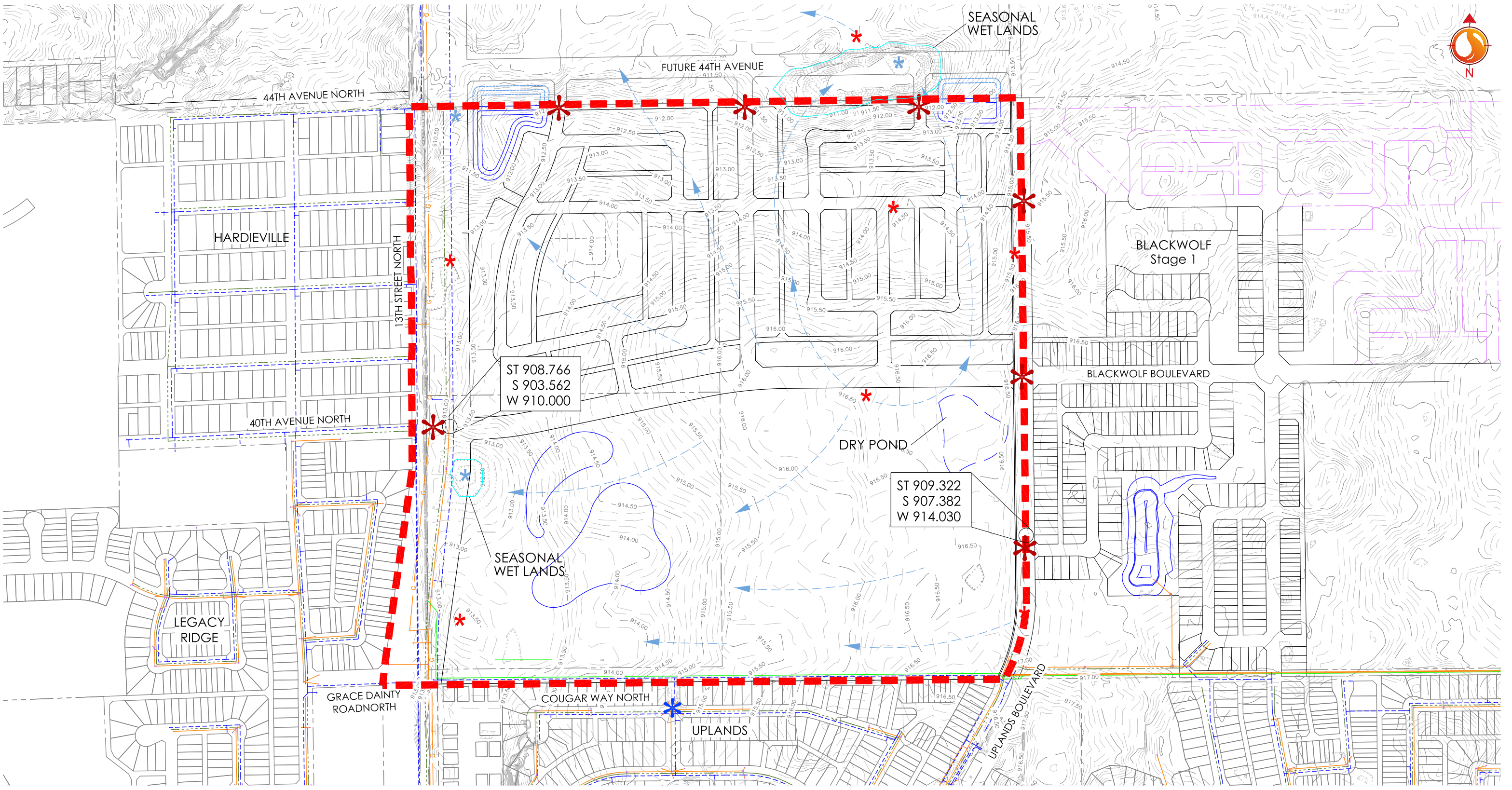
BLACKWOLF STAGE 2 | FIGURE 2.2

Outline Plan

Neighborhood Context Plan

PREPARED FOR: CITY OF LETHBRIDGE - RELD
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3.0 LAND OWNERSHIP

The BlackWolf Stage 2 Outline Plan area consists of three separate ownership parcels all under the ownership of the City of Lethbridge. The following indicates the legal descriptions for the parcels within the Plan boundary.

- City of Lethbridge – C. of T. 821 153 047A being LSD 13 in Section 17, Township 9, Range 21, W4M containing 16.2 ha (40 ac).
- City of Lethbridge – C. of T 821 153 047B being the major portion of LSD 12 in Section 17, Township 9, Range 21, W4M containing 15.4 ha (38 ac).
- City of Lethbridge – C.of T. 101 239 380+112 being the major portion of LSD 11 and 14 in the Section 17, Township 9, Range 21, W4M containing 32.3 ha (79.8 ha).

The Certificates of Title have been provided in [Appendix A – Certificates of Title](#). [Figure 3.1 Land Ownership](#) identifies the ownership within the plan boundary.

4.0 POLICY CONTEXT

The underlying framework of the BlackWolf Stage 2 Outline Plan is based on the hierarchy of higher order municipal land use planning documents: The City of Lethbridge's Integrated Community Sustainability Plan/Municipal Development Plan (ICSP/MDP) and the Hardieville/Legacy Ridge/Uplands Area Structure Plan. Contextually, the BlackWolf Stage 2 Outline Plan also acts to fulfill the overall planning vision of the ASP by complementing the planning principles and concepts initiated by the first Stage of Blackwolf.

4.1 INTEGRATED COMMUNITY SUSTAINABILITY PLAN / MUNICIPAL DEVELOPMENT PLAN

The ICSP/MDP is a general policy document intended to guide development of the community "over the next 40 years". Several key policies of the ICSP/MDP offer context and general direction to the BlackWolf Outline plan. These policies and the Outline plan's relationship to them are described as follows:

6.2 A Healthy and Diverse City

- **Providing a range of housing types to accommodate different needs**

The proposed land use plan offers a mix of housing types – single detached, semi-detached, townhouse, apartment units, a comprehensively planned residential site, and innovative secondary suite opportunities - in order to meet the demand for different lifestyles and living needs. (See **Section 6.2.1: Lethbridge has a Range of Housing that Meets Everyone's Needs: Policy # 2: "Integrate a range of housing types throughout the City"**)

- **Offering Opportunities for a Healthy Lifestyle**

The Regional Park with its many recreation opportunities (both passive and active) for all ages creates excellent opportunities to develop a lifestyle that supports physical and emotional wellbeing. These opportunities are intended to benefit not only the future residents of BlackWolf Stage 2, but the extended neighbourhoods of North Lethbridge as well (See **Section 6.2.3 : Everyone in Lethbridge has Opportunities for Personal Development and Social Well Being: Policy #3 : "Encourage and provide opportunities for health living"**)

6.4 A Well Designed City

- **Commitment to an extensive park system that meets the recreational needs of residents**

The North Regional Park proposed as part of this Outline Plan represents a significant component of that of the overall park system contemplated for North Lethbridge. The intent of the Policies under **6.4.6 -"Lethbridge has a Diverse Parks and Open Space System"**- speak to an open space system that responds to the needs of a current and future generation of residents.

- **Ensuring contiguous growth and expansion of the built environment**

This outline plan is a logical extension of the first stage of BlackWolf and the existing Uplands residential community to the south (See Section 6.4.4: Lethbridge is Expanding in a Responsible Manner: Policy # 1: "Discourage non-contiguous growth and expansion of the built environment within the City")

- **Developing parks to encourage community gathering**

With potential major recreational opportunities and attractions, the Regional Park forming part of this Outline Plan is anticipated be the principal gathering site for the Lethbridge community (See Section 6.4.6: Lethbridge has a Diverse Parks and Open Space System: Policy # 3: "Develop parks to encourage community gathering".)

(See Section 6.4.5: Lethbridge is a Planned City that Exhibits Quality Urban Design: Policy # 9: "Encourage and promote the creation of city and neighbourhood focal points that provide opportunities for community gathering")

- **Maximization of the use of existing infrastructure**

The established extensive infrastructure network in the area ensures that there is maximum utilization of the existing system. (See Section 6.4.4 Lethbridge is Expanding in a Responsible Manner: Policy # 5 "Encourage and promote growth patterns that maximize the use of existing infrastructure and services in order to avoid or delay the construction of new infrastructure").

6.5 An Environmentally Responsible City

- **Preparing an Outline Plan that is attentive to the need to use resources both efficiently and creatively**

The Regional Park and the parks areas of the BlackWolf neighbourhood will be irrigated with irrigation water from the St. Mary Irrigation District. The water will also be utilized to recharge ponds and provide circulation which will enhance water quality (See Section 6.5.2 Lethbridge Conserves its Natural Resources: Water Quality Policies: Policy #1: "Develop programs and practices that encourage water conservation and overall water quality")

- **Meeting Province of Alberta stormwater regulations**

The standards for storm water management in the BlackWolf Outline Plan are designed to meet provincial requirements (See Section 6.5.2 Lethbridge Conserves its Natural Resources: Water Quality Policies: Policy # 4: "Design future stormwater management facilities to meet or exceed Province of Alberta standards")

■ Planning and designing the open space system to efficiently manage water

The storm water management plan for BlackWolf Stage 2, incorporates storm ponds as part of the open space system in the Regional Park and at key community access points along the north boundary. (See Section 6.4.6: Lethbridge has a Diverse Parks and Open Space System: Policy # 4: "Plan and design the Open Space System to efficiently manage water").

4.2 HARDIEVILLE / LEGACY RIDGE / UPLANDS AREA STRUCTURE PLAN

The Hardieville / Legacy Ridge / Uplands Area Structure Plan sets out more specific directives for the BlackWolf Outline Plan. The most recent amendments to the ASP (April 2013) identify the Regional Park, low density residential uses in the northern sector of the plan area, and a prospective multifamily site. The Stage 2 BlackWolf Outline Plan proposes a land use scheme that is based on this overall pattern and on the objectives of the ASP. Among the ASP's objectives that are applicable to the BlackWolf Outline Plan are:

- Accelerating residential growth in this area of Lethbridge
- Providing a site for a regional park
- Ensuring that new development is compatible with existing neighbourhood development

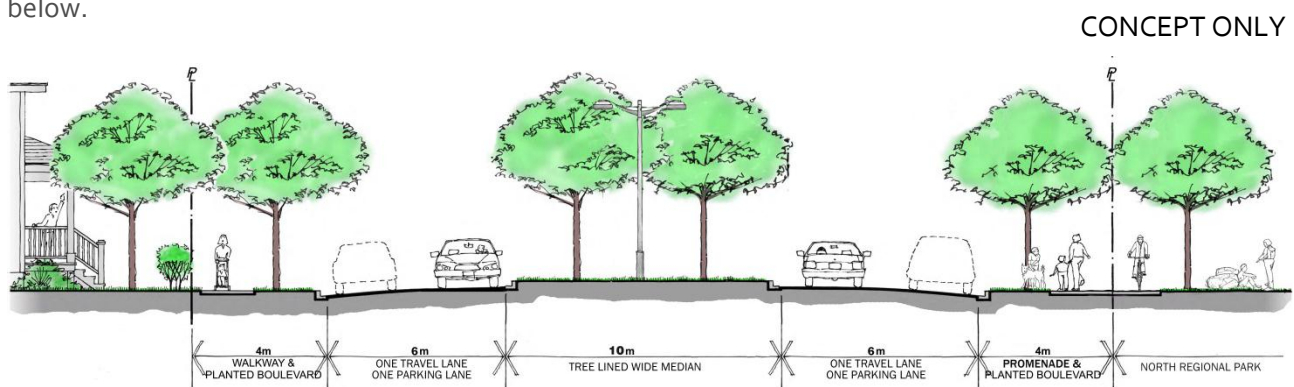
In sum, the BlackWolf Plan addresses these ASP objectives in the following manner:

- a) The development of the stage 2 project will contribute to the ongoing successful growth of north Lethbridge
- b) A site for the north Regional Park site has been allocated in the Outline plan
- c) The Outline Plan is consistent with the development plans for Stage 1 BlackWolf; moreover, it reflects the general residential character of recently developed neighbourhoods in the Uplands and Legacy Ridge communities.

4.3 PLANNING CONSIDERATIONS AND PRINCIPLES

4.3.1 Regional Park Proximity

The development of a residential community close to a major recreational activity centre creates perceived lifestyle issues, both positive and negative. The design, function and location of activities in the Regional Park can impact neighbouring residents in a variety of ways. These factors can also impact the marketing of neighbouring lots. To reduce potential tension between these land uses and to create an appealing visual setting, the BlackWolf Stage 2 developer will act with the City of Lethbridge Parks Department or Infrastructure Services to develop a high landscaping standard for the roadway separating the Park and the residential community. A conceptual cross section of the BlackWolf Boulevard collector is shown below.



The proponent of the Outline Plan will also work closely with appropriate City parks and recreation personnel to ensure that the Park will provide buffer space.

Given its anticipated amenities and design elements, the Regional Park, has the potential to create an exceptional environment and lifestyle for its neighbouring BlackWolf residents.

4.3.2 Residential Mix and Design

Consistent with the Hardieville/Legacy Ridge/Uplands ASP, the Stage 2 Outline Plan will offer a residential mix of single detached development and multifamily opportunities to lot purchasers. The multifamily breakdown will depend on market factors but is expected to include semi-detached, townhouse, and apartment units.

To manage and control parking and driveway access along BlackWolf Boulevard, the following requirements are recommended at the time of subdivision through a comprehensive site plan layout of BlackWolf Boulevard.

- Driveways should be paired on common lot lines allowing parallel parking opportunities and tree lined boulevards
- Corner lots should consider the option of driveway access from the flankage of the lot rather than the front.

5.0 COMMUNITY VISION & DESIGN

5.1 COMMUNITY VISION

The BlackWolf Stage 1 Outline Plan of 2009 laid the groundwork for the community focus for this newest stage of the BlackWolf Plan. One major element however, that contributes to the differing vision for this stage of BlackWolf is its proximity to the Regional Park which results in a park-oriented vision for this neighbourhood.

The modified grid layout directs the residents of BlackWolf to the Regional Park. The Park in turn permits a continuation of active pedestrian movement opportunities to the schools, sports fields and other park and recreational attractions in adjoining neighbourhoods. The park-like focus of BlackWolf Stage 2 is further enhanced by complementary storm ponds which will serve in a multi-functional capacity, not only as storm management tools, but also as buffers, pedestrian linkages, passive recreation and visually aesthetic elements.

Housing opportunities offered in this neighbourhood will ensure that accessibility to the park-like focus is available to a demographic cross-section of home owners and renters.

5.2 COMMUNITY DESIGN

The community design continues the design principles established in BlackWolf Stage 1 to “provide a balance between vehicular and pedestrian movement and to create safe, sociable streets and easy connectivity to community facilities.” Planning principles supporting this community design include:

- Sustainability
- Walkability
- Health, safety and well-being
- Open space

The modified grid road network initiated in BlackWolf Stage 1 and continued throughout this next stage promotes safe and accessible pedestrian connections while strategically accommodating the private automobile and efficient land use practices.

Open space nodes surrounding the storm water management facilities connect with adjacent neighbourhood roads and sidewalks to provide linkages throughout the community between residential areas, the Regional Park and local amenities. Enhancement of safety in the neighbourhood is provided through an unconnected street network that deters non-local traffic from using the internal street network, yet welcomes and promotes easy access to the Regional Park through area collector roads.

6.0 OPEN SPACE DESIGN

With the dominance of the new North Regional Park within BlackWolf Stage 2, local open space connectivity as well as regional linkages are paramount for both community users and visitors to the park.

6.1 OPEN SPACE

Open Space is a defining feature that establishes our City's character, sense of place and quality of life. Most commonly these spaces provide avenues for passive or active recreation; educational and preservation opportunities; and social and aesthetic contributions.

6.1.1 Regional Park

The Regional Park, containing 29.05 Ha is intended to contribute to the City of Lethbridge's parks system on the north side of the city as well as be a destination park for the entire city. It will complement the other two existing regional parks while being unique and distinctive. The design of the park will provide a number of activities which will appeal to a wide variety of users and functions for all seasons and will be rolled out in a phased process. Regional Park activity options include, skate park, sports courts, children's discovery park, spray park, amphitheatre and sledding hill, pathways and outdoor fitness circuit as well as passive recreation alternatives such as storm pond, picnic areas, arboretum and public art viewing.


6.1.2 Storm Water Management Facilities

The storm water management facilities accommodate two wet ponds and one dry pond that will be utilized as an aesthetic amenity and function to enhance the visual park experience as well as ensuring adequate storm water capacities.

6.2 CONNECTIVITY

With the North Regional Park as the access hub for BlackWolf Stage 2, an enhanced connector network supports strong pedestrian linkages in all directions – both entering and exiting the plan area. The BlackWolf Stage 2 Outline Plan offers multiple cross neighborhood pedestrian connections into the area via 13th Street North, future 44th Avenue North, Uplands Blvd. North and through the Uplands community to the south. These connections that unify and strengthen all neighbourhoods in the plan area are indicated on Figure 6.1. BlackWolf Boulevard invites access into the Regional Park via eight pedestrian cross walks that connect with proposed linkages throughout the open space. In both the northeast and northwest corners of the plan area, non-credit open space offers local connector pathway circuits to adjacent neighbourhoods as well as contributes to enhanced Regional Pathway connections.

BLACKWOLF STAGE 2 OUTLINE PLAN



The modified grid layout in BlackWolf Stages 1 and 2 as well as in the Hardieville and Legacy Ridge developments provide cohesive and complimentary connectivity and multi-modal linkages for community members and visitors. Along 13th Street North, a 15 metre wide buffer for sound attenuation provides a key linear connection to the Regional Pathway encouraging alternative travel moving in both north and south directions. This arterial road, landscaped to City standards encourages an efficient and scenic commute to other significant areas of the City.

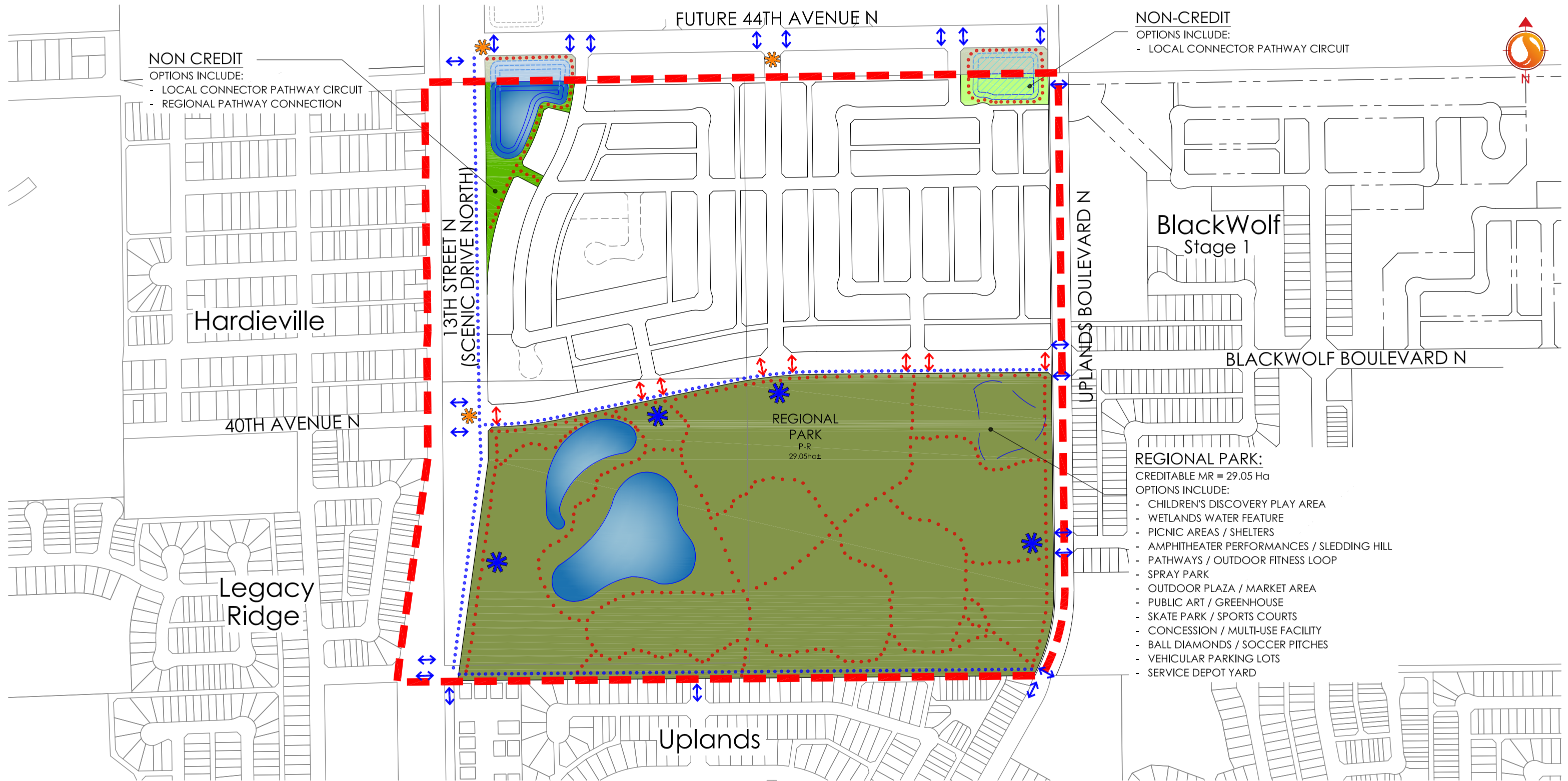
6.3 RESERVE DEDICATION ANALYSIS

The provision of public parks and open space within BlackWolf Stage 2 is represented by 44% of the Outline Plan area, which satisfies the reserve obligation required by the Municipal Government Act.

6.4 SEASONAL WET AREAS

The developer shall submit Alberta Environment approval concurrent with any request to begin area grading on seasonal wet areas as noted and identified as low points on Figure 2.3 Site Constraints. The ESA has suggested that buried organic soils should be removed in the areas of future building development. In addition further investigations may be warranted at the time of site redevelopment should evidences of coals slags, petroleum hydrocarbon staining or odours, or water well sites be encountered.

Additionally, the supporting study, “Wetland Classification and Delineation Assessment” has been completed and is included in [Appendix F](#). The assessment concludes that the area indicates a low value with respect to wetland function and upon review by ESRD, it is unlikely that an application to Alberta Water Act will be required. Approval requirements can be found in the Water Act and Provincial Wetland Restoration/Compensation Guide, Alberta Environment should they be deemed necessary.



NON CREDIT
 OPTIONS INCLUDE:
 - LOCAL CONNECTOR PATHWAY CIRCUIT
 - REGIONAL PATHWAY CONNECTION

NON-CREDIT
 OPTIONS INCLUDE:
 - LOCAL CONNECTOR PATHWAY CIRCUIT

REGIONAL PARK:
 CREDITABLE MR = 29.05 Ha
 OPTIONS INCLUDE:
 - CHILDREN'S DISCOVERY PLAY AREA
 - WETLANDS WATER FEATURE
 - PICNIC AREAS / SHELTERS
 - AMPHITHEATER PERFORMANCES / SLEDDING HILL
 - PATHWAYS / OUTDOOR FITNESS LOOP
 - SPRAY PARK
 - OUTDOOR PLAZA / MARKET AREA
 - PUBLIC ART / GREENHOUSE
 - SKATE PARK / SPORTS COURTS
 - CONCESSION / MULTI-USE FACILITY
 - BALL DIAMONDS / SOCCER PITCHES
 - VEHICULAR PARKING LOTS
 - SERVICE DEPOT YARD

7.0 RESIDENTIAL LAND USE DENSITY

The Hardieville/Legacy Ridge/Uplands Area Structure Plan Bylaw No. 5164 was amended on April 2, 2013. Amending Bylaw 5800 contained the following changes:

- Reduction to 2 schools within the area based on most recent School District enrollment projections
- Revision of the Land Use Concept Plan and Open Space System resulting from the above School District needs

The approval by Council also included an increase in the size of the proposed North Regional Park to approximately 73 acres and subsequent change to the residential footprint.

The BlackWolf Stage 2 Outline Plan incorporates Residential Land Uses to provide a wide range of housing opportunities and levels of affordability. The land use districts selected provide the opportunity for single-detached homes both laned and laneless, secondary suites, multi-family units, and opportunities for innovation and comprehensively planned medium density options. The development of secondary suites will be limited to corner lots with access to lanes.

The developer has chosen to include a Mixed Density Residential (R-M) component with the intent of providing opportunity for a variety of housing styles and lot shapes. The R-M parcel will contain a mixture of both multi-family and single detached dwelling units. Lot sizes and orientations may vary in this area with an emphasis on lots that have a wide street presence and narrow depth. This type of layout will promote different housing styles and may accommodate bungalow or ranch style dwellings with garages at the side of homes rather than the front.

The following is a list of proposed Land Use Districts:

- Low Density Residential District (R-L)
- Comprehensively Planned Residential District (R-CM)
- Medium Density Residential (R-37)
- Mixed Density Residential (R-M)

Figure 7.1 Proposed Land Use Designations - identifies the layout and proposed land uses within the BlackWolf Stage 2 Outline Plan boundary.

7.1 LAND USE SUMMARY AND STATISTICS

Land Use and Population Estimates	Area (Ha)	% of GDA	Population Estimates		
Gross Area	67.28				
Environmental Reserve	0.00				
Gross Developable Area	67.28				
Public Land Use					
Public Right of Ways (R/W)	17.66	26.2%			
Open Space (P-R) - Regional Park	29.05	43.2%			
Open Space (non-credit) incl. SWMF to HWL	1.68	2.5%			
Public Subtotal	48.39	71.9%			
Net Developable Area	18.89		Density	Total	Area
Residential			(UPH)	Units	Population
Low Density Residential (R-L)	13.80	20.5%	25	345	1,000
Comprehensively Planned Medium Density(R-CM)	0.88	1.3%	37	33	63
Medium Density Residential (R-37)	0.90	1.3%	37	33	63
Mixed Density Residential (R-M)	3.31	4.9%	50	166	314
Residential Sub Total	18.89	28.1%		577	1,440
Total	67.28	100.0%			
			Ha		
			People/NDA	76	
			Dwelling Units/NDA	30	

Notes:

UPH-Units per Hectare

HWL-High Water Level

Low Density Residential 2.9

Medium Density Residential 1.9



- Comprehensively Planned Medium Residential (R-CM)
- Low Density Residential (R-L)
- Medium Density Residential (R-37)
- Mixed Density Residential (R-M)
- Parks and Recreation (P-R)
- Open Space - Non Credit (OS n/c)
- Storm Water Management (to HWL)

Gross Area	67.28 ha±		
Environmental Reserve	0.00 ha±		
Gross Developable Area (GDA)	67.28 ha±		
Public Land Use			
	<u>Area</u>		
Public Right of Ways (R/W)	17.66 ha±		
Open Space (P-R)	29.05 ha±		
O-S (non-credit) incl. SWMF to HWL	1.68 ha±		
Public Sub Total	48.39 ha±		
Net Developable Area (NDA)	18.89 ha±		
Residential Land Use			
	<u>Area</u>	<u>UPH</u>	<u>Total Units</u>
Low Density (R-L)	13.8 ha±	25	345
Comprehensively Planned Medium Residential (R-CM)	0.88 ha±	37	33
Medium Density (R-37)	0.90 ha±	37	33
Mixed Density Residential (R-M)	3.31 ha±	50	166
Residential Sub Total	18.89 ha±		577
Total	67.28 ha±		

People/NDA = 76/ha
 Dwelling Units/NDA = 30/ha

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BLACKWOLF STAGE 2 | FIGURE 7.1

Outline Plan

Proposed Land Use Designations

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8.0 ARCHITECTURAL STANDARDS

The built form of the development will be subject to architectural standards and design guidelines. These guidelines will be initiated and implemented by the development team and will include design guidelines such as:

- Minimum/Maximum building footprints
- Requirements for attached/detached garages
- Fencing design and materials
- Roofing materials
- Diversity of building design
- Exterior finish
- Landscaping requirements

The detailed design guidelines will be developed and enforced at the subdivision stage of development. It is anticipated that homes fronting the Regional Park will demonstrate appealing architectural styles and forms to promote an aesthetically pleasing unique roadway corridor.

9.0 TRANSPORTATION

Access points have been defined by Uplands, BlackWolf Stage 1 and the Hardieville Access Management Study and are identified on [Figure 9.1 – Preliminary Transportation Network](#). Access points will meet City of Lethbridge requirements with regard to intersection spacing for roadways. Road drainage along the Outline Plan boundary will be accommodated by internal storm water management facilities up to the centerline of the adjacent roadway; drainage will be considered from beyond the centerline.

9.1 ARTERIAL ROAD DEVELOPMENT

The existing 13th Street R/W adjacent to BlackWolf Stage 2 is anticipated to be developed into a modified arterial road way Cross-Section. This arterial road will become Scenic Drive North and surface infrastructure will be modified to maintain access and service for the residents of the Hardieville area. [Figure 9.2 – 13th Street Arterial Existing Cross Section](#) and [Figure 9.3 - 13th Street Arterial Proposed Cross Section](#) have been included to identify the existing condition and ultimate roadway development.

Development and detailed design of this new roadway will require close coordination with ATCO Pipelines whose high pressure gasline is currently installed within an easement just east of 13th Street. It is anticipated that a majority of the line in this area could remain in its current location within a proposed “green-strip” between 13th Street and Scenic Drive North; the remainder to be realigned appropriately to follow the new Scenic Drive North alignment.

9.2 ROAD CLASSIFICATION AND INTERSECTION TREATMENTS

The development of BlackWolf Stage 2 includes the extension of BlackWolf Boulevard in Stage 1. This Roadway will be developed as a modified major collector with driveway access, landscaped medians and boulevards that will complement the themes developed in the North Lethbridge Regional Park Design. Although only shadow planned, 44th Avenue has been shifted north to allow for additional residential development. This Road will be developed to a Community Entrance and Collector Roadway Cross-Section.

The following are suggested for the intersections reviewed:

- 40 Avenue (BlackWolf Boulevard)/Scenic Drive: the intersection is expected to operate at an acceptable level of service as a signalized intersection. A designated westbound left turn lane should be added to support development of BlackWolf Stage 2.
- 44 Avenue/Scenic Drive: the intersection is expected to operate at an acceptable level of service as a signalized intersection. Designated northbound and westbound left turn lanes should be considered to accommodate traffic demand for zones 301, 404 and 405.

BLACKWOLF STAGE 2 OUTLINE PLAN



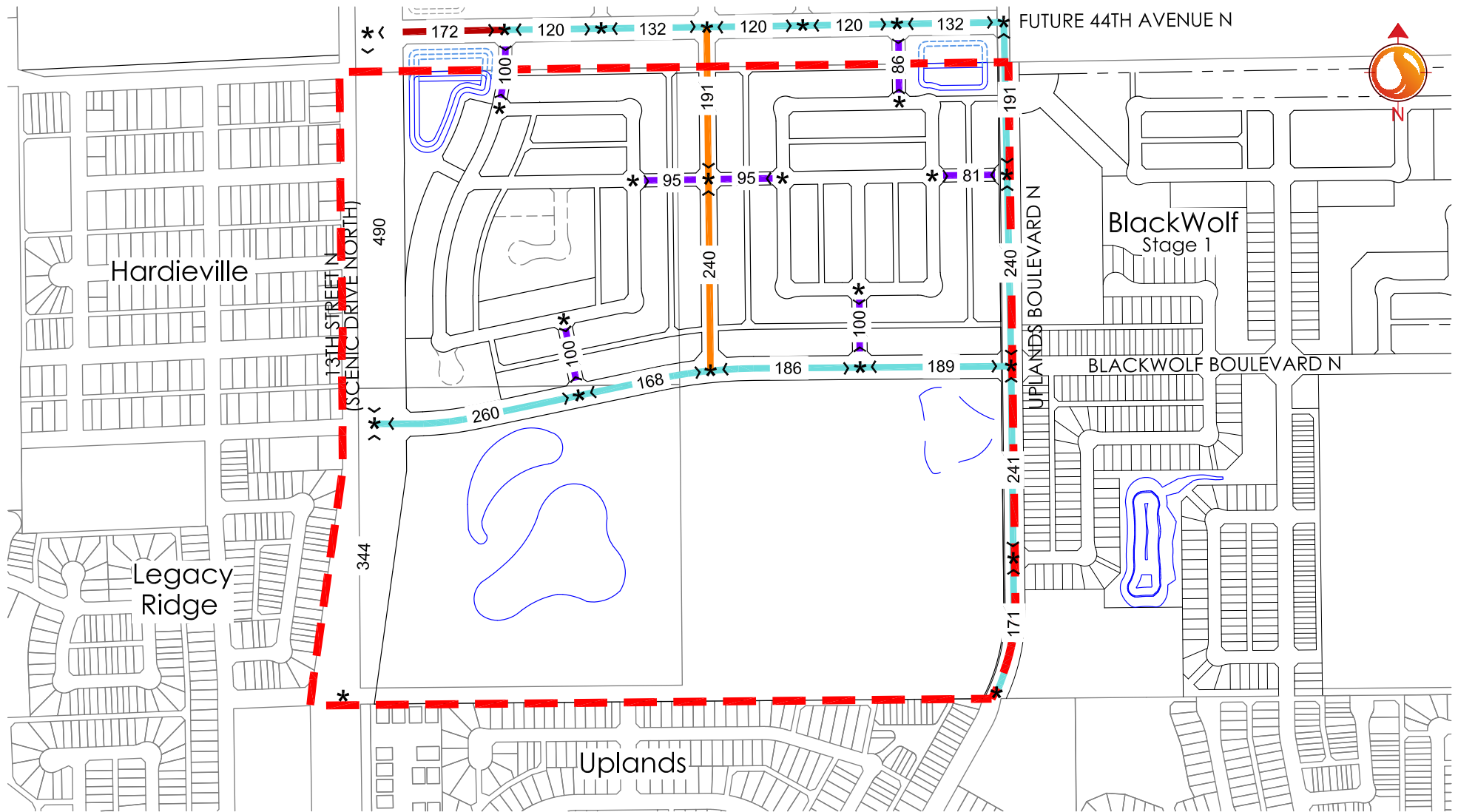
- 44 Avenue/Uplands Boulevard: the intersection is expected to operate at an acceptable level of service as a signalized intersection.
- BlackWolf Boulevard/Uplands Boulevard: the intersection is expected to operate at an acceptable level of service as a four-way stop intersection.
- All BlackWolf Stage 2 internal area intersections were shown to operate within acceptable operational parameters as unsignalized intersections.

Figure 9.1 – Preliminary Transportation Network identifies roadway classifications and intersection spacings.

9.3 TRAFFIC IMPACT ASSESSMENT

A Transportation Impact Assessment has been prepared for the BlackWolf Stage 2 Outline Plan and included as **Appendix B – Transportation Impact Assessment**. The objectives of this study include:

- Establish the 2030 background traffic conditions in the vicinity of the proposed development
- Estimate the magnitude and characteristics of peak hour traffic generated by the proposed development at the 2030 (full-build) horizon
- Evaluate the impacts of vehicular traffic generated by the proposed development on the roadway system at the 2030 (full-build) horizon
- Identify and recommend appropriate traffic operation and/or infrastructure improvements necessary to accommodate the 2030 (full-build) horizon traffic volumes
- Estimate the two-way traffic volumes to confirm the classification of the road network within the study area



NOTES: a) All preliminary road classifications are to be confirmed in the TIA.
 b) Unless identified other roads are classified as Local (16.5m or 18.5m) ROW

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 May 27, 2014

LEGEND

- - - BlackWolf Stage 2 Boundary
- * < 100m > * Intersection Spacing
- Local (18.5m R/W)
- Community Entrance/Super Collector
- Major Collector
- Minor Collector

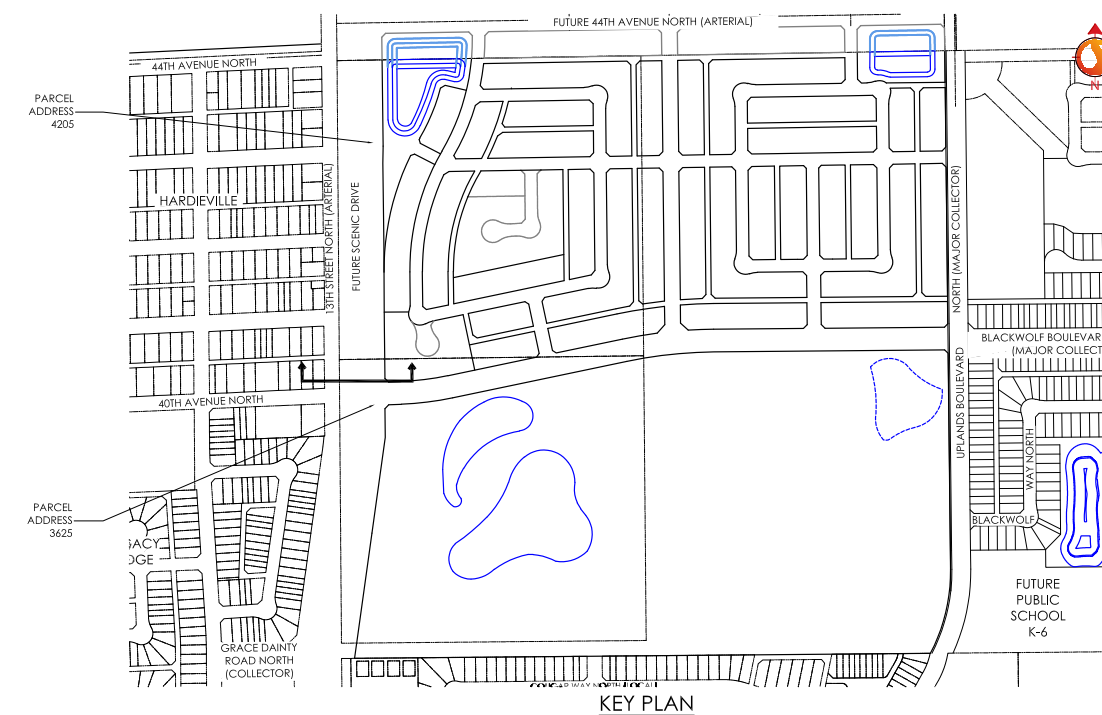
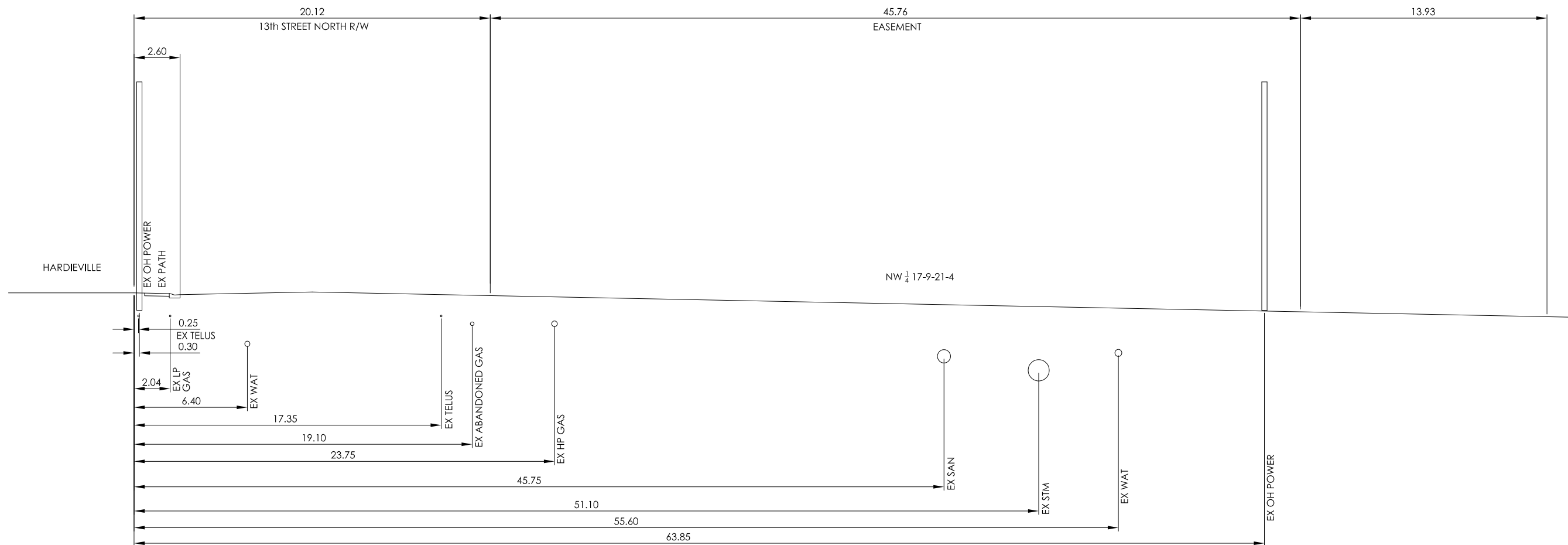
*All un-marked roads are classified Local (16.5m R/W)

BLACKWOLF STAGE 2 | FIGURE 9.1

Outline Plan

Preliminary Transportation Network

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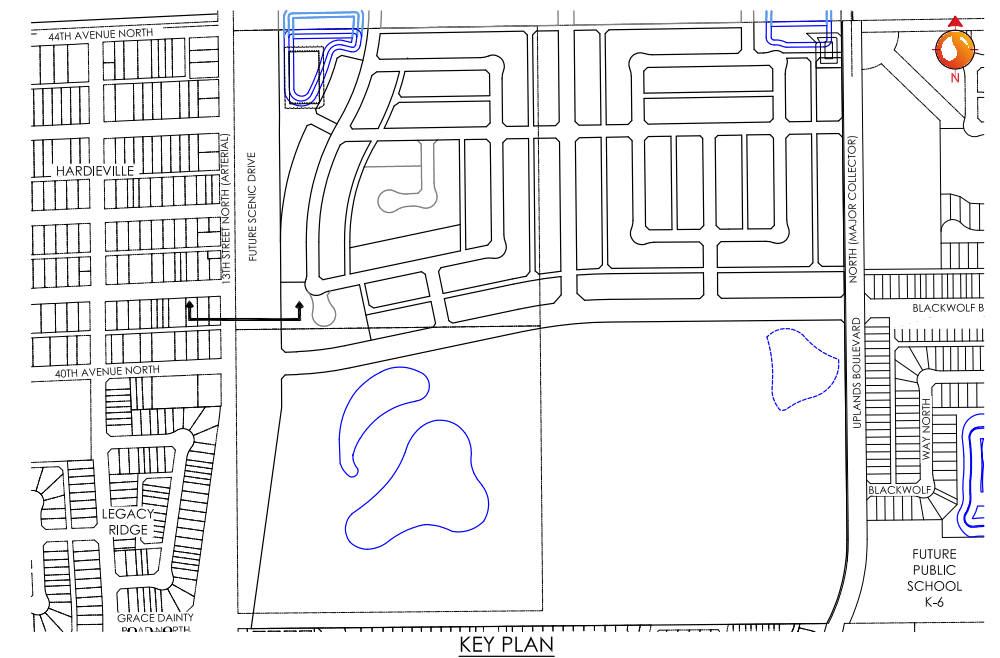
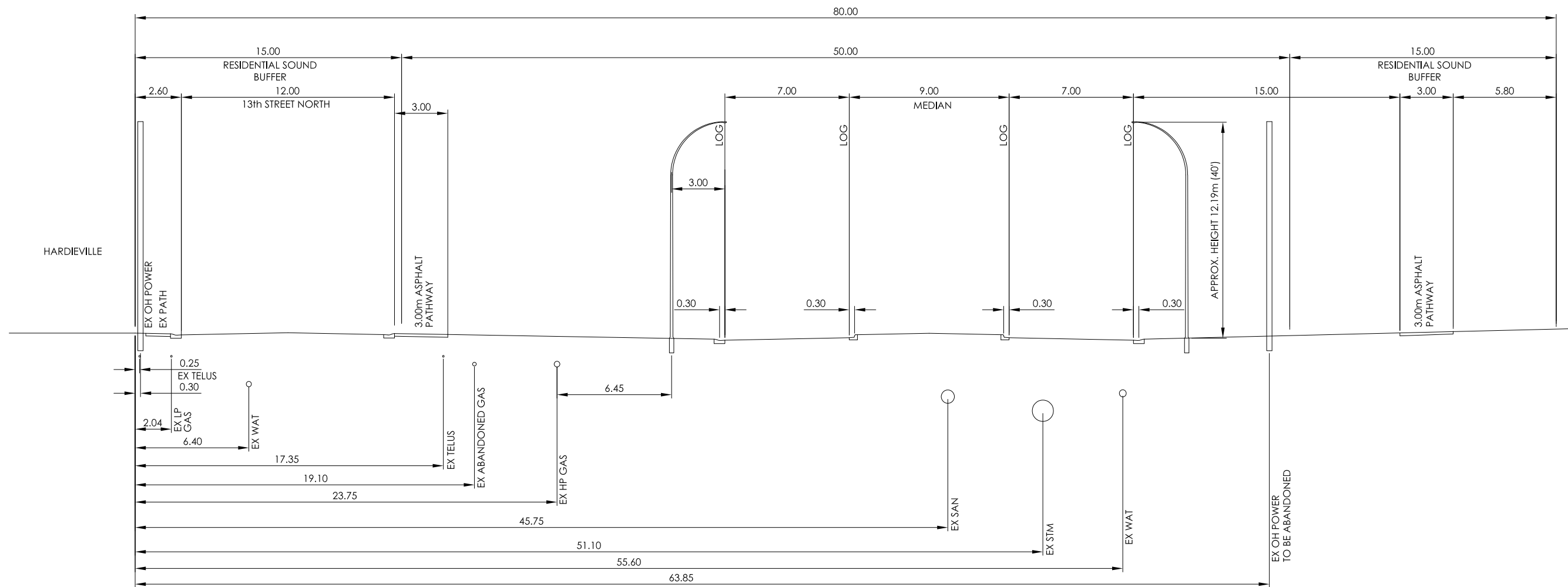
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BLACKWOLF STAGE 2 | FIGURE 9.2

Outline Plan

13th Street Arterial Existing Cross Section

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10.0 TRANSIT & MAIL BOX SERVICE

10.1 TRANSIT ROUTES

Transit routes are preferably placed on public collector roads. A route may be placed on a local road either temporarily or permanently depending on the circumstance and at the discretion of the Transit Manager. Public collector roadways will be designed to meet the current City of Lethbridge Design Standards to ensure adequate space and durability for transit vehicle passage. Transit routes and stop locations will be determined as the neighbourhood develops and may be subject to change. Transit Standards may change between the Outline Plan approval and the implementation of a transit route in a new neighbourhood.

10.2 COMMUNITY MAILBOX LOCATIONS

The final location of community mailboxes will be determined in conjunction with Canada Post at the time of detailed design. Community mailboxes are typically located adjacent the City sidewalk along the long frontage of corner lots, or along the openings to park space. Transit bus stop locations will not be combined with community mailbox sites.

11.0 SITE SERVICING

11.1 WATER SERVICING

11.1.1 Background

The servicing of BlackWolf Stage 2 from the perspective of treated water, will be supported by connections to existing waterlines along 13th Street, along the north boundary of Uplands and an existing Uplands Boulevard water stub.

11.1.2 Design Assumptions

The following acceptable delivery pressures are stated in the City of Lethbridge Design Standards, Level of Service Objectives:

- No less than 310 kPa (45 psi) during Peak Hour Demand
- No less than 345 kPa (50 psi) at Maximum Day Demand
- Maximum Delivery Pressure will not exceed 620 kPa (90 psi)
- Average Day Demand (ADD) = 415L/Cap/day
- Maximum Day Demand (MDD) = 2.2 x ADD
- Peak Hour Demand (PHD) = 3.5 x ADD

The development will be flanked on all sides by major distribution lines along road right of ways. Internal distribution networks will be grid style systems that allow for water looping during development phasing.

Table 11.1: Estimated Water Demands

Average Day Demand (415L/cap/day)	0.60 ML
Maximum Day Demand (2.2 x ADD*)	1.31 ML
Peak Hour (3.5 x ADD)	2.10 ML

*ADD – Average Day Demand

Note: Water Usage based on an estimated population of 1,440 from [Table 7.1 – Land Use and Population Estimates](#).

BLACKWOLF STAGE 2 OUTLINE PLAN

11.1.3 SMRID Raw Water Supply

The Regional Park with BlackWolf Stage 2 will be irrigated with irrigation water from the St. Mary's River Irrigation District. In addition, this water will be utilized to recharge ponds and provide circulation which will enhance water quality. It is anticipated that a raw water pumping station will be installed along the east boundary of the City, and water will be delivered to the BlackWolf development via a pipe system that is to be installed in BlackWolf Boulevard.

11.2 SANITARY SERVICING

11.2.1 Background

Currently, the BlackWolf Stage 2 Outline Plan Area has two possible sanitary sewer connection points.

1. The first is located at the termination of Uplands Boulevard North in the SW corner of BlackWolf Stage 1. This 675mm diameter storm sewer is installed at a depth of approximately 7-8m and currently services BlackWolf Stage 1 and Uplands. Flows from the Sherring Industrial Park area are currently bypassing the Uplands Blvd. gravity trunk via a forcemain along the north boundary of Uplands to 13th Street. However, it is anticipated that future contributions from Sherring might utilize this sewer connection. Specifically, the residential areas proposed along Uplands Boulevard are the only areas to drain to this section of trunkline – "Sewer Shed A".
2. The second connection point for the BlackWolf Stage 2 has been identified on 13th Street and 40th Avenue. This sewer shed includes the node at 13th Street and 44th Avenue in the total area. This 750mm sanitary sewer is installed at a depth of approximately 9-10m. This sewer currently receives sewage from the Sherring Industrial Park forcemain. The City of Lethbridge has indicated that this sewer has the capacity to receive sewage from approximately 429 Ha of undeveloped land which is well above the residential area within our Outline Plan boundary. Given the depth of the installation of the sewer, servicing of the plan area can be completed with a gravity sewer from 13th Street – "Sewer Shed B".

11.2.2 Design Standards

City of Lethbridge Design Standards for residential flows has been used for analysis.

Dry Weather Flow:	500L/cap/day
Wet Weather Flow:	400L/cap/day
Infiltration:	150L/cap/day
Harmon's Peaking Factor:	$\frac{14}{4+\sqrt{P}} + 1$

Table 11.2: Sanitary Sewage Flow Estimates

Sewershed	Population	Peak Flow (L/s)
A – (Uplands Blvd. R-CM)	63	1
B – (BlackWolf Residential)	1,377	34

11.3 STORM WATER MANAGEMENT

11.3.1 Background

Where practical, catchment boundaries will be defined by natural topography in an effort to minimize excessive earthwork; these boundaries will extend to the centerline of the adjacent roadways thereby allowing for the combined control of runoff from the development and boundary roads.

Currently, the BlackWolf Stage 2 Outline Plan Area has two possible storm sewer connection points.

1. The first connection point for the Lands North of Uplands has been identified on 13th Street and 40th Avenue. The residual capacity of this line is 2.45m³/s. Based on the depth of 1200mm diameter storm line, It is anticipated that approximately 75% of the BlackWolf Stage 2 can be serviced from this location by a gravity system.
2. The second storm trunk connection point for the northwest corner of BlackWolf Stage 2 has yet to be constructed. It is anticipated that a new outfall will be constructed to the Oldman River with service trunks extending to the south towards BlackWolf Stage 2.

Prior to the completion of a new outfall to the Oldman River, the use of an interim lift station that pumps to the existing 13th Street storm trunk could be considered.


The existing storm line in Uplands Boulevard extending north has no residual capacity for this Outline Plan Area. Refer to [Figure 11.3 – Storm Water Management & Drainage Boundaries](#) and [Figure 11.4 – Storm Water Management Conceptual Minor System](#).

11.3.2 Design Assumptions

As specified in the City of Lethbridge 2013 Design Standards, storm water ponds must be designed to fully accommodate runoff from the 1:100 year, 24 hour rain event.

In the case of BlackWolf Stage 2, three sets of design criteria will be utilized to manage rainfall events up to the 1:100 year event.

BLACKWOLF STAGE 2 OUTLINE PLAN



The first set of criteria relates to Zones A₁, A₅ and A₆. Design Criteria for these zones will be based upon a 90L/s/Ha release rate. Overland Flow has been estimated at 200 L/s/Ha for these areas. Zone A₁ will discharge directly to the Existing Scenic Drive Storm Water Management Trunk Line.

The second set of criteria relates to Zones A₂, A₃ and A₄ (BlackWolf Boulevard). Design Criteria for these zones are based upon an allowable 1:100 year release rate of 10L/s/Ha from Pond A. Please refer to [Appendix G – BlackWolf Boulevard Storm Water Management Preliminary Design](#) for a preliminary storm water management design option that could be considered during detailed design. Storm Water Storage for the Zone A (A₁-A₆) residential area is 600m³/Ha as derived from the preliminary storm water design presented in [Appendix G](#).

The third set of criteria relates to Zones B and C. Design Criteria for these zones will be based upon 1000m³/Ha active storage for storm water management facilities and a minor system that accommodates 90L/s/Ha. Overland Flow has been estimated at 200 L/s/Ha.

Overland flow routes are to be designed to convey the 1:100 year storm event and not exceed Alberta Environment guidelines for safe velocities and depths. During Detailed Design, lane conveyance capacity needs to be considered and addressed especially where two lanes converge at a “tee”. Overland flow routes will incorporate trapped lows at strategic locations. Trapped lows will:

- Increase surface run-off capture
- Provide for energy dissipation during extreme rain fall events (“stilling” basins)
- Allow for the practical creation of overland flow routes given localized topographical constraints
- Meet City of Lethbridge design guidelines for maximum depth of 300mm.

In addition to the above, overland flow within a drainage boundary will be proportioned in a way that evenly distributes the flow routes throughout the drainage boundary. Special attention at the detailed design stage may be required where two intersecting overland flow routes meet. Where possible, this point of intersection will occur in close proximity to a storm water management facility.

Proposed Storm Water Management Systems

The BlackWolf Stage 2 Community has been divided into three drainage catchments each serviced by its own storm water management facility. Ponds and catchment areas are identified on [Figure 11.3](#)

[Table 11.3 - Pond Statistics](#) summarizes drainage areas and required storage volumes, and [Table 11.4 – Minor and Major Storm Flows](#) identifies storm water run-off conditions at key nodes within the plan area.

BLACKWOLF STAGE 2 OUTLINE PLAN

Zone A

Zone A includes approximately 49.15 Ha (20.30 Ha Residential and 28.85 Ha Regional Park). Pre-existing drainage in this area generally flows from the SE corner of the Plan area to the north and west. The creation of a large water feature within the regional park will be utilized as the storm water management facility for this Zone.

Overland Flow to Pond A should be designed to enter the pond in multiple locations as identified on [Figure 11.3 – Stormwater Management & Drainage Boundaries](#). The development of a landscaped median along BlackWolf Boulevard will need to accommodate overland flow from the north side to the south. Overland flow will not be permitted to cross the median as identified in Section 4.3.1. It is anticipated that the median will be eliminated or depressed at overland flow crossings, or that low points will be adjusted during detailed design to locations that are not impacted by the median. Outflow from this pond will be directed to an existing storm trunk in 13th Street. An option for a dry pond at the northeast corner of the Regional Park should be considered during detailed design as indicated on [Figure 11.3](#) to accommodate overland flow from Node 5. The intent of this pond would be to manage and control the effects of overland flow across the Regional Park to the wet pond. Controlled discharge from this pond could then be released to the BlackWolf Boulevard Storm Trunk Line or managed through an internal park storm sewer system.

Zone A (BlackWolf Boulevard/Regional Park)

With reference to [Figure 11.4](#) and specifically drainage along BlackWolf Boulevard, future detailed design of storm water management infrastructure shall consider the following:

- Total Upstream Drainage Catchments to BlackWolf Boulevard should not exceed 5.Ha for each of the 3 storm crossing points.
- Minor System Designs at these nodes will promote additional minor system inflow from upstream catchments so that there is no overland flow across Blackwolf Boulevard for up to the 1:25 year rainfall event. This will likely be accomplished through the twinning of catch basins, the oversizing of leads and the oversizing of the minor storm sewer system.
- Drainage easements will be required in the regional park along overland flow routes at the subdivision stage of development.
- Storm Water release rates from this pond will be limited to 10 L/s/Ha.
- Trapped low designs that accommodate 100m³ to 150m³ of storage.

Please refer to [Appendix G – BlackWolf Boulevard Storm Water Management Preliminary Design](#) which outlines a preliminary storm water management solution for Zones A2, A3 and A4 that could be considered at detailed design.

BLACKWOLF STAGE 2 OUTLINE PLAN

Zone B

Zone B includes approximately 15.80 Ha of residential drainage. Pond B has been located near an existing low area in the NW corner of the plan area.

Outflow from this drypond will require either:

- the completion of a new storm water management system and Outfall to the Oldman River from the north of Blackwolf Stage 2
- an interim solution whereby water is pumped back to the existing Storm Trunk in Scenic Drive / 13th Street North

Ultimately, storm water release rates from this pond will be limited to 4 L/s/Ha.

The ultimate design of the pond has considered the area shadow planned to the north of Blackwolf. However, an interim development of this facility to the North Boundary of Blackwolf Stage 2 could be considered at detailed design along with the pumped discharge of storm water.

Zone C

Zone C includes approximately 6.41 Ha of residential drainage along Uplands Boulevard. Pond C has been located near an existing low area in the NE corner of the plan area.

Ultimately, outflow from this dry pond will be directed to a future storm outfall in North Lethbridge. Storm Water Release rates from this pond will be limited to 4 L/s/Ha.

The ultimate design of the pond has considered the area shadow planned to the north of Blackwolf. However, an interim development of this facility to the North Boundary of Blackwolf Stage 2 could be considered at detailed design.

Pond Development

The BlackWolf Outline Plan proposes three ponds as outlined in Table 11.3.

Table 11.3: Pond Statistics

Pond	Pond Type	Catchment Area	Active Storage Pond Volume
A	Wet Pond	20.30 Ha @ 600m ³ /Ha*	12,1804m ³ **
B	Wet Pond	15.02 Ha	15,020m ³
C	Dry Pond	6.71 Ha	6,710m ³

* Storage rate derived from Appendix G – BlackWolf Boulevard Storm Water Management Preliminary Design

** Storage volume excludes Regional Park storage requirement.

BLACKWOLF STAGE 2 OUTLINE PLAN

Please note that the development of ponds B & C is contingent upon Land Use Planning to the north of BlackWolf Stage 2. Section 12.0 "Proposed Phasing" will describe planning and infrastructure that will be required for subdivision to occur in these areas. Subdivision of these lands is not anticipated until 2018.

Table 11.4: Minor & Major Storm Flows

Catchment		Sub Catchment*		Minor System Flow m ³ /s	Major System Flow m ³ /s
ID	Area (Ha)	ID	Area (Ha)		
A	20.30	A1	4.54	0.41	0.91
		A2	4.94	Refer to Appendix G for design flows	Refer to Appendix G for design flows
		A3	6.04	Refer to Appendix G for design flows	Refer to Appendix G for design flows
		A4	4.03	Refer to Appendix G for design flows	Refer to Appendix G for design flows
		A5	0.21	0.02	0.04
		A6	0.54	0.05	0.11
B	15.02	B1	2.05	0.18	0.41
		B2	4.48	0.40	0.90
		B3	4.88	0.44	0.98
		B4	3.61	0.32	0.72
C	6.71	C1	2.15	0.19	0.43
		C2	2.50	0.22	0.50
		C3	2.06	0.19	0.41

11.4 SHALLOW UTILITIES

11.4.1 ATCO Pipelines

An existing ATCO high pressure gas line is currently installed along the east side of the 13th Street R/W. Based on the ultimate development of 13th Street to a 75m R/W, these existing facilities will be located just west of the new R/W centerline. (Refer to [Figures 9.2 and 9.3](#).) Two options that are available to the ultimate development of this R/W are the accommodation of ATCO Pipelines Infrastructure, or the relocation of the infrastructure within the new arterial alignment.

11.4.2 ATCO Gas

It is anticipated that the existing ATCO gas facilities will be relocated and integrated into the community at the subdivision detailed design stage.

BLACKWOLF STAGE 2 OUTLINE PLAN



11.4.3 Telus

It is anticipated that the existing Telus facilities will be relocated and integrated into the community at the subdivision detailed design stage. Telus has indicated that they may require a line assignment along the north boundary of Uplands.

11.4.4 Shaw

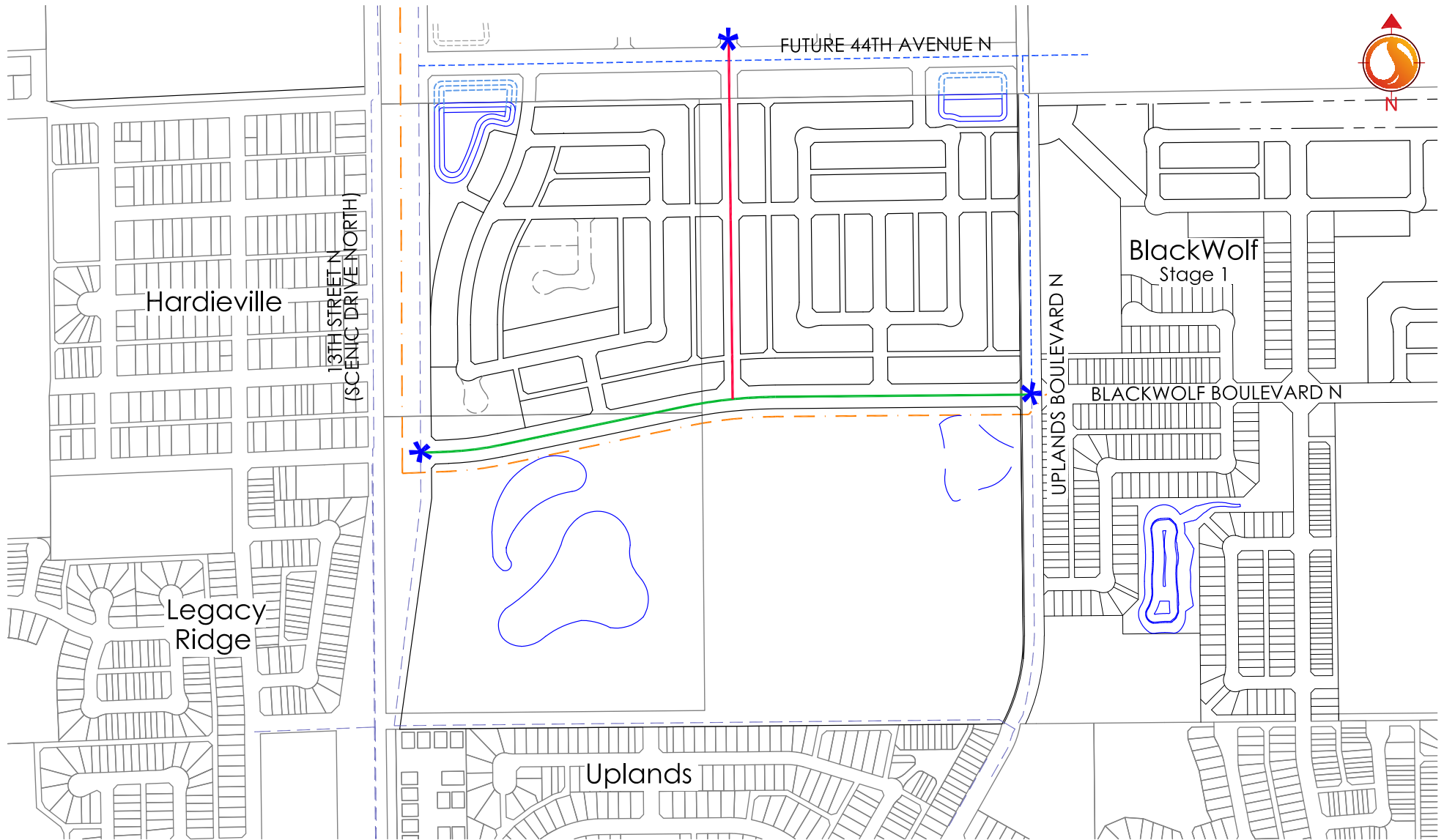
Shaw has indicated that they may require a line assignment along the north boundary of Uplands.

11.4.5 Fortis

It is anticipated that the existing Fortis facilities will be relocated and integrated into the community at the subdivision detailed design stage by the City of Lethbridge and their Electrical Department.

11.4.6 Regional Park Servicing

BlackWolf Boulevard shall be developed to accommodate Regional Park servicing. Sizes and locations of service infrastructure will be confirmed at detailed design.



NTS



112945510
April 24, 2014



LEGEND

- ■ ■ ■ BlackWolf Stage 2 Boundary
- Proposed 250Ø
- Proposed 300Ø
- - - - Perimeter Water Distribution
- - - - Raw Water Irrigation Line (SMRID)

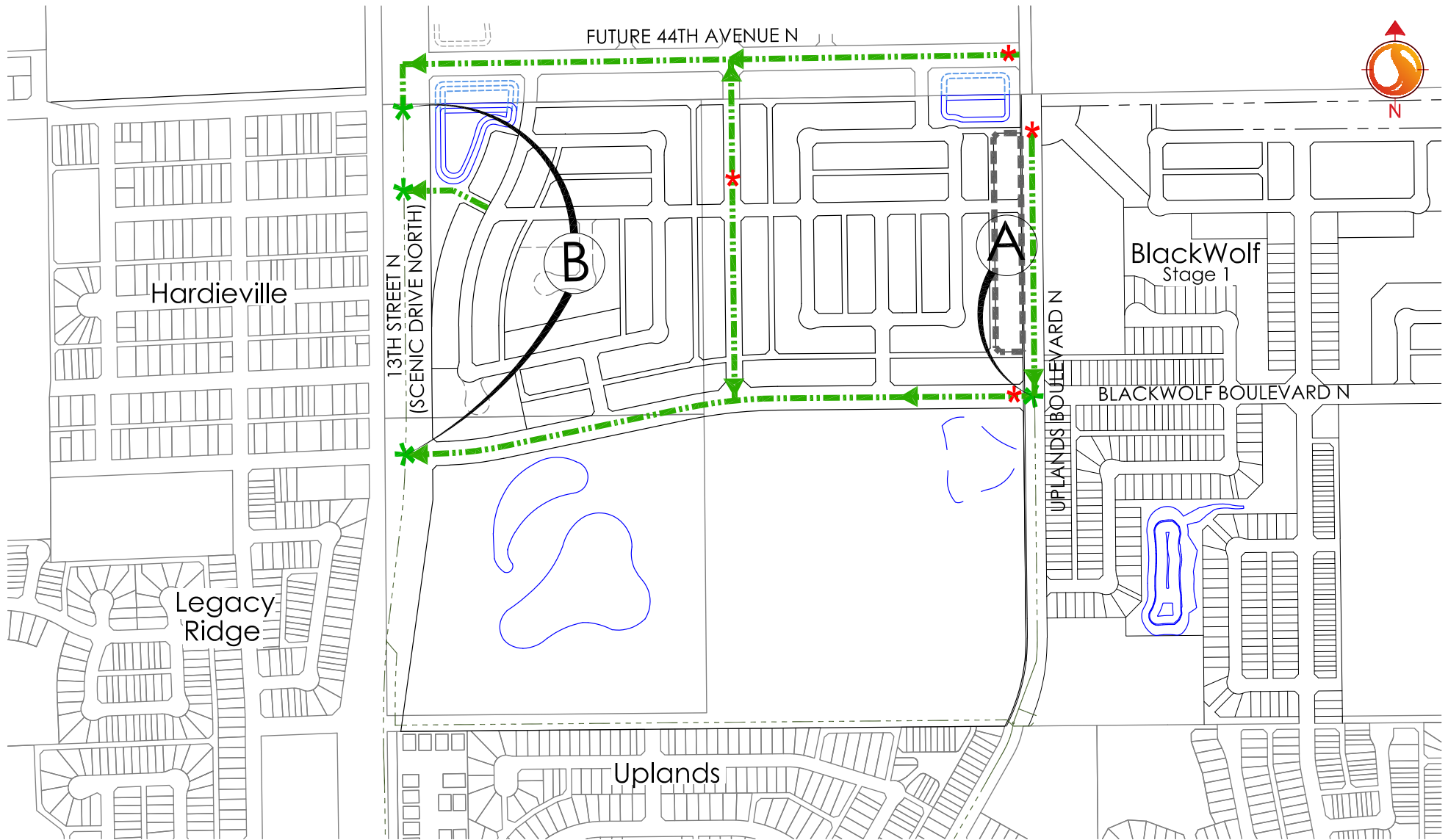
- - - - Existing Water Distribution Line
- * Connection Points

BLACKWOLF STAGE 2 | FIGURE 11.1

Outline Plan

Water Servicing & Connection Points

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LEGEND

- Sewershed Boundary
- Future Sewer Trunk
- Existing Sewer Trunk
- Sewershed Label

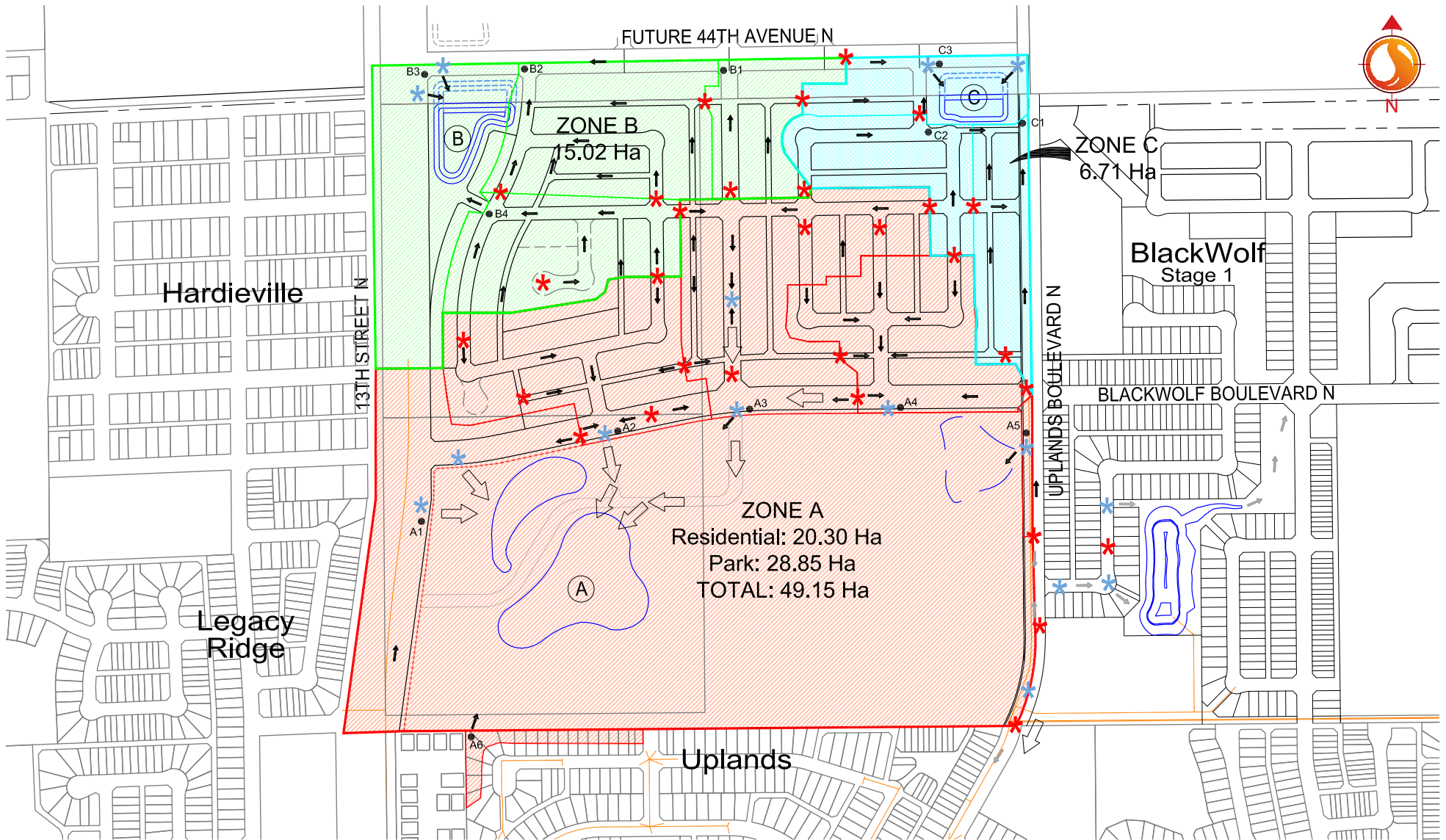
- Connection to Sewer Trunk
- High Point

BLACKWOLF STAGE 2 | FIGURE 11.2

Outline Plan

Sanitary Servicing & Connection Points

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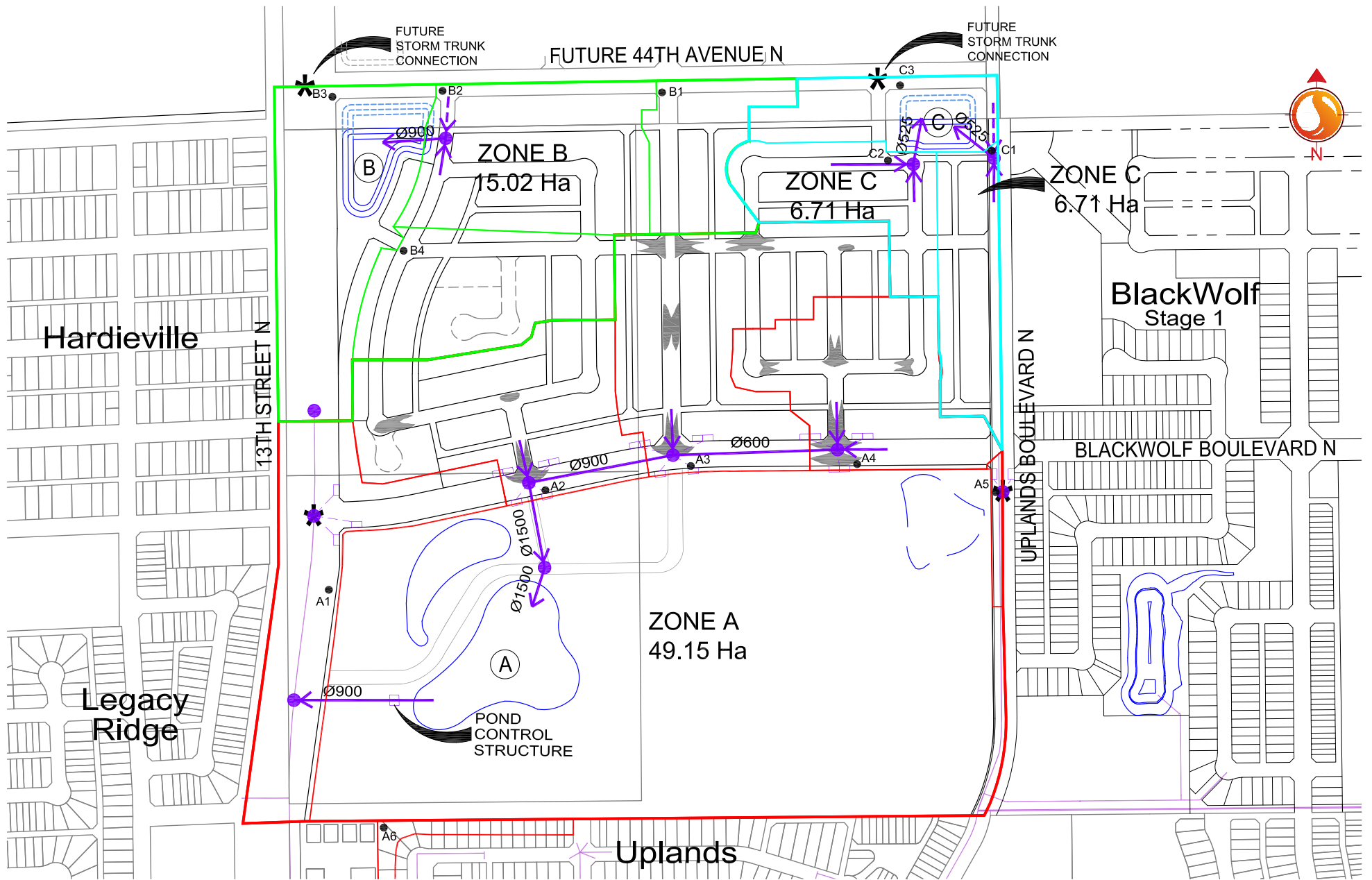
- Flow Direction
- High Point
- Low Point
- Pond Identification
- Existing Flow Direction
- Overland Spill Direction
- Node Identifier
- Existing Storm Trunk

BLACKWOLF STAGE 2 | FIGURE 11.3

Outline Plan

Stormwater Management & Drainage

Boundaries
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- ⊕ Pond Identification
- * Storm Trunk Connection Points
- Existing Storm Trunk

- Ø2000 → Minor Storm System and Pipe Size
- Future Storm System
- ▭ Dual Catchbasins
- ▭ Single Catchbasin
- ▭ Trapped Lows

BLACKWOLF STAGE 2 | FIGURE 11.4

Outline Plan

Stormwater Management & Conceptual Minor System

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12.0 PROPOSED PHASING

Figure 12.1, Proposed Phasing – illustrates the proposed phasing for BlackWolf Stage 2. Proposed Phasing is based on the logical extension of existing infrastructure, and the construction of critical new infrastructure including storm water management facilities. The City of Lethbridge has indicated that partial completion of phases that has the effect of delaying adjacent owners from beginning development is unacceptable.

The most logical locations for the start of development into BlackWolf Stage 2 is from 13th Street (Scenic Drive North) as existing infrastructure has the required capacity to allow for development.

GENERAL PHASING REQUIREMENTS

Development must consider City of Lethbridge Standards with regard to infrastructure looping and access. Water looping throughout the plan area can be accomplished from Scenic Drive and Uplands and will not require a connection to 44th Avenue. Water looping to 44th Avenue should be considered during detailed design along the north boundary of BlackWolf Stage 2.

Water Distribution: Phased construction must meet City of Lethbridge standards with regard to water looping and hydrant spacing.

Sanitary and Storm Sewer System: Phased Construction should proceed logically from previously constructed phases.

Storm Water Management Facilities: Ponds and pond outlets must be constructed concurrently with the first phase requiring the facility. All phases will be provided overland flow routes to the ponds.


Phase Sizing: Phase sizes will be determined based on market conditions, and should follow the logical extension of existing infrastructure. Design and Installation of Offsite Infrastructure may be required in order to facilitate development. Proposed phasing may require the establishment of easements at the time of subdivision to complete appropriate looping whether permanent or temporary.

Service Area A

General: Growth in Area A will commence from Scenic Drive at connection nodes S₁, W₁, T₁ and ST₁. Consideration should be given to complete connections W₂ and T₂ with the initial Phase of Development in this area to complete the construction of the Regional Park Boundary and BlackWolf Boulevard to Uplands Boulevard. Service Area A will require the construction of Storm Water Management Facility A.

Water Distribution: Water looping will comply with City of Lethbridge Standards. The completion of a looped connection through node W₁ and W₂ will allow for the phased expansion north of BlackWolf Boulevard for Service Areas A, B and C.

BLACKWOLF STAGE 2 OUTLINE PLAN



Sanitary Sewer: a gravity sanitary sewer extending from node S₁ can service Area A. It may be practical to service portions of Area B from this node as well and consideration should be given to this at detailed design.

Storm Water Management: a permanent wet pond facility will be required to service area A as identified along with a pond outlet line connecting to the existing storm sewer in 13th Street identified as ST₁. A detention facility has been identified in the northeast corner of the Regional Park to manage internal park drainage.

Transportation: T₁ will be the first intersection constructed for development into Service Area A.

Service Area B

General: Growth in Area B will commence from Area A and may include additional connections to Scenic Drive at connection node S₃ and will require the construction of Storm Water Management Facility B.

Water Distribution: Under current City of Lethbridge Standards, water looping will be required for any initial phase of development that exceeds 75 lots. The completion of a looped connection through node W₁ and W₂ will allow for the phased expansion north of Blackwolf Boulevard for Service Area A, B and C.

Sanitary Sewer: a gravity sanitary sewer extending from node S₁ could service portions of Area B. However, an additional sewer connection should be considered at node S₃ during detailed design with regard to achieving practical servicing depths.

Storm Water Management: a permanent storm water management facility will be required to service area B as identified along with a pond outlet line connecting to either: the existing storm sewer in 13th Street identified as ST_{2a} (Discharge from the Pond at this location will require pumping); or a future trunk line and outfall to the Oldman River at Node ST_{2b}. The pond as outlined could be expanded to service areas north of the plan boundary; however, Development of Phase B does not require additional area north of the plan boundary.


Transportation: T₁ and T₂ will be required for the servicing of Area B. During the design of the northerly portion of the plan area, consideration should be given to the ultimate connection of 44th Avenue.

Service Area C

General: Growth in Area C will commence from Area A and will require the coordinated extension of Upland Boulevard North from Blackwolf Boulevard as well as the construction of Storm water Management Facility C. Service Area C will not begin until after Service Area B has been constructed.

Water Distribution: Under current City of Lethbridge Standards, water looping will be required for any initial phase of development that exceeds 75 lots. The completion of a looped connection through node W₁ and W₂ will allow for the phased expansion north of Blackwolf Boulevard for Service Area A, B and C.

BLACKWOLF STAGE 2 OUTLINE PLAN



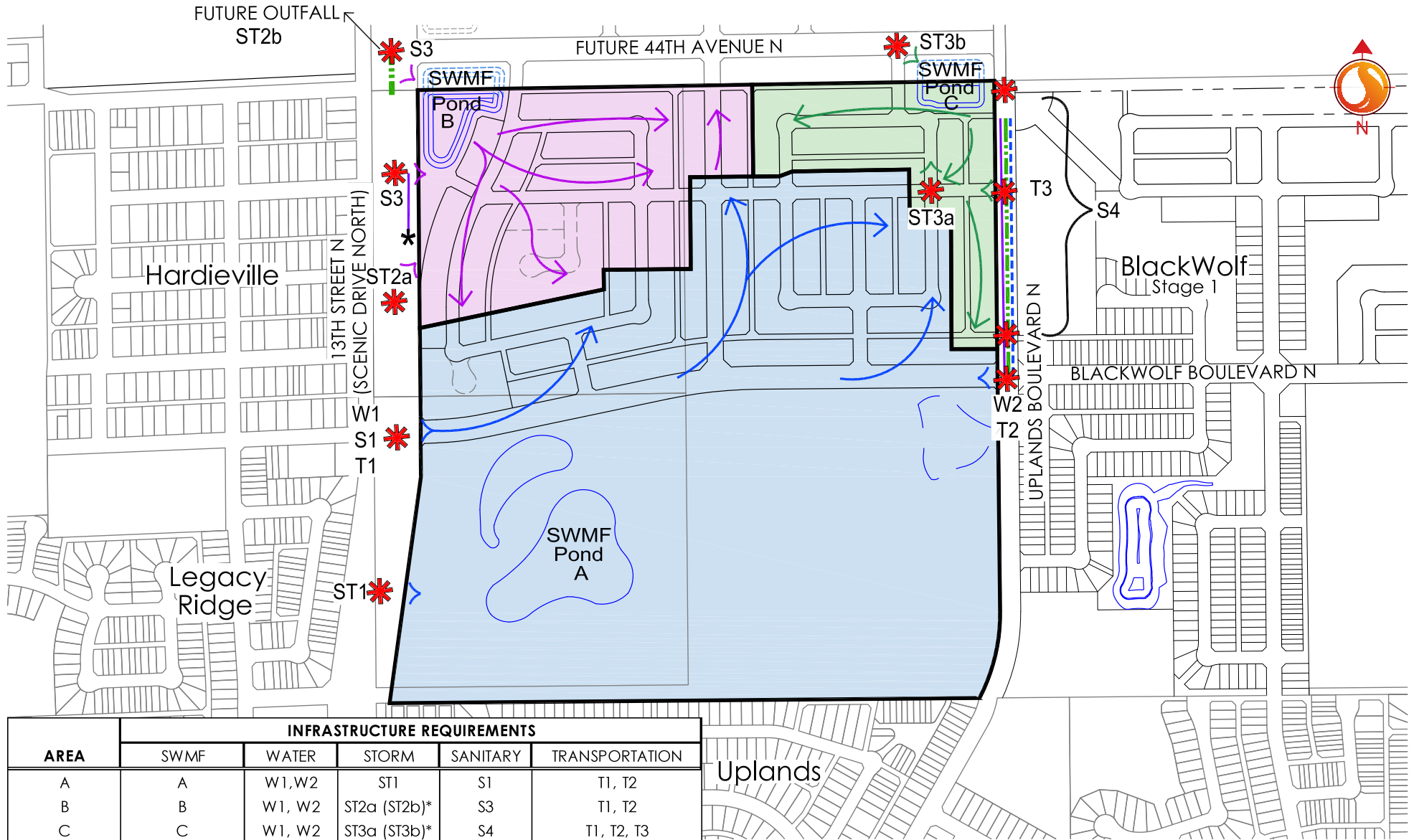
Sanitary Sewer: a gravity sanitary sewer extending from node S1 could service portions of Area C. However, an additional sewer connection should be considered at node S4 during the detailed design of Uplands Boulevard with regard to achieving practical servicing depths.

Storm Water Management: a permanent storm water management facility will be required to service area C as identified along with a pond outlet line connecting to either: the existing storm sewer in Area A ST3a (Discharge from the Pond at this location will require pumping); or a future trunk line and outfall to the Oldman River at Node ST3b (extension of storm trunk along Blackwolf Boulevard will be required for this option). The pond as outlined could be expanded to service areas north of the plan boundary; however, Development of Phase C does not require additional area north of the plan boundary.

Transportation: T1, T2 and T3 will be required for the servicing of Area C. During the design of the northerly portion of the plan area, consideration should be given to the ultimate connection of 44th Avenue.

BOUNDARY CONDITIONS

The details of boundary conditions for cost sharing of the collector roadways, stormwater management facilities and their appropriate recoveries will be negotiated and reflected in future Service Agreements.



(*) INDICATES ULTIMATE INFRASTRUCTURE CONNECTION POINT

NTS



112945510
May 28, 2014

LEGEND

Service Area A

Service Area B

Service Area C

Infrastructure Connection Points

SWMF - Storm Water Management Facility

Direction of Growth

Offsite Sanitary Extension

Offsite Storm Extension

Offsite Water Extension

Tie to Existing

BLACKWOLF STAGE 2 | FIGURE 12.1

Outline Plan

Development Phasing

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13.0 FIRE PROTECTION

Public roadways will be designed to meet the current City of Lethbridge Design Standards to ensure safe emergency vehicle passage.

The City of Lethbridge “Emergency Response Time Modeling” for BlackWolf Stage 2 will need to be reviewed at the time of subdivision in order to meet applicable provincial regulations. Refer to [Appendix H - High Intensity Fire Response Analysis City of Lethbridge](#).



14.0 SUSTAINABILITY

BlackWolf Stage 2 has incorporated principles of sustainable design into the community. The plan area accommodates a mix of housing styles to address a wide range of market demographics. The land uses also provide opportunities to implement secondary suites, innovative design and creativity.

As the core focal point of the plan area, the Regional Park creates a sense of place while promoting active and passive recreational opportunities for current and future generations. The pedestrian and cycling corridor achieves enhance connectivity within BlackWolf Stage 2 as well as to adjacent communities, ensuring balanced vehicular/pedestrian movement.

The layout of the community was strategically designed to minimize grading, including locating storm water management facilities in natural low areas. These facilities ensure adequate storm capacity while efficiently managing water resources. Raw water from St. Mary River Irrigation District will be utilized to irrigate open space areas, recharge ponds and provide circulation to enhance water quality.



15.0 CONCLUSION

The BlackWolf Stage 2 Outline Plan provides a logical extension to development in the BlackWolf Stage 1 community. The Regional Park encompassing a substantial portion of the Plan will be a core focal point of the immediate community as well as destination for all City neighbourhoods. The design of the Outline Plan conforms to the policies and intent of the Hardieville / Legacy Ridge / Uplands Area Structure Plan.

The City of Lethbridge Real Estate and Land Development Department., respectfully requests Outline Plan approval by the Municipal Planning Commission and subsequent Land Use approval by the Lethbridge City Council to accommodate commencement of the BlackWolf Stage 2 development.

The BlackWolf Stage 2 Outline Plan was approved by the City of Lethbridge Municipal Planning Commission on _____.