

Damkar Seniors Housing Conceptual Scheme Amendment Utility Servicing Design Brief

For Trico Developments (1990) Ltd.

April 2020

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SUBMITTED BY CIMA CANADA INC.

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1. Introduction

This design brief outlines the servicing requirements for the Damkar Seniors Housing development in the Watermark at Bearspaw community in Rocky View County, Alberta. This design brief was prepared by CIMA+ on behalf of Trico Developments (1990) Ltd., for submission to Rocky View County in support of an amendment to the Watermark Conceptual Scheme by Brown and Associates.

The Seniors Housing development is located on a parcel approximately 4.98 ha (12.3 acres) in Rocky View County, with legal description Lot 4, Block 1, Plan 171 2232, referred to as the Site throughout this document. The municipal boundary between Rocky View County and the City of Calgary is immediately east of the Site. The Site is north of the newly constructed Damkar Court roadway which provides access from 12 Mile Coulee Road NW. A location plan of the proposed development is illustrated on Figure 1.0.

The current concept envisions four buildings providing a total of 300 – 500 units intended for seniors with support to promote aging in place.

Servicing of the Damkar Seniors Housing development will be in accordance with the Rocky View County Servicing Standards, Alberta Environment Standards and Guidelines, and Alberta Transportation Guidelines.

2. Existing Topography and Site Grading

The subject property slopes approximately 27m vertically from east to west, with steeper slopes at the west half of the Site with original grades approaching +/- 18%. The elevations range from a high of +/- 1200 m along the east side of the Site adjacent to 12 Mile Coulee Road NW to a low of +/- 1173 m along the west boundary. Existing contours are shown on Figure 2.0.

The Site was partially disturbed for the site grading required to construct the Damkar Court roadway and the overland drainage facilities along the west boundary of the Site. The remainder of the Site will be graded to consider the natural sloping topography of the parcel throughout the development. The buildings will be positioned to “step down” the overall slope across the Site to provide flatter amenity space between the buildings. The site grading plan will be completed at detailed design with consideration for the deep utility servicing (sanitary and water) and the stormwater management plan. Pre and post development catchment areas will be considered, and storm drainage will be directed to the stormwater management facility located between the buildings. The method of conveyance (e.g. overland drainage ditches or storm pipes), minimum/maximum slope requirements, and elevations of adjacent areas will all have an impact on site grading and final design grades.

3. Transportation

Bunt & Associates Engineering (Alberta) Ltd. has prepared an updated Traffic Impact Assessment (TIA) for the Damkar Seniors Housing development in accordance Rocky View County / City of Calgary guidelines. The revised TIA, submitted under a separate cover, provides recommendations for the upgrades to the local transportation network, which will be the framework for the detailed design of future improvements.

The Site is accessed from 12 Mile Coulee Road, which is City of Calgary jurisdiction, on the newly constructed Urban Residential Collector roadway Damkar Court, located within Rocky View County. Internal roadways will be paved and constructed to Rocky View County engineering design standards and a potential secondary access point to 12 Mile Coulee Road would be constructed, if required, in accordance with City of Calgary requirements. Figure 3.0 shows the conceptual internal roadways accessed from the existing Damkar Court and 12 Mile Coulee Road.

4. Water Distribution System Servicing

Water servicing for the proposed Seniors Housing development will utilize the Blazer Water Systems Ltd. water distribution system. The water distribution system will provide treated potable domestic water and fire flows to the proposed development. The details of the level of service provided and conditions for the expansion of the system are outlined in the Water Franchise Agreement between Blazer Water Systems and Rocky View County.

Water distribution mains to service the Seniors Housing development were installed during the construction of Damkar Court and include a dual (looped) 200 mm PVC mains extending from Spyglass Way near the intersection with Watermark Ave. Two 200 mm PVC mains have been stubbed into the Site which will be extended and looped to service the buildings as conceptually shown on Figure 4.0.

During detailed design, a water network analysis will be completed to confirm the onsite pipe sizes and alignments. This will also include a confirmation of the existing system capacity as well as identify any potential upgrades required. The onsite water distribution system will be designed according to Rocky View County Servicing Standards and Alberta Environment Standards and Guidelines.

5. Sanitary Servicing

Existing offsite sanitary infrastructure is also available to service the proposed Seniors Housing development. The Watermark gravity collection system was expanded during the construction of Damkar Court and includes two 200mm PVC mains stubbed into the Site. The conceptual onsite extension of the stubbed mains to service the buildings is shown on Figure 5.0. The gravity collection system drains to the Bearspaw Regional Wastewater Treatment Plant located within the Watermark development.

CIMA+ conducted a preliminary analysis of the Watermark wastewater collection system based on the record information of Damkar Court and Watermark Phase 1. We found that there is capacity for the Seniors Housing development concept and identified mitigation measures potentially required to adequately convey the effluent generated at the higher range of proposed density.

A sanitary servicing study will be completed at the detailed engineering design stage of the development to confirm if upgrades are required to the existing gravity collection system. The study will also investigate the available capacity of the Bearspaw Regional Wastewater Treatment Plant and identify if upgrades are required to meet the additional demand of the proposed development.

The sanitary system will be designed according to Rocky View County Servicing Standards and Alberta Environment Standards and Guidelines.

6. Stormwater Management and Storm Servicing

Stormwater management for the proposed Damkar Seniors Housing development will be designed as per the "Watermark Phase 1 Stormwater Management Report" prepared by Progressive Engineering (2011). This report specified a Unit Area Release Rate of 120 L/s/ha from the Damkar Lands (including the Site) into the existing Watermark Phase 1 minor system. A Stormwater Management technical memorandum is being prepared by Westhoff Engineering Resources Inc. for submission under separate cover to determine the preliminary design of the stormwater management facility to control the discharge from the Site at the allowable rate. The stormwater management concept will be based on a comprehensive, integrated system that will look at utilizing Best Management Practices (BMP) and Low Impact Development (LID) approaches to minimize water quality

degradation. The stormwater management system will be designed according to Rocky View County Servicing Standards and Alberta Environment Standards and Guidelines.

The stormwater management concept for the site proposes three storm ponds appearing as water features located between the buildings that will attenuate the storm event run-off for controlled release offsite. Storm drainage onsite will be conveyed to the water features via a piped system, open ditches and culverts (minor system) and/or an overland drainage (major system) to the proposed stormwater management facility. The stormwater management facility will be designed to handle greater than a 1 in 100-year event.

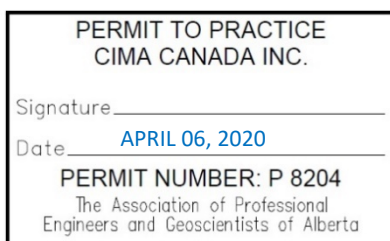
The Watermark Phase 1 minor and major storm system was extended during the construction of Damkar Court. Three 375mm PVC mains have been stubbed into the Site to provide the connection to the existing minor system which discharges to Pond D of the Watermark development. The conceptual storm pond locations and onsite conveyance are shown on Figure 6.0.

7. Shallow Utilities System

It is the understanding of CIMA+ that the construction of Damkar Court included installation of the shallow utilities to service the proposed Seniors Housing development including power, gas and telecommunication utilities. The joint utilities have been installed underground within the Utility Right of Way registered on the Site adjacent to Damkar Court and the services have been stubbed into the site. The onsite alignment of the shallow utility services to the individual buildings will be determined at detailed design. The existing shallow utilities that have previously been installed along Damkar Court are shown on Figure 7.0.

8. Corporate Authorization

This report entitled “Damkar Seniors Housing Conceptual Scheme Amendment Utility Servicing Design Brief” was prepared by CIMA+ on behalf Trico Developments (1990) Ltd. for submission to Rocky View County. The material is based on information available at the time of preparation applying best judgment. Use of this report by a third party and any decisions based on it are the responsibility of the third party. CIMA+ accepts no responsibility for damages to a third party as a result of decisions or actions based on this report.






Appendix A

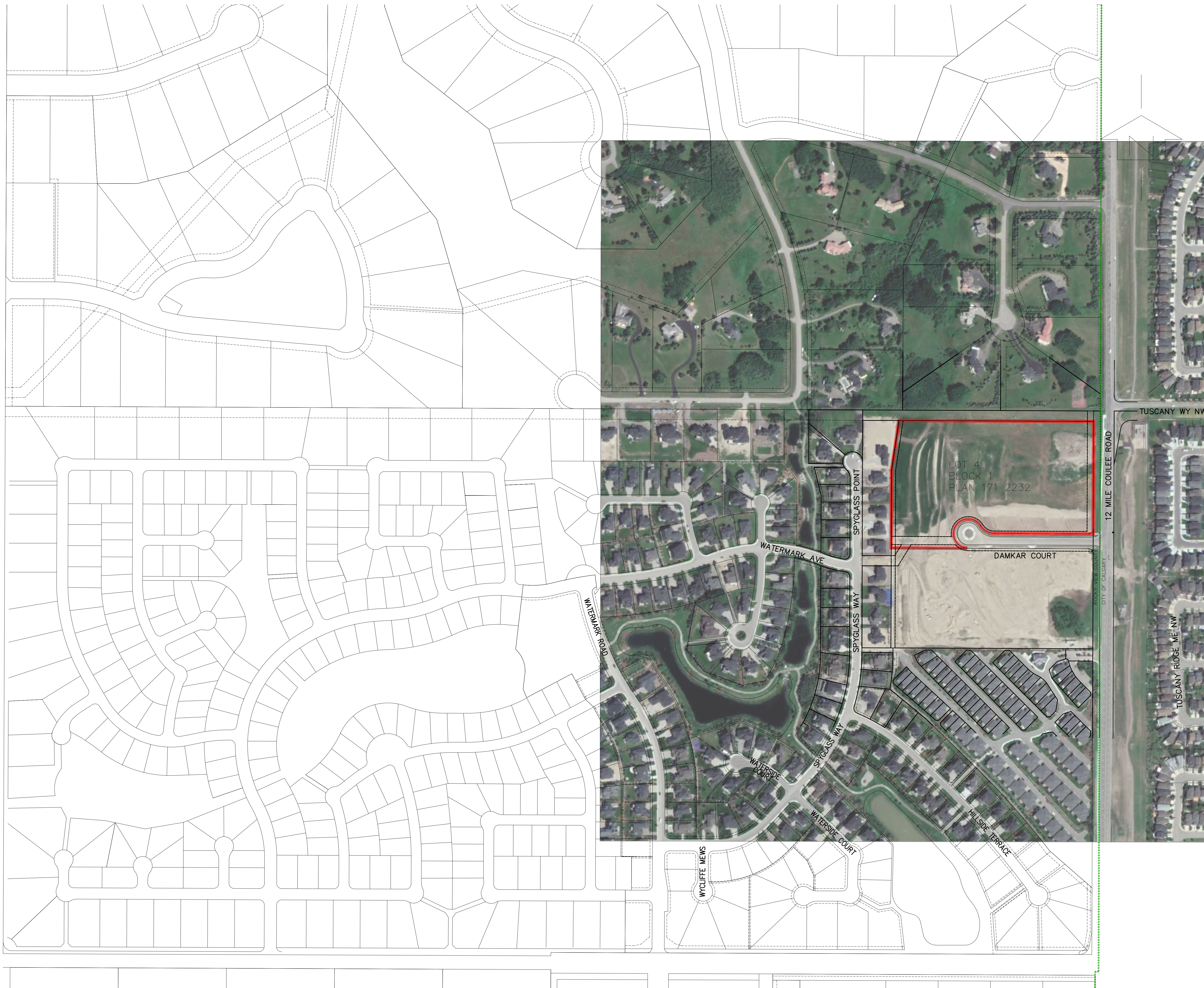
Figures



LOCATION PLAN

LEGEND

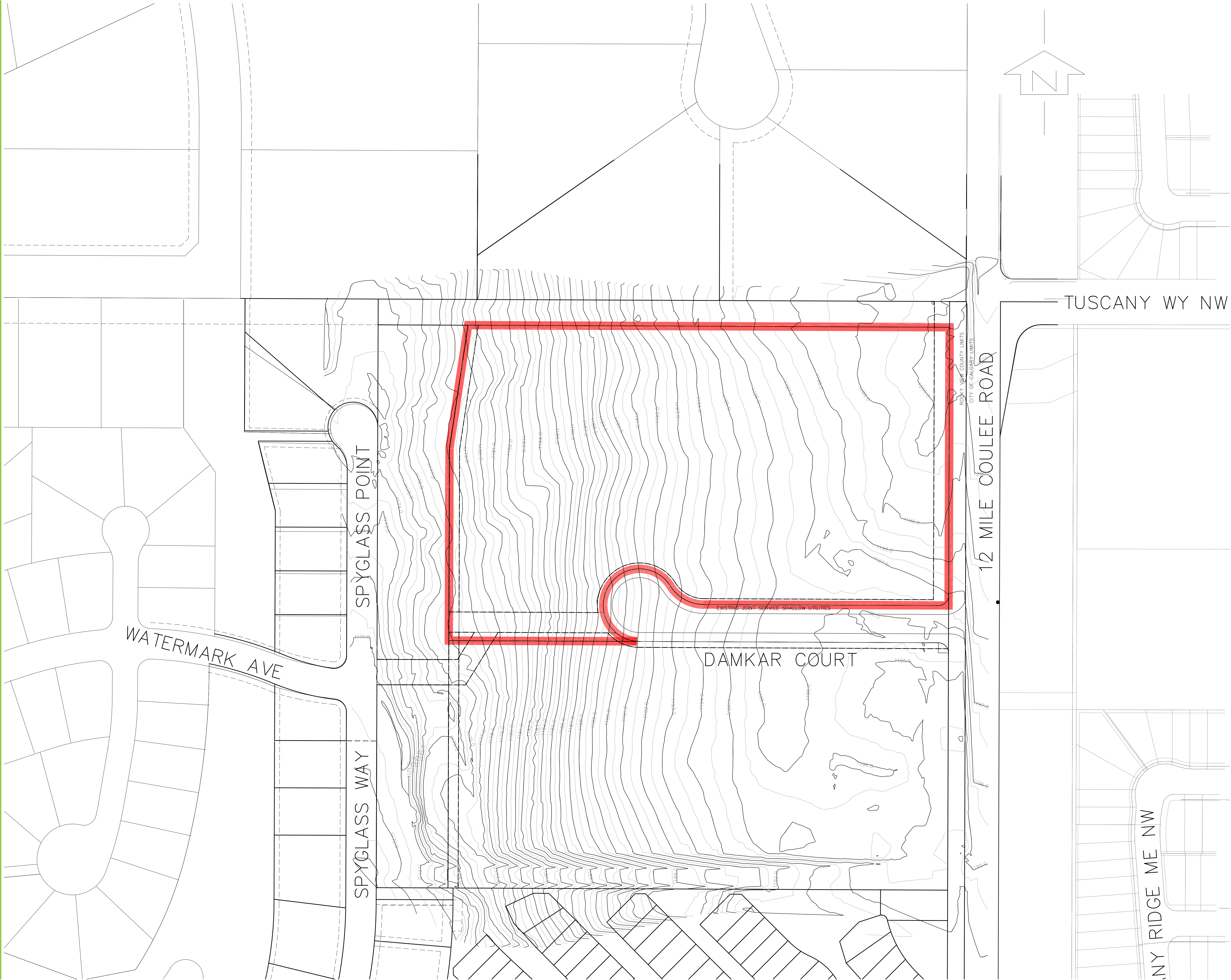
- SITE BOUNDARY
-  MUNICIPAL BOUNDARY



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PROJECT No : C04-00316	FIGURE 1.0
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DAMKAR SENIORS HOUSING

BEARSPRAE, ALBERTA

ORIGINAL GROUND CONTOURS

- LEGEND**
- SITE BOUNDARY
 - ORIGINAL GROUND CONTOUR 1.00 METRE INTERVAL
 - ORIGINAL GROUND CONTOUR 0.50 METRE INTERVAL






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PROJECT No : C04-00316 FIGURE 2.0

ROADWAY SYSTEM PLAN

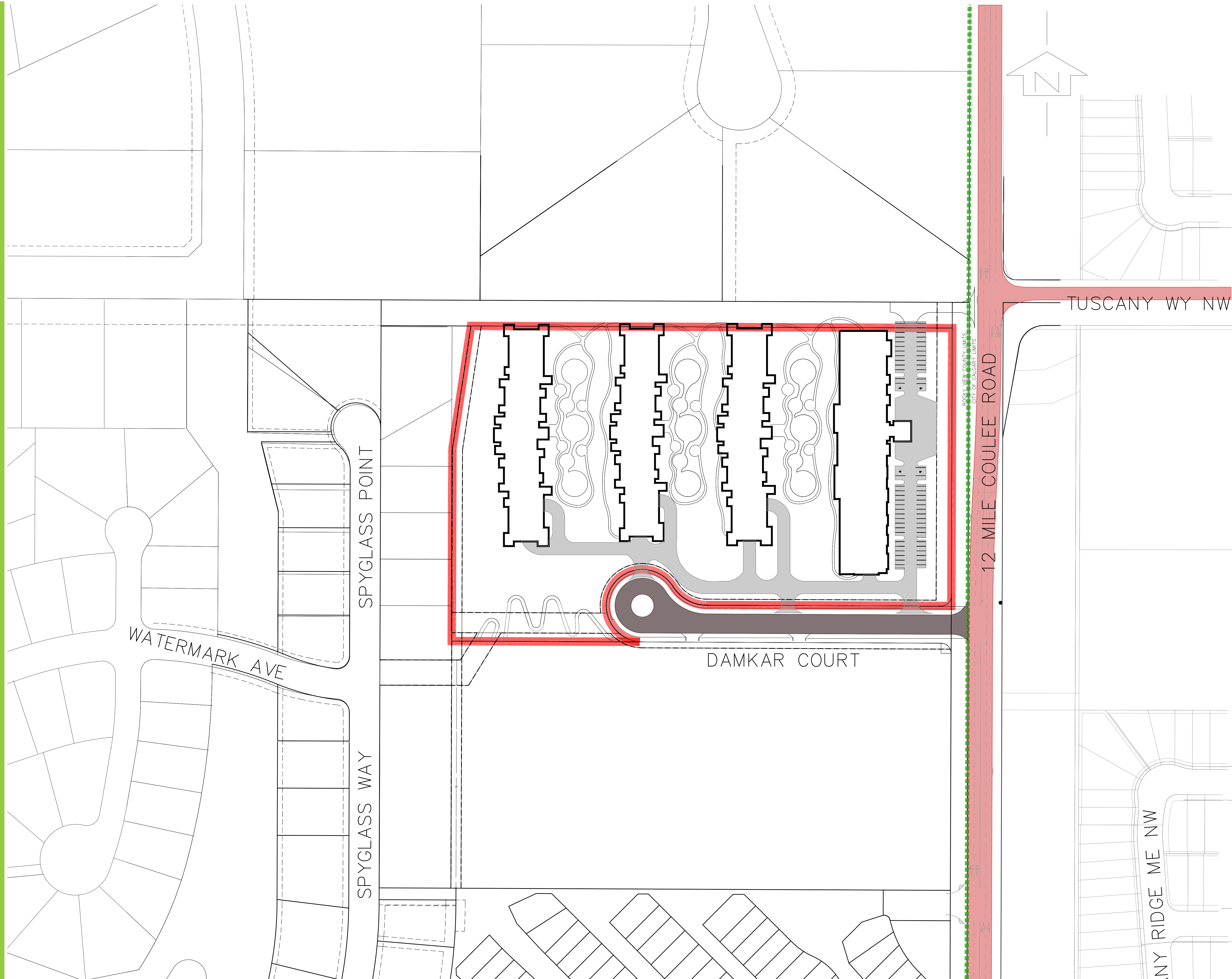
LEGEND

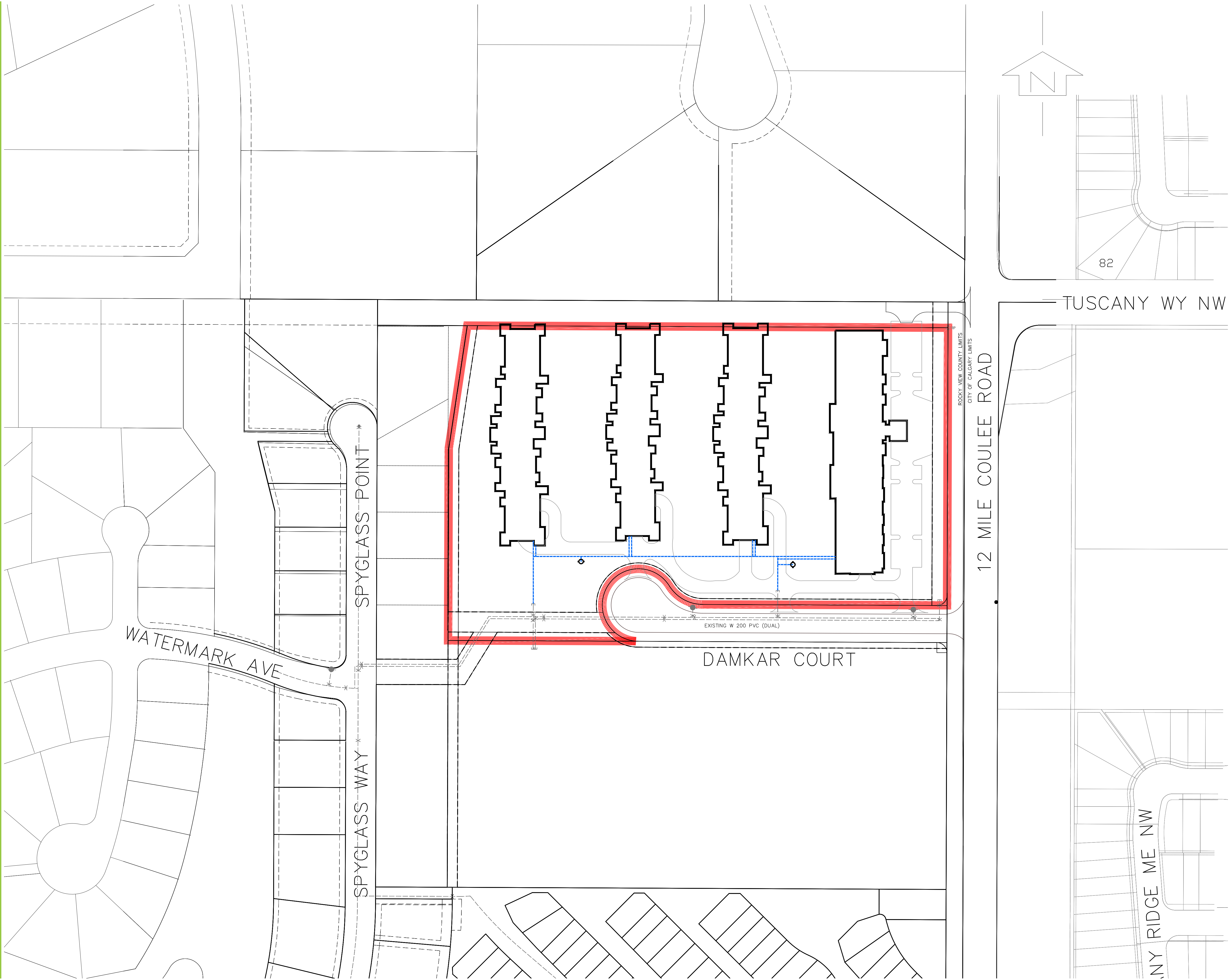
- | | |
|---|---------------------------|
|  | SITE BOUNDARY |
|  | MUNICIPAL BOUNDARY |
|  | INTERNAL SITE ROADWAY |
|  | ROCKY VIEW COUNTY ROADWAY |
|  | CITY OF CALGARY ROADWAY |

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PROJECT No : C04-00316	FIGURE 3.0
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DAMKAR SENIORS HOUSING
BEARSPAW, ALBERTA

WATER DISTRIBUTION PLAN

- LEGEND
- SITE BOUNDARY
 - PROPOSED WATERMAIN
 - EXISTING WATERMAIN

* PIPE SIZES WILL BE CONFIRMED AT DETAILED DESIGN STAGE.



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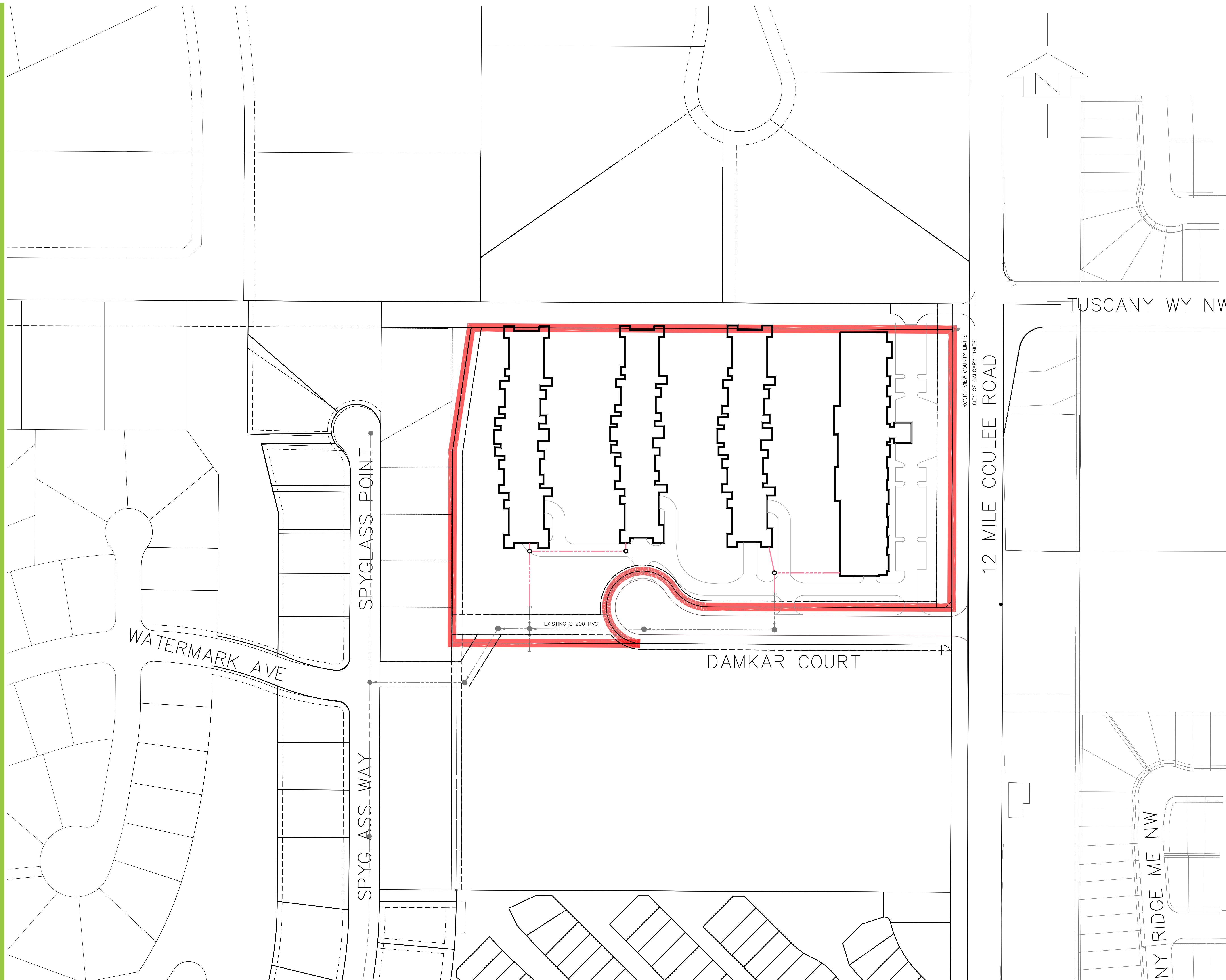
PROJECT No : C04-00316 FIGURE 4.0

SANITARY PLAN

LEGEND

- SITE BOUNDARY
 PROPOSED SANITARY MAIN
 EXISTING SANITARY MAIN

* PIPE SIZES WILL BE CONFIRMED AT DETAILED DESIGN STAGE.








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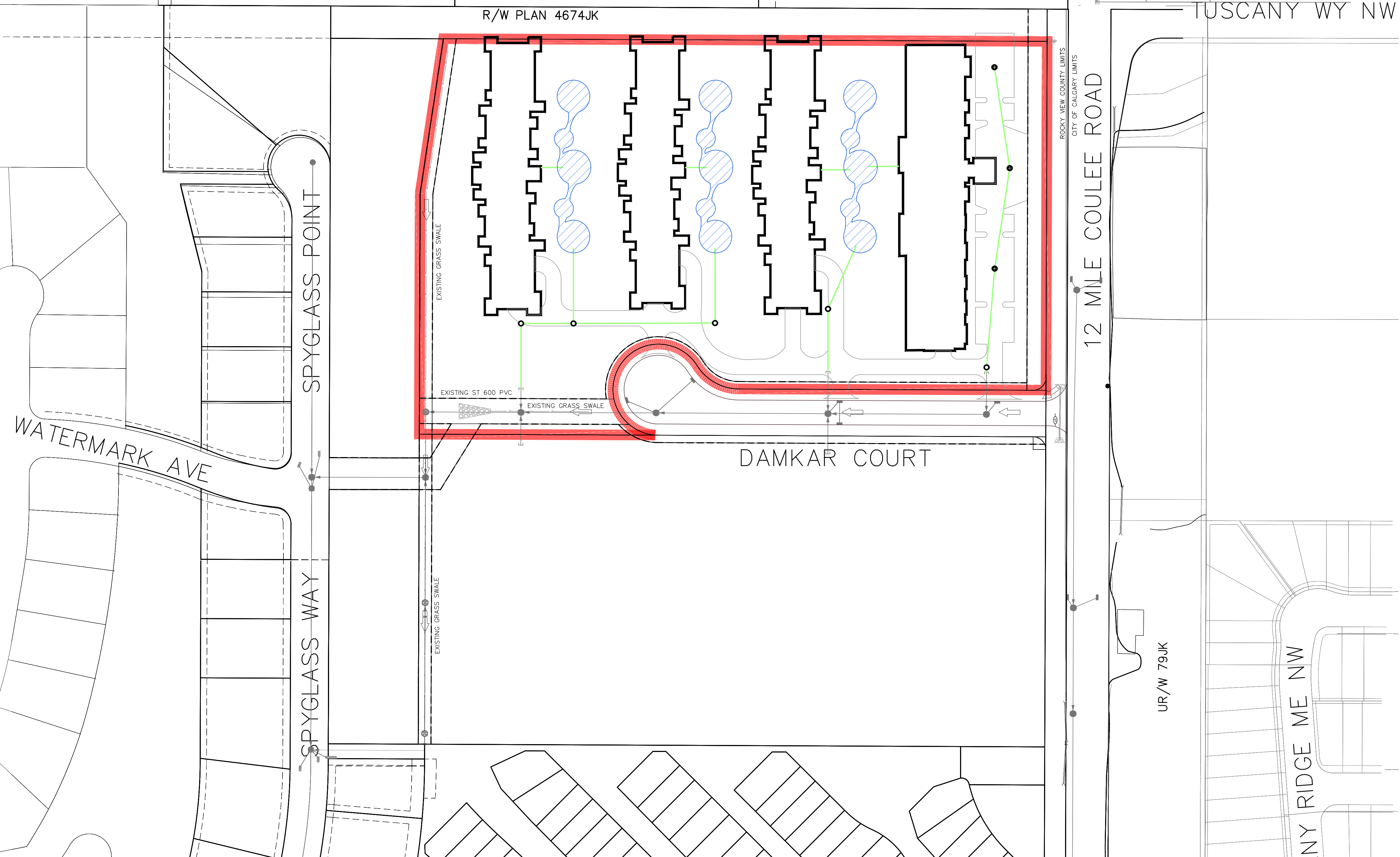


PROJECT No : C04-00316	FIGURE 5.0
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LEGEND

-
-  SITE BOUNDARY
 PROPOSED STORM MAIN
 EXISTING STORM MAIN
 PROPOSED POND
 EMERGENCY OVERLAND ESCAPE ROUTE

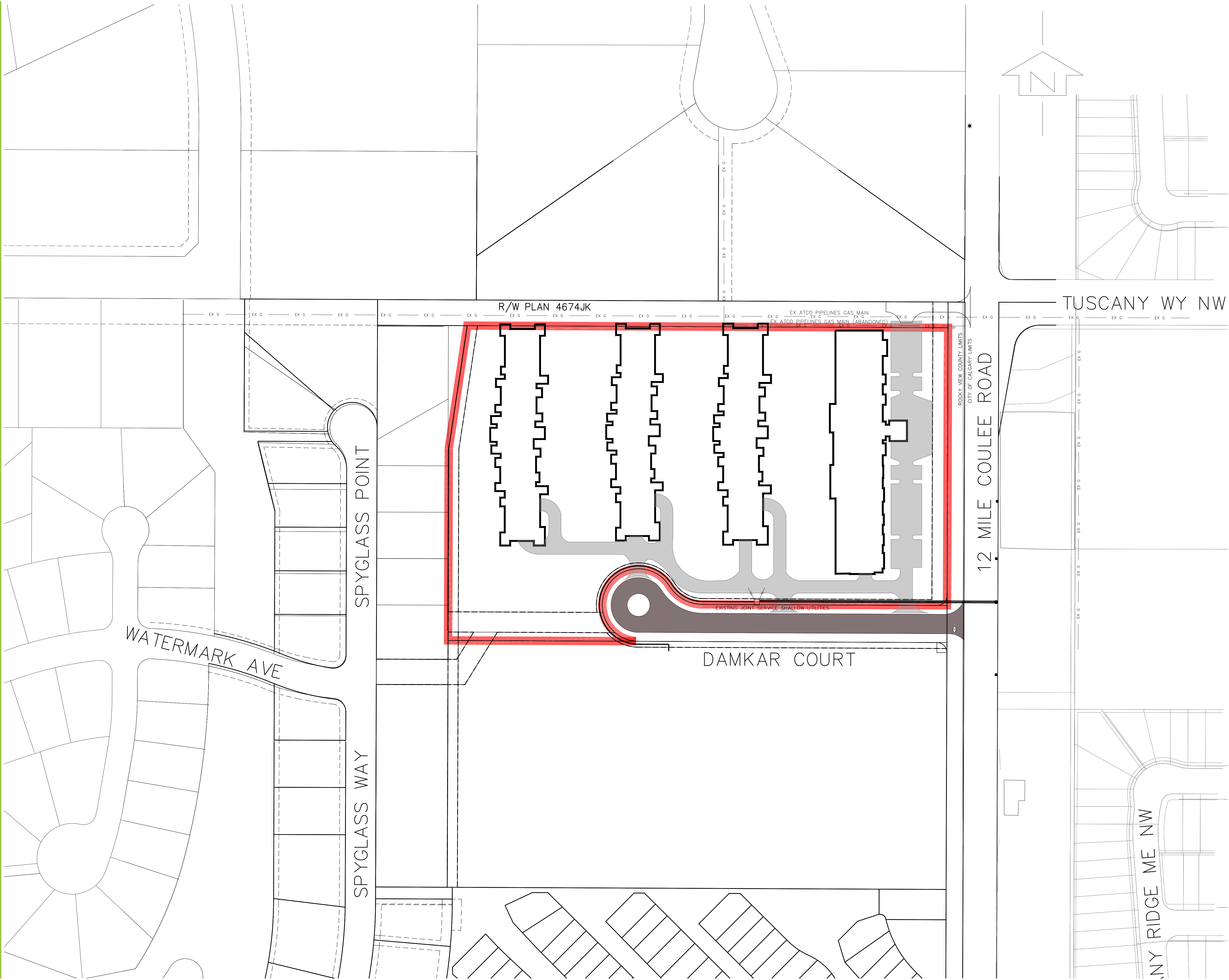
* PIPE SIZES WILL BE CONFIRMED AT DETAILED DESIGN STAGE.



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PROJECT No : C04-00316	FIGURE 6.0
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DAMKAR SENIORS HOUSING
BEARSPAW, ALBERTA

SHALLOW UTILITIES

- LEGEND
- SITE BOUNDARY
 - EXISTING JOINT SERVICE SHALLOW UTILITIES

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PROJECT No : C04-00316 FIGURE 7.0