JULY 2013

SUNSET RIDGE
STAGE TWO

NEIGHBORHOOD PLAN

SUNSET RIDGE
COCHRANE

SUNSET RIDGE

COCHRANE

PREPARED FOR:
SUNSET PROPERTIES

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1293/SUNSET RIDGE STAGE 2 NEIGHBOURHOOD PLAN

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Table of Contents

FIGURES

APPENDICES

1.0 VISION

Sunset Ridge in Cochrane is planned as a complete community, through the development of Stage 1 by Tirion and now Stage 2 by Sunset Properties. The pedestrian environment and connectivity are forefront in the design considerations. Streetscapes, open spaces and pathway linkages are purposefully thought out and placed to create an environment that encourages residents to take advantage of these amenities, to socialize and contribute to a well balanced community.

The Sunset Ridge community contains key design elements that enable the plan area to function as a complete residential community. The Sunset Ridge Stage 2 Neighbourhood Plan (SR2NP) does not include the entire Sunset Properties land holdings, however, it is a significant Neighbourhood Plan and contains the following:

- a variety of housing options,
- special attention to streetscapes,
- An open space system consisting of an extensive central green corridor connecting to multiple open space play areas, two school sites and the future community centre as well as to the environmental reserve in the south,
- one future K - 9 school site,
- one future K - 8 school site
- a permanent escarpment environmental reserve area,
- a stormwater management facility as a place making feature, and
- extensive local and regional pathway connections allowing pedestrians and cyclists the opportunity to minimize using the sidewalks and streets which will create safer recreation and commuting opportunities.

These design elements will allow the SR2NP to be a comprehensive residential community because:

- it has suitable access from Highway 22
- variety of residential options that can accommodate a large variety of housing forms, meeting different economic needs and permit aging in place.
- contains educational opportunities in close proximity to residences.
- public open spaces for communal use
- opportunity for natural and open green spaces, and
- the necessary infrastructure to facilitate development.

Sunset Properties is excited to be developing their first stage of land holding within Sunset Ridge and looks forward to creating an environment that residents are proud to call home.

2.0 INTRODUCTION

2.1 PURPOSE OF THE PLAN AND POLICY CONTEXT

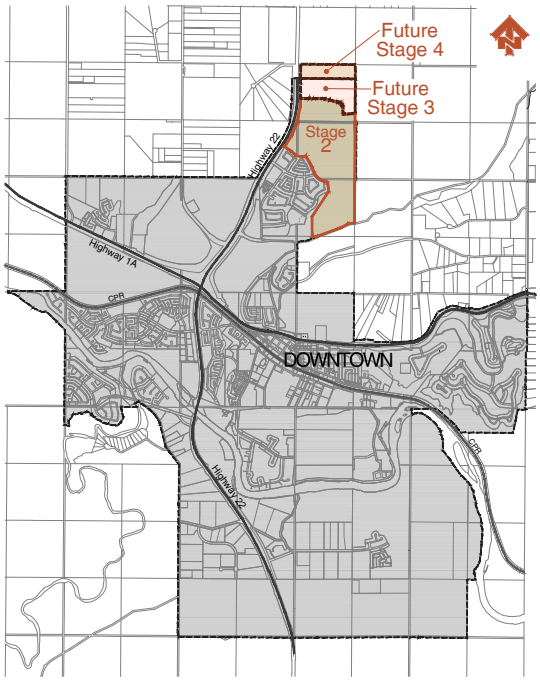
Sunset Ridge is a developing community in north Cochrane. Accessed off Highway 22, Stage 1 of Sunset Ridge was planned and developed by Tirion Properties under the guidance of the 2005 Sunset Ridge Area Structure Plan. Sunset Properties has entered into an agreement to purchase the remainder of the Sunset Ridge lands. Subsequent to the development of Stage 1, the Town of Cochrane had approved a new Municipal Development Plan (MDP) and adopted the Cochrane Sustainability Plan (CSP). To ensure the balance of the undeveloped portions of Sunset Ridge was in compliance with these new policy plans, the 2005 Sunset Ridge Area Structure Plan required updating. This update was approved in June 2012 and is referred to as the Stage 2 Sunset Ridge Area Structure Plan (Stage 2 SR-ASP). Now that the Stage 2 SR-ASP is in place, the Sunset Ridge Neighbourhood Plans can move forward in three stages. See Figure 1. Location Plan.

The Sunset Ridge Stage 2 Neighbourhood Plan (SR2NP) aligns with the recently approved Stage 2 Sunset Ridge Area Structure Plan (Stage 2 SR-ASP). Both the Stage 2 SR-ASP and the SR2NP acknowledge and align with the Town of Cochrane's MDP and the CSP. See Figure 2: Stage 2 SR-ASP Land Use Concept.

A Neighbourhood Plan is a non-statutory plan that seeks to facilitate the planning and development of communities once an Area Structure Plan is approved. The purpose of a Neighbourhood Plan is to provide the rationale and logic behind the proposal for future development. A Neighbourhood Plan provides an explanation of the layout, design, and future engineering decisions. It makes the connection between the policies of the Area Structure Plan and the future built form. The SR2NP provides the explanation of how Stage 2 within the community of Sunset Ridge will be developed in accordance with the Stage 2 SR-ASP, the CSP and the MDP.

The Policy Context for a Neighbourhood Plan is provided under Section 14.3.2 Area Plan Policies of the Town of Cochrane Municipal Development Plan (MDP). Items (d) through (g) under this Section outline the base information required. The SR2NP follows and builds on this guide.

Figure 1: Location Map



2.2 OWNERSHIP

The lands within the SR2NP area are under the ownership of Tirion Properties with an offer to purchase by Sunset Properties Ltd.

Figure 2: Approved Sunset Ridge Area Structure Plan - Land Use Concept

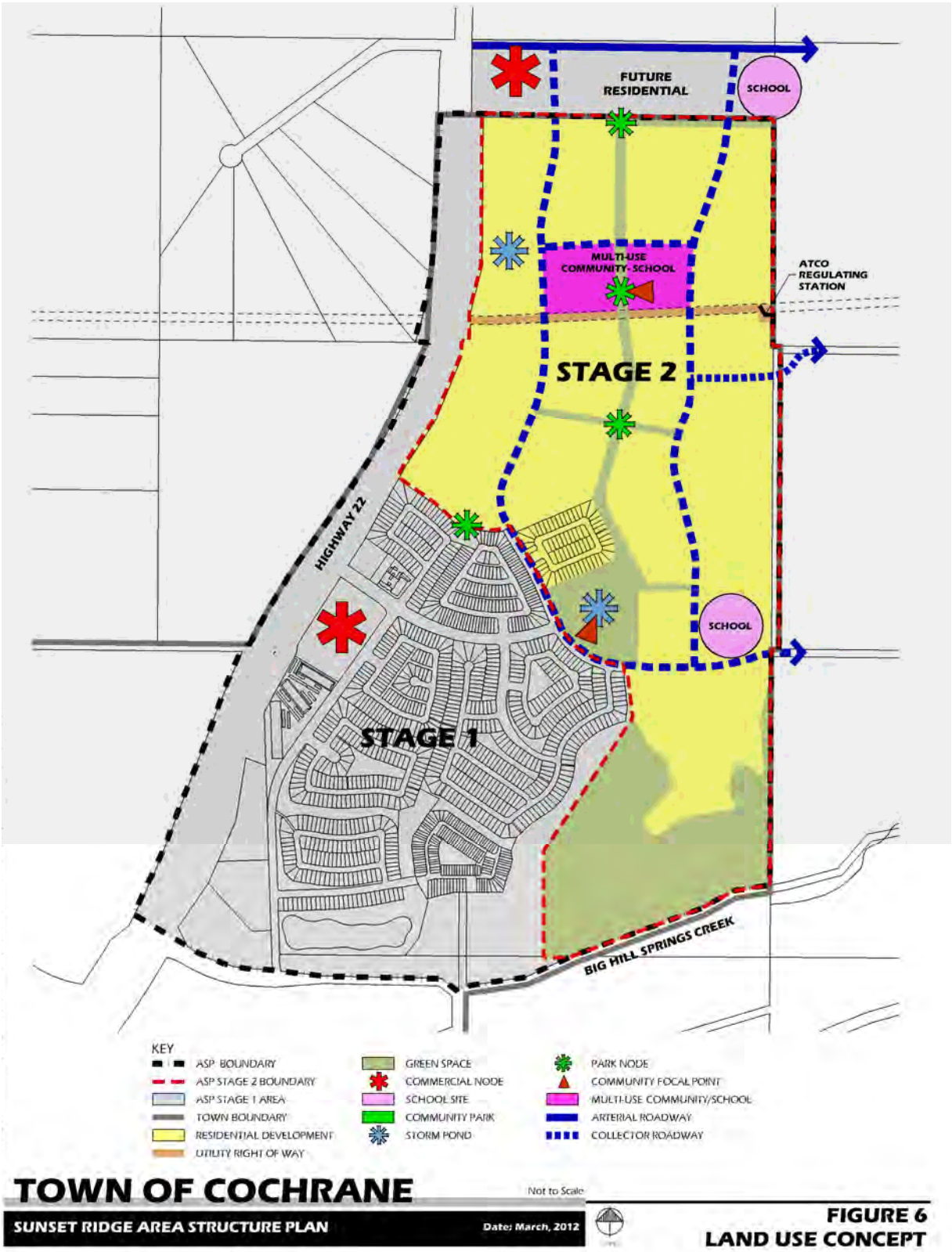
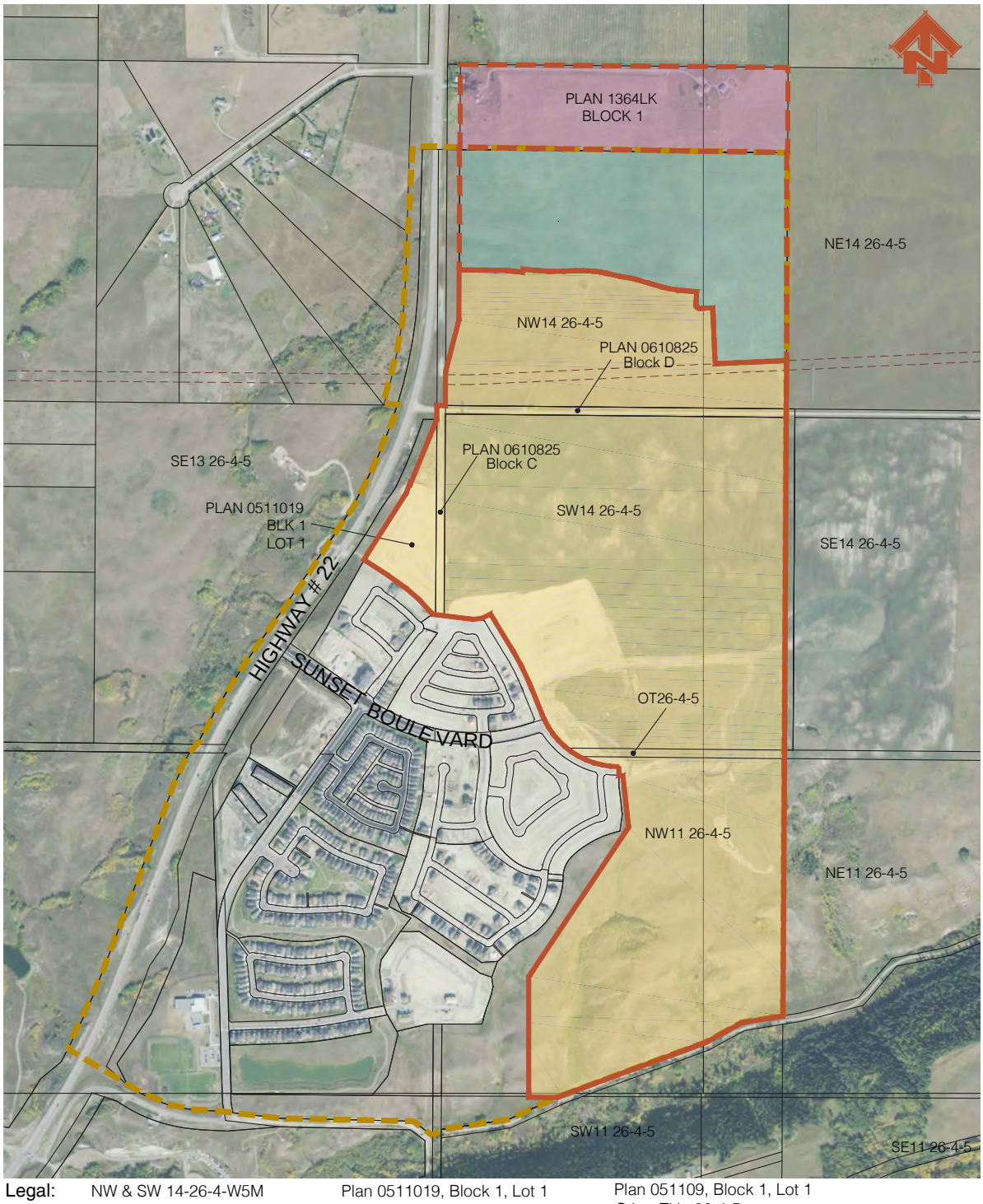


Figure 3: Aerial Photo and Legal Information



Legal:

NW & SW 14-26-4-W5M
NW 11-26-4-W5M

Plan 0511019, Block 1, Lot 1
Plan 0610825, Block C & D

Plan 051109, Block 1, Lot 1
Other Title 26-4-5

Legend:

- Sunset Ridge Stage 4 Neighbourhood Plan
- Sunset Ridge Future Stage 3 Neighbourhood Plan
- Sunset Ridge Future Stage 2 Neighbourhood Plan

3.0 SITE CONTEXT

3.1 AREA AND SITE LOCATION

The SR2NP is located within the north sector of the Town and comprises 119.48 hectares (295.24 acres) of land. The area is bounded by:

- Highway 22 (Hwy22/Cowboy Trail) and Sunset Ridge Stage 1 to the west – Highway 22 is a Provincial Highway and falls under the jurisdiction of Alberta Transportation. This road is currently classified by Alberta Transportation as a (Level 2) Arterial Highway. The long range plan is for Hwy 22 to be developed as a (Level 2) Arterial, Multi-lane Highway with signals. Further information on the design of this highway can be found in the Access Management and Functional Planning Study of Highway 22 and Highway 1A that was completed by McElhanney Consulting Services for Alberta Transportation.

  The classification system for this highway was updated by Alberta Transportation in November 2007 under the Provincial Highway Service Classification report completed by Stantec.

- Sunset Ridge Stage 1 (by Tirion) to the south, and

- Agricultural lands to the north (future Stage 3) and east.

3.2 LEGAL DESCRIPTION

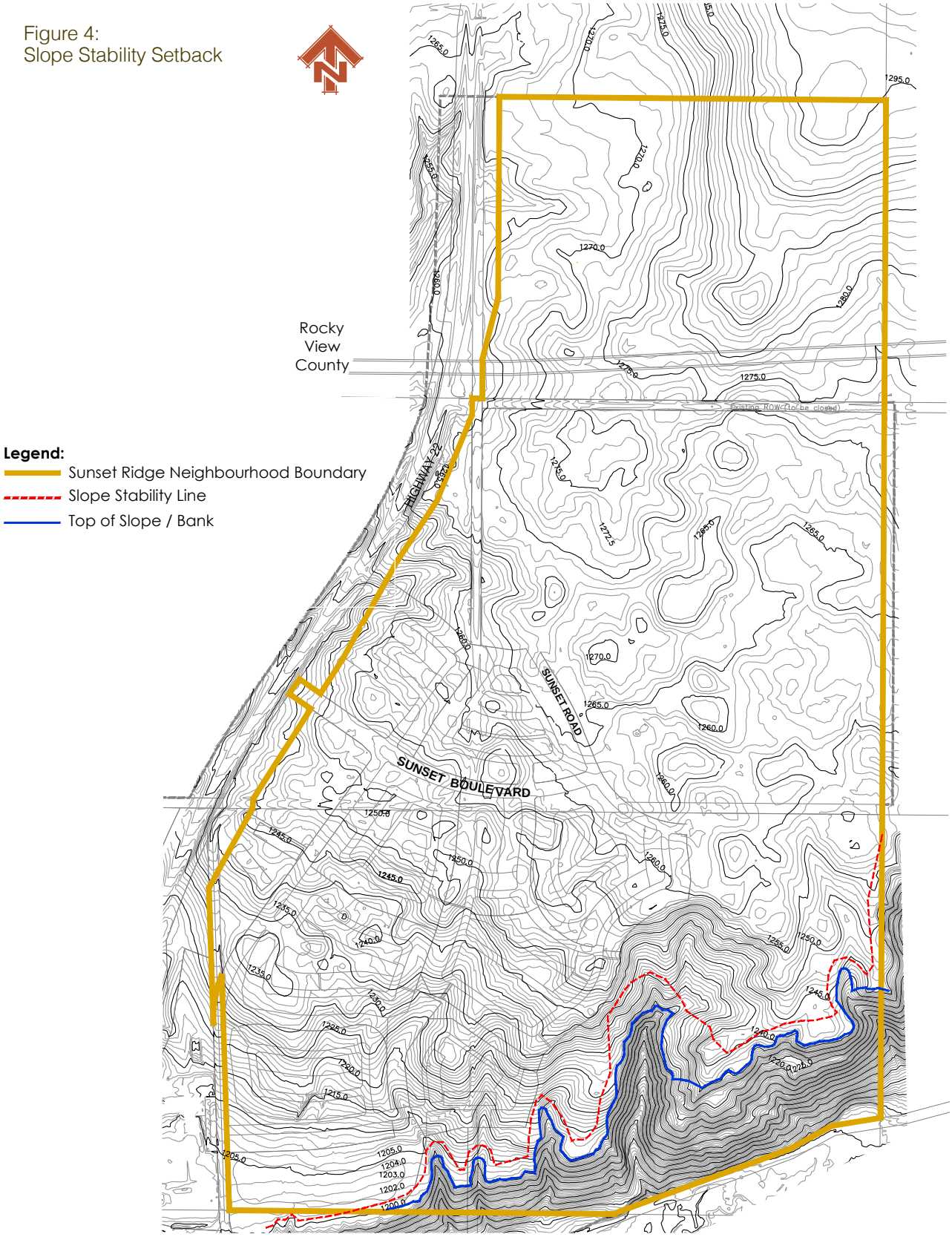
The lands within the SR2NP are legally described as the following (see Figure 3: Aerial Photo and Legal Information):

Portions of SW 14-26-4-W5M
Portions of NW 11-26-4-W5M
Plan 0610825, Block D
Plan 0610825, Block C
Plan 051109, Block 1, Lot 1
Other Title 26-4-5

3.3 PLAN AREA DESCRIPTION

The SR2NP lands have been used predominantly for agricultural crop production and livestock grazing. Farmsteads were once situated in the SW14-26-4-W5M and at the north end of SE15-26-4-W5M. Most of the land within the plan area consists of gently sloping upland. Elevations vary from 1160 metres (3888 feet) in the Big Hill Creek valley to 1298 metres (4258 feet) above sea level in the northeast corner of the plan area. The lands provide views of the Rocky Mountains, the foothills and the Big Hill Creek valley to the south, southwest and southeast.

Figure 4:
Slope Stability Setback



4.0 BACKGROUND

SUPPORTING INFORMATION

Several background studies were completed for the Sunset Ridge Area Structure Plan (SR-ASP) and the Sunset Ridge Stage 2 Neighbourhood Plan (SR2NP). They provide the base evaluation of the SR2NP to ensure that physical constraints are properly addressed within the design.

4.1 GEOTECHNICAL EVALUATION

As part of the 2005 Sunset Ridge Area Structure Plan, a Geotechnical and Slope Stability Assessment was prepared by McIntosh Lalani Engineering Ltd. It indicated that the escarpment of the Big Hill Creek Valley has a series of ravines or draws that extent northward into the proposed development area. The slopes of the escarpment include some areas with gradients as steep as 2:1. The soils in this area are part of the Spy Hill drift which overlays the Porcupine Hills Formation. Along the escarpment of the Big Hill Springs Valley and in the ravines the exposed outcroppings of this sedimentary bedrock are visible. See Appendices for McIntosh Lalani Slope Exhibit.

In 2011, McIntosh Lalani undertook a second Geotechnical Evaluation of the Stage 2 SR-ASP area with particular attention to the Big Hill Creek Valley escarpment and the sloping lands in the pasture above the escarpment. They observed that these extensive escarpment slopes were not failing or sloughing and that there were no springs coming from the slopes; as well the rolling slopes west of the escarpment were stable.

The results of the 2005 slope stability analysis concluded that the slopes are stable where slopes are 3H:1V and flatter. However, a building setback for construction is required in areas where the slope gradient is steeper. Development setback distances of up to 35 metres from the top of slope have been established for development that is along this escarpment. At this established building setback line, a Factor of Safety of 1.50 is achieved against any slope instability. See Figure 4: Slope Stability Setback.

Numerous geotechnical evaluations have been undertaken for the Sunset Ridge lands developed to date. Prior to development, the developed areas of Sunset Ridge were used primarily for farm land and cattle grazing. The topography is flat to rolling, and the soils generally consist of an overbank silt, sand and clay sediments. The glacial tills and bedrock encountered in the slope are generally greater than 9.0 metres below existing grades, further back from the slope escarpment. The groundwater depth has been monitored in these locations and is typically deeper than the 9.0 metre depth that was drilled during the subsurface investigation.

Sunset Properties recently contracted McIntosh Lalani to perform groundwater testing on the balance of the Stage 2 land. To date numerous Geotechnical Assessments have been undertaken for Phases 1-10 of Sunset Ridge. The latest Geotechnical Evaluation report has been submitted under separate cover.

4.2 HISTORICAL RESOURCES IMPACT ASSESSMENT

As part of the 2005 Sunset Ridge Area Structure Plan, a Cultural and Archeological Overview Report was prepared for the majority of the Area Structure Plan area by FMA Heritage Resource Consultants. This overview indicated that given that cultivation had been practiced on the uplands within the plan area, there is little likelihood that any areas intended for development contain any historical, archaeological, or palaeontological resources. The report indicated the escarpment and valley bottom, however, have significant potential for archaeological resources.

Historical sites were identified as part of work completed for Stage 1 (by Tirion) by FMA Heritage Resource Consultants. Three sites (EhPo-97, EhPo-98 and EhPo-105) were identified within the SR2NP area. See Figure 5: Historical Sites. EhPo-97 and EhPo-98 will remain untouched within the Environmental Reserve area and pathways will need to avoid these sites.

Lifeways of Canada Limited will be addressing EhPo-105 when phasing reaches EhPo-105, prior to stripping and grading of the land within proximity. The EhPo-105 is located in a topographic bowl, towards the northern end of the project area. Two positive backhoe tests excavated here identified buried butchered bison bone at depths of 100 to 140cm below the surface. Mitigative requirements outlined by ACCS call for the hand excavation of 10 square meters adjacent to each of the positive backhoe tests; 20m in total for the site. Once cleared by ACCS, copies will be provided to the Town of Cochrane.

4.3 BIOPHYSICAL IMPACT ASSESSMENT

In 2004, a Biophysical Assessment was completed for the lands within the plan area by Sweetgrass Consultants. The report concluded that habitat loss associated with development will be restricted to mainly non-native and intensively used native grassland habitats. The most productive and significant habitat, within the coulee complex, will be protected through the designation of these lands as environmental reserve. Therefore the proposed plan will not contribute significantly toward regional habitat fragmentation, loss of wildlife corridor potential, or loss of regional diversity.

An updated Biophysical Impact Assessment was completed for the Stage 2 lands in Spring/Summer 2012 by Sweetgrass Consultants and it included the following surveys on property: 1) a full BIA for the northern portion of the area that was not included in the original 2004 Report and 2) an assessment of wetlands in the remainder of the area that was lacking in the 2004 BIA. The wetland assessment of the status, size and classification of 21 wetlands identified on the Stage 2 lands in the Town of Cochrane Wetland Inventory (completed by AECOM in 2011).

A total of 14 wetlands were described and mapped for the entire Stage 2 property, which includes 2 Class I, 2 Class II and 10 Class III. All wetlands have been significantly degraded through land use including cultivation and heavy grazing. See Figure 6: Existing Wetlands.

Class 1	0.053 hectares
Class 2	0.201 hectares
Class 3	2.223 hectares
TOTAL	2.477 hectares

An overlay has been prepared, See Appendix 13: Wetland Overlay, illustrating the location of the existing wetlands in relation to the proposed development.

All upland in NW14 is non-native grassland that was previously cultivated or recently cleared. Most upland in the remainder of the property has been intensively cultivated/heavily grazed for decades.

A total of 71 species of vascular plants have been documented; 21 of these are non-native including 2 provincially noxious weeds,

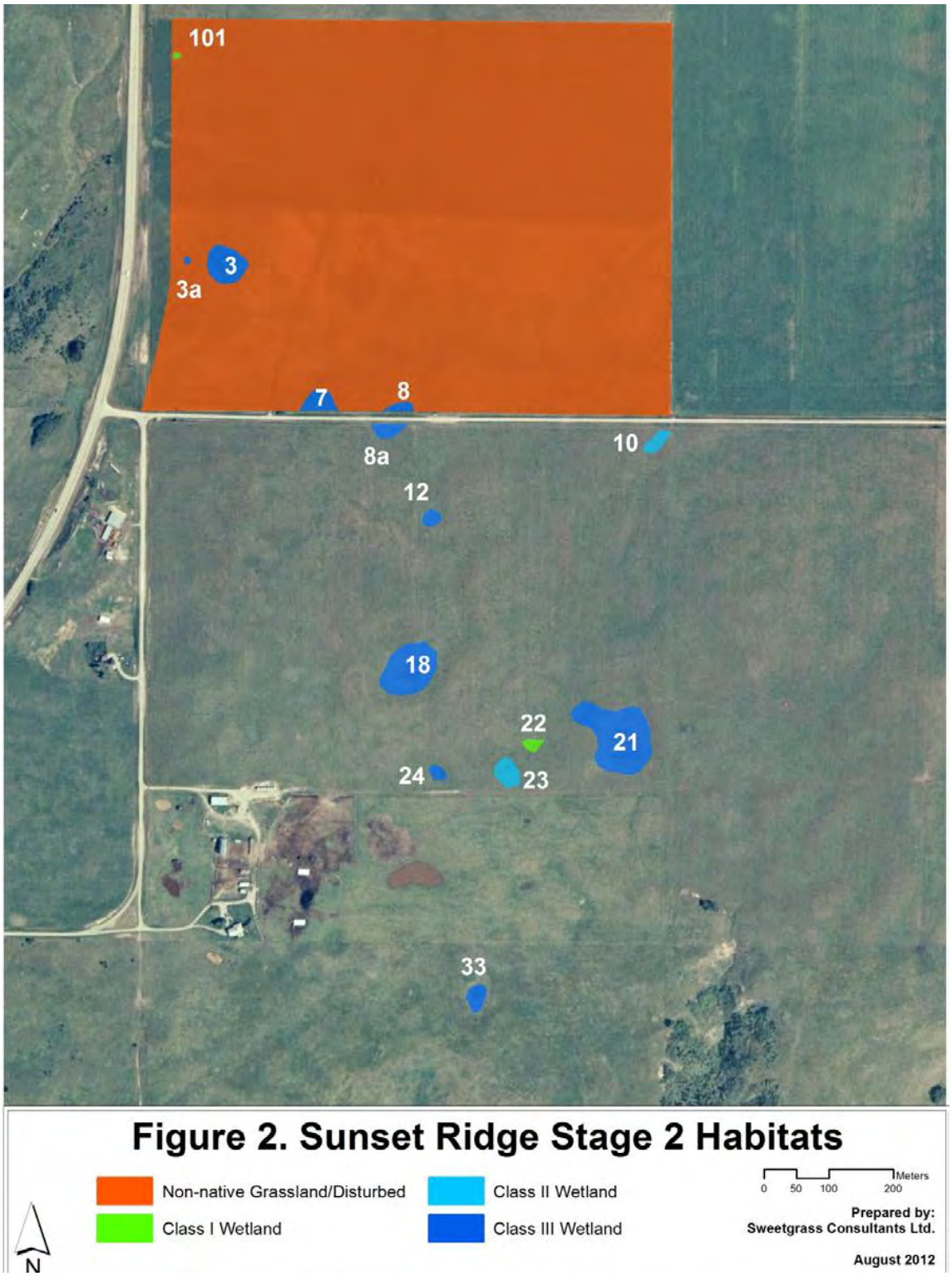
Totals of 7 birds, 2 mammals and 1 amphibian species were recorded. Waterfowl were observed at only one wetland in early May and, because of wetland degradation through cultivation, potential for nesting waterfowl was relatively low on the entire property and no nesting evidence was found.

No federally/provincially listed species at risk were found in the field survey and habitat potential for these species is generally low. No provincially sensitive species were recorded.

One possible provincially rare plant species (blunt-leaved yellow cress), with plants too immature to confirm identification, was documented in a cultivated wetland. This species has been recorded at several sites in the Cochrane area. Its typical habitat is mudflats in wetlands disturbed by heavy grazing/cultivation. In recent wet years there have been reports of large populations in farm land in the Calgary region indicating that it is probably more abundant in the province than previous records would indicate.

It is concluded that the effects of development on regional habitat fragmentation and wildlife corridors will be negligible since the property is non-native and disturbed and is located within an already fragmented landscape. Loss of bio-diversity will be low and will involve primarily wide-ranging, common species of plants and animals.

Figure 6: Existing Wetlands



4.4 ENVIRONMENTAL SITE ASSESSMENT

An updated Level One Environmental Site Assessment (Level 1 ESA) has been completed for the plan area by Base Property Consultants Ltd. Based upon the results of site reconnaissance and review of historical records, the Level 1 ESA report concluded that no significant environmental impairment exists on the land and further environmental investigation is not required prior to development.

The report recommended that at the time of development (including the demolition of existing farmsteads), it is possible that regulated substances (i.e. contaminants) or evidence of such substances (e.g. unidentified materials, stained soils or noxious odors) may be discovered. The report recommends that in the event that any such evidence is found, a qualified environmental consultant should be contacted to conduct further environmental investigation before grading or development occurs.

4.5 NATURAL GAS PIPELINE

Nova Gas Transmissions (NGTL) has a 22.86 metre (75 foot) gas line easement running east-west through the NW1/4 Section 14-26-4-W5M in the north portion of the SR2NP area. A high pressure natural gas pipeline, the East Calgary line, is located in the easement. No buildings or portions of lots are allowed within the easement to enable NGTL to access the pipeline. TransCanada does should not require any additional setbacks beyond this right-of-way. The Town requires development setbacks in accordance to the Municipal Development Plan and Cochrane Land Use Bylaw.

The following is permitted within the Nova Gas Transmissions gas line right of way:

Landscaping Guidelines:

- No trees or large shrubs shall be planted within 3 metres of the pipeline edge located within the pipeline right-of-way;
- The pipeline right-of-way is to be seeded with Canada #1 seed;
- A 5 metre access way for repair crews should be provided within the right-of-way;
- Except in wooded environmentally sensitive areas (such as parks) or special cases (such as specimen trees, nurseries, or orchards), no trees and shrubs that will reach a height greater than 4 metres shall be placed within NGTL's right-of-way;
- Before any excavation within 3 metres of the edge of the pipeline rightof- way, the pipeline must first be located by hand;
- A minimum of five (5) metres between all groups of trees/shrubs is required; and
- In no event shall NGTL be held liable to the owner respecting any loss of or damage to the fence, trees and/or shrubs which the owner may suffer or incur as a result of the operations of NGTL. The owner shall be responsible for all costs involved in replacing any fence, trees and shrubs damaged or removed during NGTL's operations and shall indemnify and save harmless NGTL from all actions, proceedings, claims, demands and costs brought against or incurred by NGTL as a result of the presence of or damage to the fence, trees and/or shrubs on the NGTL right-of-way.

4.6 TRANSPORTATION ASSESSMENT

4.6.1 TRAFFIC IMPACT ANALYSIS

Traffic assessment for the NSP area was addressed in the 10-Year horizon (Scenarios 3 and 4) of the Sunset Ridge TIA (submitted to the Town in September 2012.) The NP area generated 936 trips in the AM and 1,307 trips in the PM. Based on the 10-year horizon, the traffic analyses indicated that the following upgrades would be required (See Appendices for 10 Year Recommended Lane Configurations and Traffic Controls):

Hwy 22 / Sunset Blvd:

- Add dual westbound left turn. This can be accomplished by removing the concrete barriers that are blocking the already-constructed left turn bay.
- Modify the north-bound right turn to free flow lane. With the two existing eastbound lanes on the east leg of the intersection, one lane can be modified to become the receiving lane for the north-bound right turn.

Hwy 22:

- Add an additional southbound through lane between Sunset Blvd and Hwy 1A. The additional southbound through lane would commence just north of Sunset Blvd and connect to the two southbound lanes that develop north of Ranche Road/Hwy 22. The lane is localized to the intersection, and also accommodates the dual west-bound left from Sunset Blvd.

Sunset Blvd / Sunset Dr:

- This internal intersection will require signalization, due in part to the NP development but also from the existing subdivision and commercial development on Sunset Drive.

Sunset Blvd / Sunset Road:

- Implement all-way stop control.

4.6.2 ROADWAY CLASSIFICATION

Sunset Blvd is classified as an Arterial roadway. From the TIA, Sunset Blvd will have a daily volume of 23,500 vpd, well within the environmental capacity of an Arterial. This maintains consistency with the Town's Transportation Master Plan. Sunset Road and Sundown Drive are classified as Collector Standard Roadways - Sunset Properties is proposing a Primary Collector standard which includes a treed median creating a more pleasing road cross-section (containing vegetation) throughout the community. All other roadways are residential standard roads.

Figure 7: Neighbourhood Plan - Concept Plan

5.0 SUNSET RIDGE
STAGE 2 NEIGHBOURHOOD PLAN

5.1 DESIGN FEATURES OF THE SR2NP

The SR2NP includes special design features thoughtfully integrated into the community layout and design to ensure the provision of a complete community. Figure 7: Neighbourhood Plan - Concept Plan illustrates the design features outlined below.

5.2.1 OPEN SPACE

The open space system is a key feature of the SR2NP. The open space system is well balanced throughout the entire community of Sunset Ridge, which is largely enhanced by the green network provided in the SR2NP. Key features are summarized below:

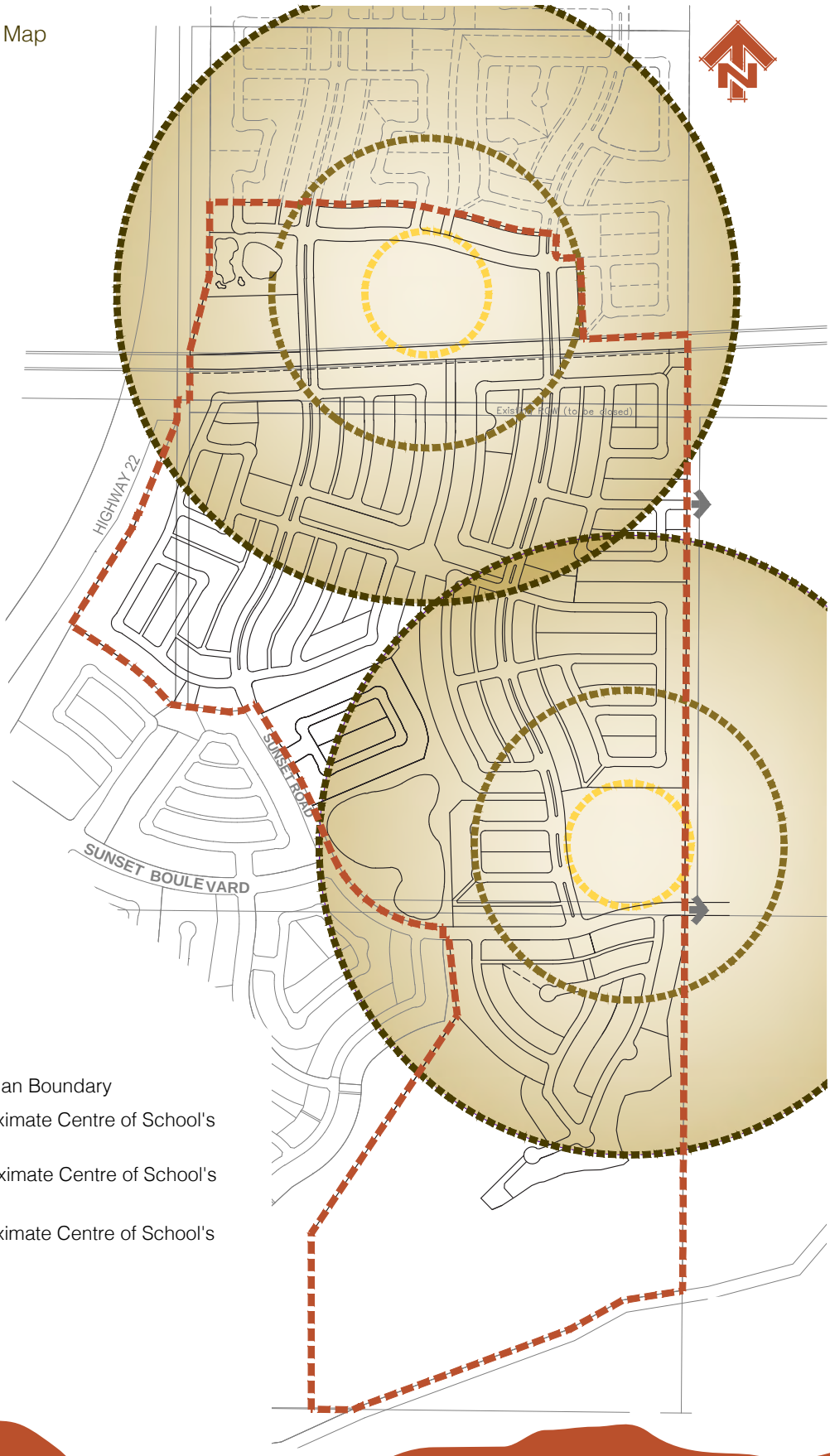
Sunset Ridge Stage 2 provides 2 well distributed school sites (see Figure 8: School Distances Map) including an anticipated-to-be-built K-8 along the eastern boundary of the community, and a future K-9 in the north portion of the SR2NP.

- A large Environmental Reserve encompasses the entire south boundary of the community, which includes a meandering regional pathway to allow for passive enjoyment of the reserve.
- A new stormpond is placed at the entrance to the SR2NP lands from Sunset Boulevard and will provide a place-making feature.
- Smaller tot lots and playground parks are placed in separated yet connected locations throughout the SR2NP area to provide active play for toddlers and children.
- A central green network connects all of the above open space features for exceptional pedestrian and bicycle connectivity throughout the community.
- A central Joint Use Site (school and community park). A multi-use school/park site to include a variety of seasonal uses which would seamlessly co-exist with an adjacent school facility.
- Enhanced pedestrian crossings to ensure a well-connected open space system for residents.

A central green network connects each of the open space features for exceptional pedestrian and bicycle connectivity throughout the community.

Detailed open space concepts are located within the Appendices for all proposed parks, schools, linear pathways and stormponds.

Figure 8: School Distance Map



Legend:

- Neighbourhood Plan Boundary
- 100m from Approximate Centre of School's Building Location
- 250m from Approximate Centre of School's Building Location
- 500m from approximate Centre of School's Building Location

5.2.2 STREET NETWORK

A modified grid street network is utilized as an important tool for providing connectivity in the community. Not only does a modified grid street network provide multiple options for vehicular traffic, reducing the incidence of intersection conflict, but it also provides that same routing option to the pedestrian and bicyclists. The Town of Cochrane requirement for sidewalks on both sides of all street standards will further increase the safety and connectivity of the pedestrian environment.

A primary collector road runs north/south through the eastern portion and western portion of the SR2NP to move vehicular traffic efficiently through the SR2NP. Multiple residential street connections provide access to the residential areas within the plan. The central green network runs between the two primary collector roads.

5.2.3 PEDESTRIAN NETWORK

A key feature of the pedestrian circulation network within the SR2NP is the north/south central linear open space. This open space will allow pedestrians and cyclists to utilize the multi-purpose pathway system for local exercise and enjoyment as well as for commuting to the Town's regional pathway system. Sunset Properties has agreed to complete a portion of the pathway, outside their ownership boundary, as it travels south into the Big Hill Creek Valley. The remainder of the pathway will be completed by others.

The modified grid road network within the SR2NP includes short blocks, well-connected pathways, walkways and sidewalks to provide the pedestrian easy access to open spaces, schools, and the community centre for recreation and gathering. Figure 7 illustrates the pedestrian connectivity of the SR2NP and the abundance of pathways and sidewalks which facilitate comfort and convenience in the pedestrian environment.

Key features of the pedestrian network are (see Figure 9: Key Elements):

- Central linear open space providing connectivity throughout the plan,
- Well-connected sidewalks, walkways, local pathways and regional pathways giving the pedestrian a range of options,
- A regional pathway connection to the Cochrane Ranche Historic Site and the Big Hill Creek Valley,
- Separate sidewalks on both sides of the collector roads, and monolithic sidewalks on both sides of the residential roads, and
- Enhanced pedestrian crossing along the central looping road to ensure a well-connected pedestrian pathway system into open space areas.

Figure 9: Key Elements

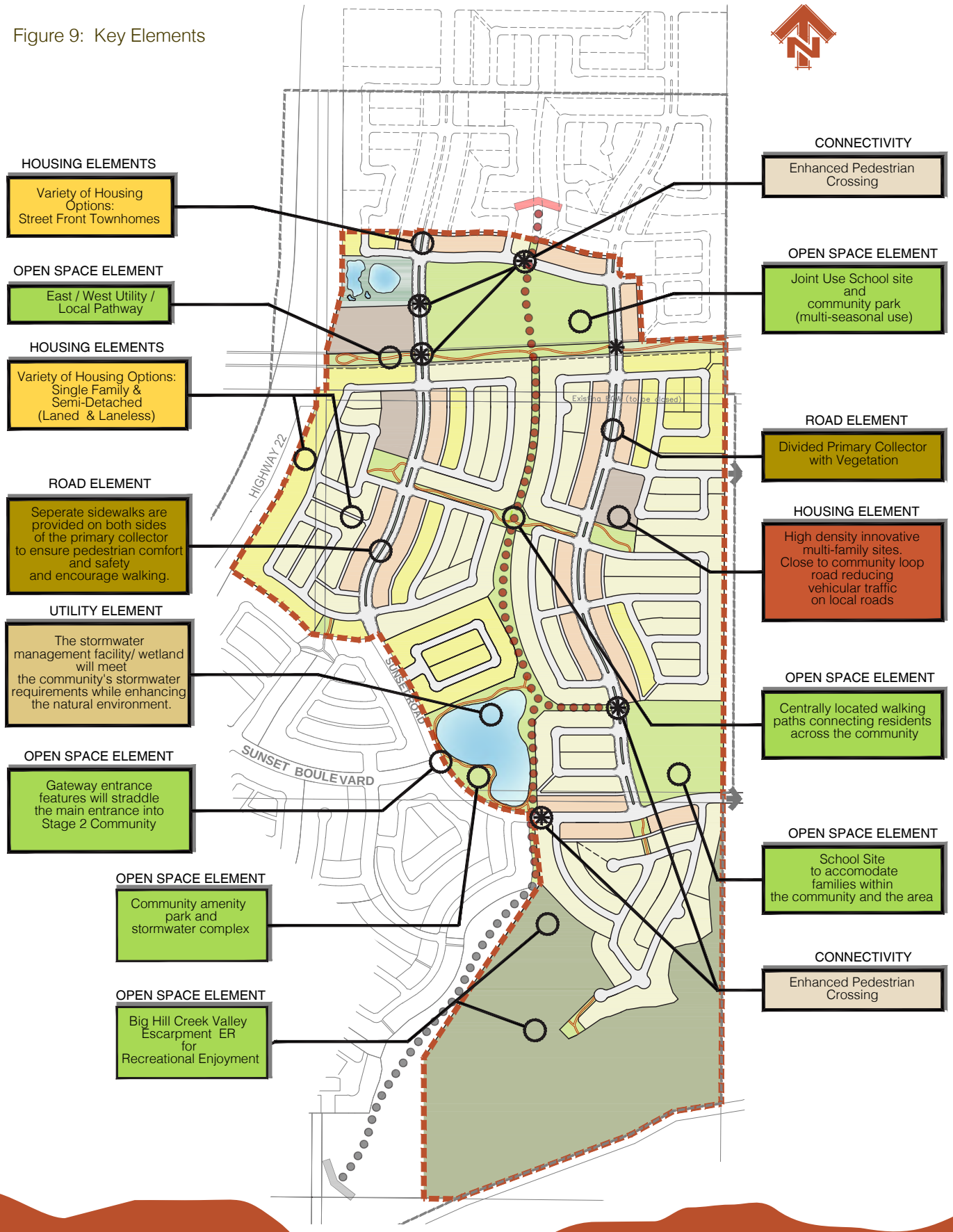


Figure 10:
Housing Samples

5.2.4 RESIDENTIAL AREAS

Enhanced streetscapes and walkability are an important factor of the residential areas, along with the use of lanes, land uses and block layouts to improve circulation, integrate housing choice and add safety.

Townhomes/rowhomes with at-grade entrances will front onto most of the primary collector network to create an urban vibe to the community. These residential blocks adjacent to the primary collector road network will have rear access via lanes to increase safety and provide an enhanced streetscape along the primary collectors.

It is important for homes to be located as close as possible to the street (in laned areas) to ensure a pedestrian environment. Modifications to the front yard setback in the Land Use Bylaw will be sought to enable the pedestrian environment that is envisioned.

A mix of single family, semi-detached land uses and multi-family pockets will be utilized throughout the remainder of the community to provide integration of different housing forms. Integrated housing provides the opportunity for greater variety to the streetscapes. A range of land uses has been placed adjacent to greenspaces to provide opportunity for a range of housing forms adjacent to greenspaces. More information on the residential area and housing forms can be found in section 6.1.

5.2.4 COMMUNITY NAME & THEME

The community name of Sunset Ridge is proposed to continue forward from the approved Sunset Ridge Stage 1 (by Tirion). The name is a verbal reflection of the community's geographic land position. Placed on a ridge, the community overlooks the downtown area of Cochrane providing views of the Town and the mountains over which the sun sets in the west.

Street names are proposed as follows: Sunset, Sunrise, Sundown, Sunvalley and Sunvista.

5.2.5 OTHER DESIGN FEATURES

It was important to Sunset Properties for the community to contain significant internal pedestrian/bike connectivity with minimal road crossings. Children walking to school or young families out for a walk and a play will be able to use this safe open space corridor. Enhanced Pedestrian Crossings are proposed where open spaces are separated by the primary road network (See Appendices for a sample details). These crossings will ensure vehicles are slowed down to promote pedestrian and bicycle traffic as the primary use. Their exact designs will be reviewed and discussed at detail design stage.

Additionally, open space dedication within Stage 1 was void of significant community amenities.

The proposed joint use site/community park and stormwater pond area will offer a variety of multi-seasoned opportunities for residents enjoyment.

5.2 NEIGHBOURHOOD PLAN STATISTICS

The Neighbourhood Plan statistics provide the areas and projected number of units for each land use category. Typically Neighbourhood Plan statistics are general in their category description, but in this case actual land use districts are identified. It is important to note that not all municipal reserve was provided in Stage 1 by Tirion and a Deferred Reserve Caveat (DRC) exists on the Stage 2 land in the amount of 3.14 hecatares owing. Sunset Properties has acknowledged the lack of current open space within the community and is pleased to add the residual municipal reserve lands into their neighbourhood plan. As such 15.02% of Sunset Properties land will be provided as Municipal Reserve. See Appendices for Municipal Reserve Breakdown.

The percentages of use presented in Figure 11: Neighbourhood Plan Statistics are based on Gross Developable Area (GDA). The GDA is calculated by removing 'regional' land uses. The land use removed from the GDA, within the SR2NP, is the environmental reserve area (Big Valley Creek). The use removed 23.14 ha (57.18 ac) from the Total Area.

Residential land use accounts for 58.74% of the GDA. The residential land uses proposed are Residential Single Detached Dwellings (R-1), Residential Single and Two-Dwelling (R-2), Residential Multi-Unit Dwellings (R-3) and High Density Multi-Unit Dwellings (R-M).

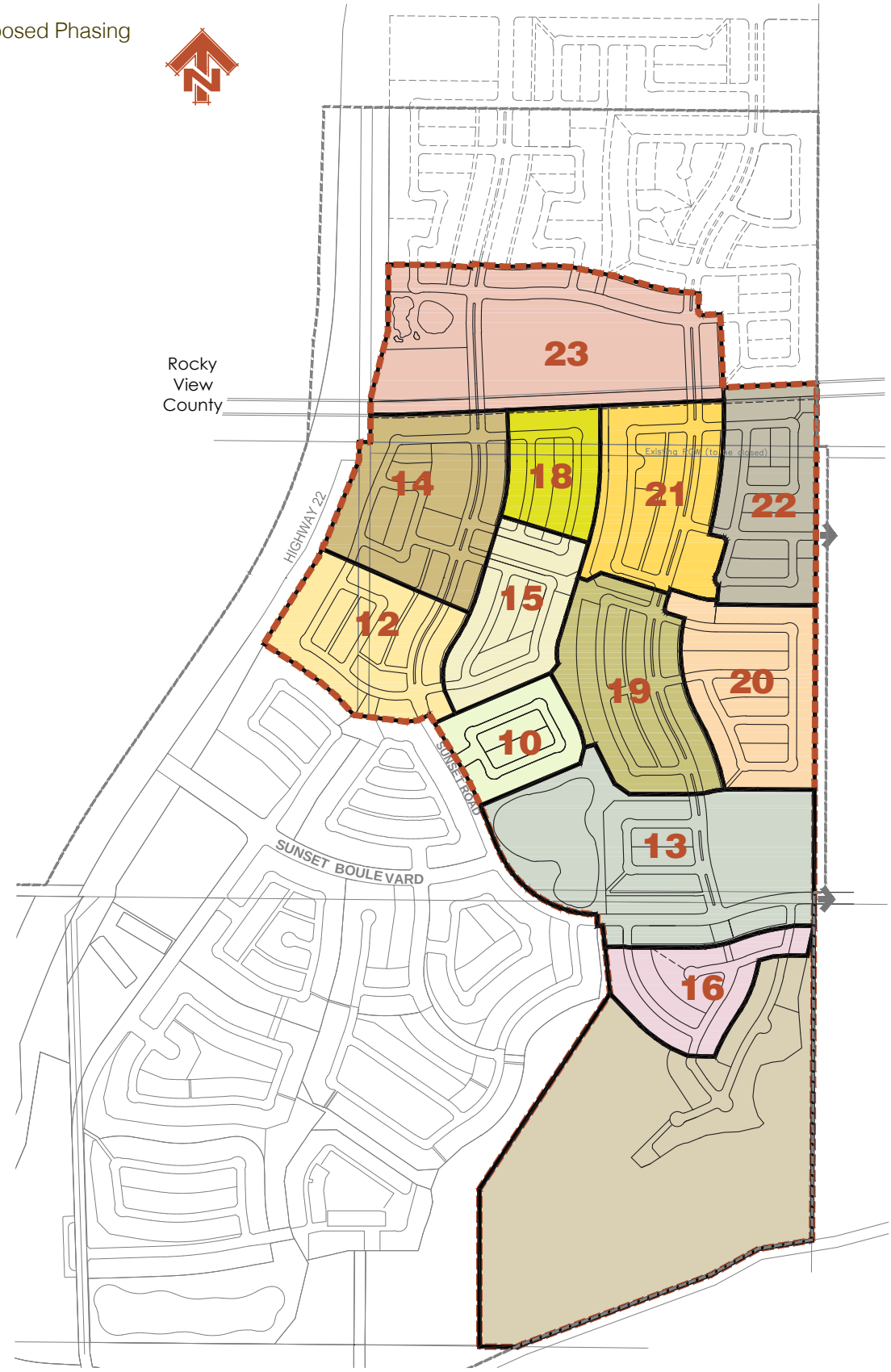
The full neighbourhood plan statistics are located in Figure 11.

Figure 11: Neighbourhood Plan Statistics

SUNSET RIDGE NEIGHBOURHOOD PLAN STATISTICS	frontage (m)	lot width /units (m)/(upa)	Hectares (+/-)	Acres (+/-)	Number of units	% of GDA
Total Land Area			**119.48**	**295.24**		
Environmental Reserve			**23.14**	**57.18**		
Gross Developable Area (GDA)			**96.34**	**238.06**		**100%**
General Land Uses						
Residential			**54.66**	**135.06**		**56.7%**
Residential Single Detached Dwelling District						
Anticipated number of lots based on 9.75m lot width					881	
Maximum number of lots based on 9.0m lot width	8823	9	31.41	77.61	980	32.6%
Residential Single and Two-Dwelling District District						
Anticipated number of lots based on 7.62m lot width					361	
Maximum number of lots based on 6.0m lot width	3154	6	11.71	28.94	525	12.2%
Residential Multi-Unit Dwelling District						
Anticipated / Maximum number of lots based on 6.1m lot width	2498	6.1	8.22	20.31	395	8.5%
High Density Multi-Unit Dwellings						
Anticipated / Maximum number of units based on 20upa		20	3.32	8.20	164	3.4%
Total frontage	14475					
Total number of units						
Anticipated					1801	
Maximum					2064	
Density						
Anticipated					*18.7 uph*	*7.6 upa*
Maximum					*21.4 uph*	*8.7 upa*
Municipal Reserve (Credit)			**14.47**	**35.76**		**15.0%** *
Municipal Reserve (Credit)			14.47	**35.76**		
Public Utility Lot			**5.79**	**14.31**		**6.0%**
Stormwater Ponds			3.78	9.34		
Wetland			0.30	0.74		
Utility Right of Way			1.71	4.23		
Roadways and Lanes			**21.42**	**52.93**		**22.2%**

* See Municipal Reserve breakdown in the Appendices.

Figure 12: Proposed Phasing



5.3 DENSITY AND PROJECTED POPULATION

The Sunset Ridge Stage 2 Neighbourhood Plan will provide an anticipated 1801-2064 residential units in a combination of single, semi-detached, townhomes and innovative multi-family style housing forms. The density of the Stage 2 area is between 7.6 - 8.7 units per hectare (18.7 - 21.4 units per acre). The anticipated density is lower than the required density in the MDP of 19.8 units per hectare (8.0 units per acre), however this Stage contains a larger percentage of Municipal Reserve. The overall community will balance to 8.06 units per acre, as per the MDP. See Appendices for complete unit breakdown.

The population prediction for Sunset Ridge Stage 2 assumes the following:
R-1 3 people/household x 881-980 anticipated units = 2643-2940
R-2 3 people/household x 361 -525 anticipated units = 1083-1575
R-3 2.5 people/household x 395 anticipated units = 988
R-M 2 people/household x 205 anticipated units = 410

The above assumptions calculated with the anticipated unit counts for each land use category result in a population prediction of between 5124 - 5913 people.

5.4 PHASING

Sunset Ridge Stage 2 anticipated phasing boundaries are located in Figure 12: Proposed Phasing, subject to local demand. These phasing boundaries may change year over year.

It is important to note that offsite development may occur with a particular Phase. This means that engineering phase boundaries may not exactly coincide with the planning phase boundaries.

5.5 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CEPTED)

The SR2NP recognizes the importance of Crime Prevention through Environmental Design (CEPTED). Crime prevention though environmental design happens when the built environment helps to reduce the incidence of crime and the fear of crime occurring. The MDP provides basic criteria for designing communities with CEPTED. The criteria and how Sunset Ridge addresses them is outline below.

Awareness of the Surrounding Environment

The MDP states that 'awareness of the surrounding environment occurs when people can see and understand their surrounding environment through unobstructed sightlines, adequate lighting, and avoidance of hidden spaces'.

The majority of the SR2NP is a modified grid pattern which provides straight roads as well as intersections with great visibility in all directions. Street lighting is intended along all roads and near walkways.

Visibility by Others

The regional pathway runs north/south connecting the school site, stormpond amenity and ultimately the escarpment. These pathways should be regularly used and all homes backing onto the pathway/parks will have eyes into the open space.

All parks are located in highly visible locations with access from pathways and streets.

Finding Help

Residents of a close knit community are more likely to report a crime or intervene to help should there be a situation. As the social development of the community grows, and residents get to know their neighbours, the overall sense of safety in the community will grow and residents will feel comfortable getting help should they need to.

Sightlines

Attention will be given at the landscape design stage to ensure the placement of landscaping and features in relation to potentially vulnerable areas throughout the community are minimized/ avoided.

Lighting

Attention will be made to provide street lighting at key locations and near walkways to allow continued visibility at night.

All lighting will be Dark Sky sensitive and will minimize glare for drivers and residents.

Predictable Routes

The combination of sidewalks, pathways and walkways provide multiple options for reaching various destination points within the community. Residents will be able to take multiple routes on a walk, run, jog or cycle.

Entrapment Spots

The SR2NP does not provide any small areas that are shielded on three sides resulting in an entrapment situation. At detailed design stage, attention will be given to future landscaping plans to ensure on site planting does not create entrapment areas.

Isolation

The overabundance of pathways, sidewalks and walkways available to residents should assist in the feelings of isolation being avoided.
Highly visible pedestrian routes and attention to landscaping help to eliminate feelings of isolation allowing residents to maintain good visibility of their community and being seen by others.

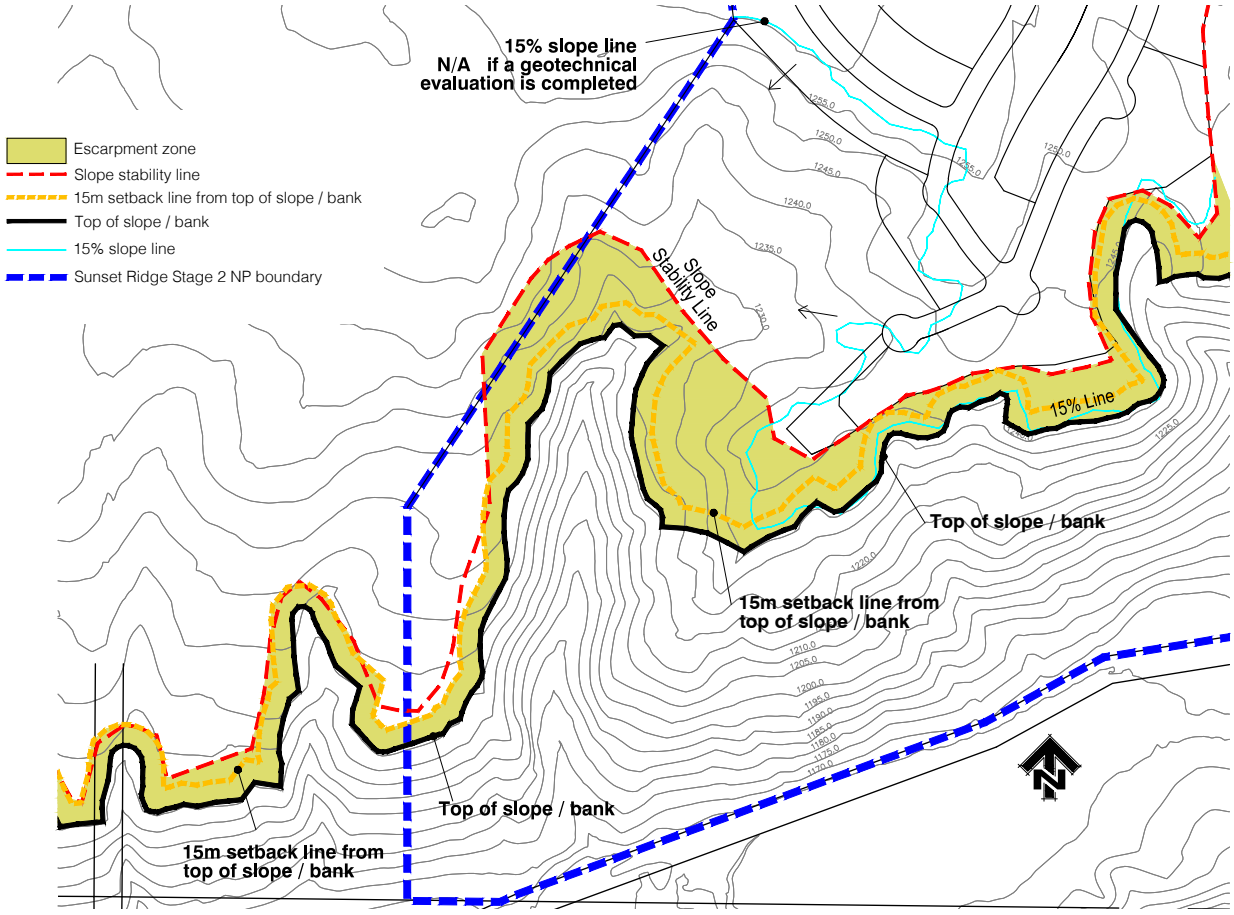
5.6 DEVELOPMENT ON ESCARPMENTS

The southeast portion of the Stage 2 plan presents an area of significant contours which lead into Big Valley Creek. McIntosh Lalani conducted a slope stability analysis of the property and concluded that the land is stable within the escarpment - the slope stability setback line has been identified in Figure 4 and the Appendices and this line has been placed on the proposed Neighbourhood Plan, see Figure 7.

Section 11.13.7B, of the Land Use Bylaw, addresses development adjacent to escarpments. This section provides the ability for the developer to refine the top of slope, development and subdivision property lines, to comply with the development of lands with slopes greater than 15% but considered geotechnically stable, all to the satisfaction of the Development Authority. Section 11.13.7B addresses the 15m setback from the Top of Bank/Top of Slope. The proposal adheres to the MDP and LUB policies in regards to Escarpment Setback.

The 15% contour breakline has been identified on the proposed Neighbourhood Plan, see Figure 13: Escarpment Setbacks.

Figure 13: Escarpment Setbacks



5.7 WETLAND COMPENSATION

Figure 14:
Existing Wetlands - Sunset Ridge

The Town of Cochrane Municipal Development Plan and Town of Cochrane Sustainability Plan have identified the desire to maintain wetlands within the Town. The SRS2NP attempts to balance the goals and objectives of these guiding policies, with a solution that results in achieving urban development yet maintains an existing wetland on site (Wetland #3) and transplants wetland materials to a central amenity of the community. Great consideration was given to finding an optimal solution that addresses all the development objectives of the Town.

The Biophysical Impact Assessment, as identified in Section 4.3,assessed each wetland on their ability to hold water, vegetation zones, wildlife, soils, water table analysis, history of use and historical and current aerial photograph analysis. The report concluded that the majority of wetlands on the subject lands have been ranked as having low significance, due to many years of cultivation, heavy grazing and non-native plant invasion.

The current wetlands have difficulty holding water, as evidenced by most sites having relatively ephemeral-temporary water and make minimal contributions to wetland functions within this area. During the dryer years it is common that all of these wetlands would remain in a dry state. The few sites that are wetter for longer periods and have more typical wetland vegetation will be candidates for transplanting into an environment with controlled water. A geotechnical examination of the property demonstrated a very low water table throughout the lands thus supporting that the wetlands are not hydrological connected nor are individual wetlands fed by a reliable and consistent groundwater supply. Overland drainage, coupled with highly plasticized clay subsoil, creates the standing water present on site. Once urban development occurs water source to wetlands would be affected.

Numerous site visits to the property concluded that wildlife was scarce and locally distributed, with very low numbers recorded at only three sites. No waterfowl were observed nesting on the property. There is opportunity with retention of Wetland #3, enhancement and a controlled environment that wildlife opportunities will be created within the Sunset Ridge central stormpond and northern retained wetland.

Due to the low significance and low productivity of the wetlands, both individually and collectively, and the extreme difficulty of retaining small, shallow wetlands within urban development, complete wetland retention on the site has been concluded as being impractical. While the addition of stormwater to wetlands has been used in some developments, the small shallow wetland basins in Sunset Ridge present limitations. Therefore, it has been proposed that wetland loss be financially compensated through Alberta Environment.

A monitoring program has been agreed to with the Town to ensure long-term success of the wetland and naturalized stormpond (see Appendices).

This photograph illustrates an existing wetland (Wetland #8) which contains vegetation that could be utilized within one of the proposed stormponds. This photo was taken in the middle of July following heavy rains. The location of this pond, on the north side of a gravel road, is a small, cut-off portion of a wetland that had been connected historically with another wetland (8a) to the south of the road. In 2012, Wetland (8) held water for long enough to allow limited growth of emergent vegetation; this is probably due to blockage of natural drainage to the south because of the road. Habitat surrounding this wetland is non-native tame grass grazed by cattle. The pond itself is heavily grazed and trampled for part of the year. The wetland is mostly non-native grasses and invasive weeds. A pool of shallow water is present in the central area and there is a patchy shallow marsh zone of awned sedge within the standing water. As with other wetlands on the property, standing water is present for a relatively short period of time. ***This is an example of the type of wetland that we will be selecting for salving soil for use within the south stormpond.***

5.8 STORMPOND ENHANCEMENT

The Neighbourhood Plan, as submitted, proposes a storm water management facility in the heart of the community as well as a second facility in the future phases to the north. This main central facility will provide a means of treating and managing storm water in the subdivision, but it will also provide an open space amenity for the future residents of Sunset Ridge. The proposed central storm pond shall incorporate both passive and active areas for pedestrians, including: pathways, natural playgrounds, and landscaped pedestrian seating areas overlooking the natural amenities of the pond.

Existing wetlands within the plan boundaries have been categorized as supporting wetlands following a tabular analysis of wetland environmental significance assessment. The existing supporting wetlands will be difficult to preserve as functional wetlands as they are not part of or connected to a larger more significant wetland complex, see Section 5.7. The intention is to compensate financially to Ducks Unlimited for the existing wetlands while re-introducing wetland treatment in the design and construction of the future storm pond facilities. To accomplish this, topsoil from the existing wetlands shall be stripped and stockpiled from the more significant wetlands during the site grading process. The same wetland topsoil shall then be redistributed in wetland benches designed around the storm facilities. The existing topsoil, containing a wetland seed bank coupled with new wetland plantings, shall assist in the re-establishment or enhancement of wetland pockets and contribute to the overall naturalization and edge treatment of the future storm pond amenity. The end result will be an open space amenity where pedestrians can experience both passive and active recreational space in a natural setting.

Figure 15: Wetland Enhancements within South Stormpond

The naturalized benches on the outer edges of the central stormwater pond will include a diversity of water depths promoting the growth of a variety of wetland vegetation.

Vegetation will include native wetland plant species through the introduction of salvaged wetland soil from selected wetlands on the property as well as native seed stock.

The naturalized storm ponds will include wetland vegetation incorporating a variety plant species from the existing wetlands. Because grazing and cultivation will be eliminated, and because there will be more reliable water, the naturalized pond edges will provide equivalent or greater habitat potential for wildlife compared with the current degraded wetland environments. Together with the naturalized upland habitat, the total area of habitat around the storm ponds will constitute a more secure, productive habitat for wildlife in general.

Figure 16: Existing Enhanced Stormwater/Wetland in Northwest Calgary

Figure 17: Sample Cross-Section/Plan with Adjacent Pathway/Lookout Area

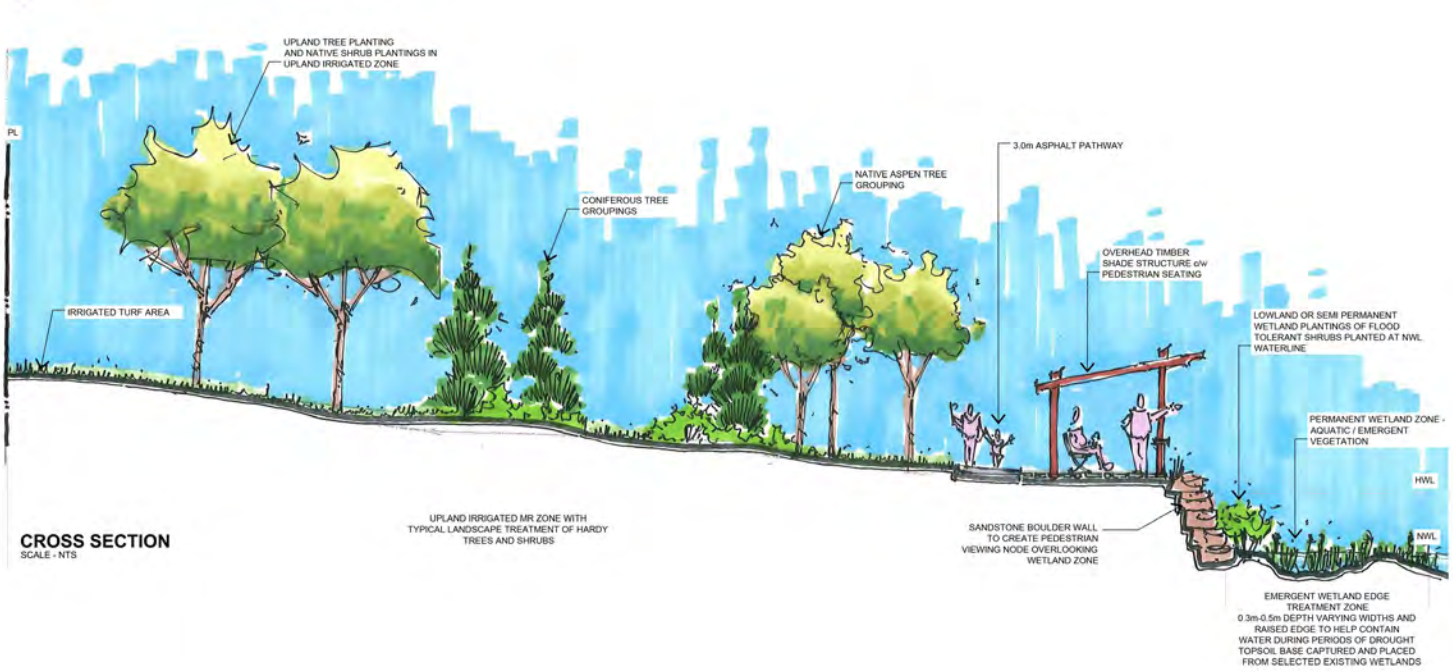
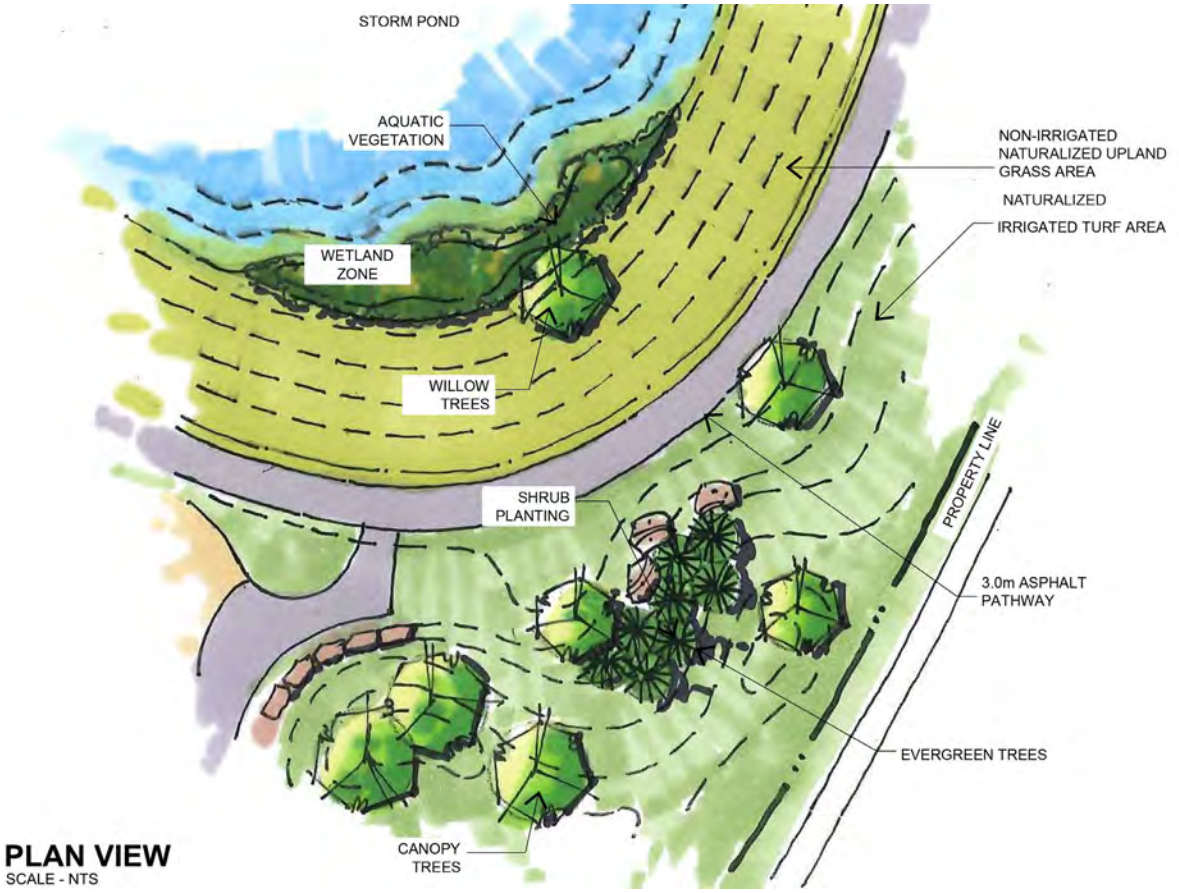


Figure 18: Sample Cross-Section /Plan with Recessed Pathway

CROSS SECTION
SCALE - NTS



PLAN VIEW
SCALE - NTS

5.9 WETLAND RETENTION

Sunset Properties recognizes the desire of the Town Cochrane to incorporate existing wetlands within developments as their first priority. The condition of the existing wetlands and the recommendations based on a detailed wetland survey by a professional biologist suggest there is opportunity to retain and enhance an existing wetland that will include some of the wetland features being lost while creating habitat for wildlife that will be superior to the existing degraded environment. In addition to paying full compensation, the proposed north storm pond shall be designed to provide storm water storage and water quality while preserving the existing adjacent Wetland #3 (see Figure 6: Existing Wetlands). A forebay shall be designed and constructed to allow low flow events to drain down through a meandering vegetative swale and series pools to feed the existing adjacent wetland provide a viable water source to support the existing wetland vegetation and basin. The intent is to mimic nature by allowing overland flow into the existing wetland. A by-pass pipe/valve will be constructed to control the amount and timing of water is fed into the existing wetland. Details of the pipe/valve would be examined during the detailed design phase. The area outside the existing wetland shall be enhanced to provide more opportunities to expand on the existing wetland vegetation and introduce additional upland vegetation to attract habitat, increase bio-diversity and retain the overall function of the protected wetland. It is expected that the wetland area could increase from 0.309 hectares to approximately 0.78 hectares (including the upland areas). It is the intention of Sunset Properties to include wetland information boards within their park signage.

Through the integration of open space design, storm water management and a desire to preserve natural amenities, current and future residents will have every opportunity to enjoy the open space amenities of Sunset Ridge.

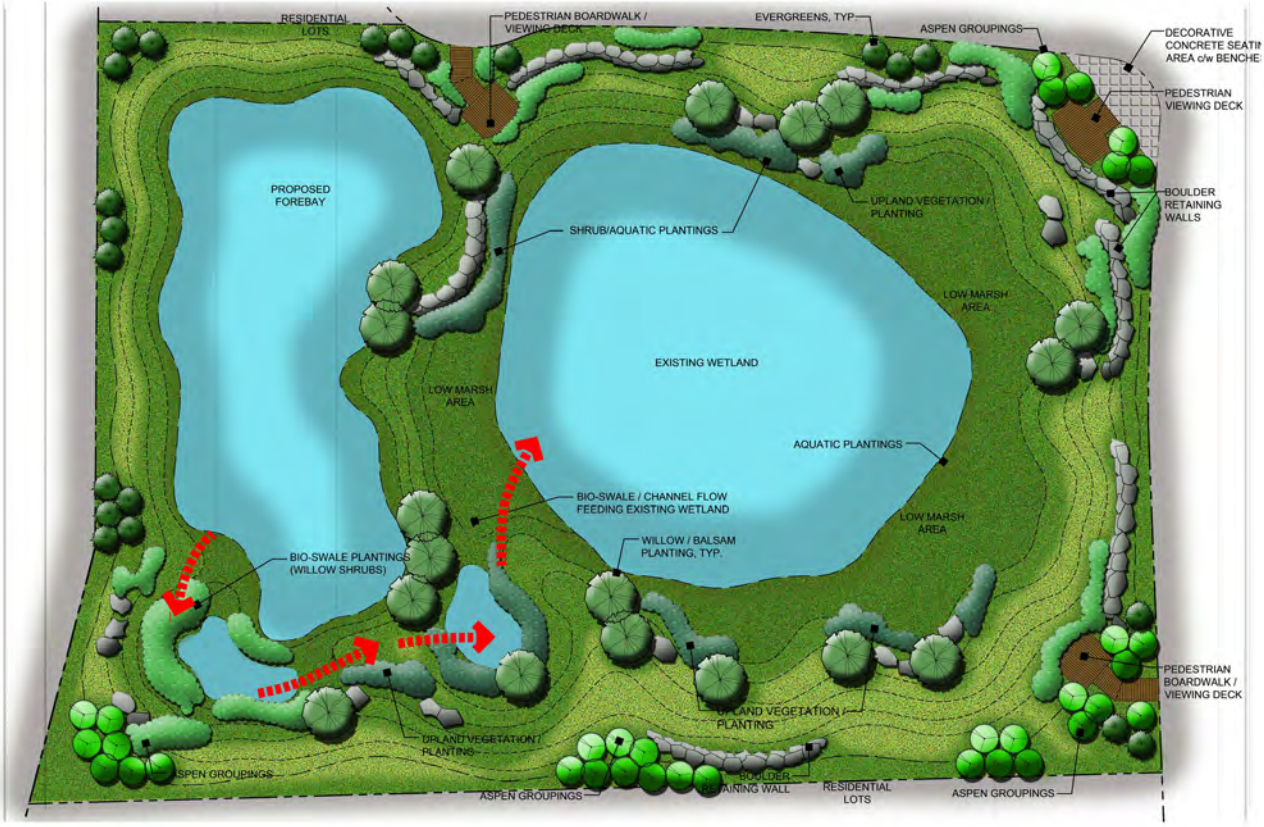


Figure 19: Wetland Enhancements within North Stormpond

5.10 HOUSING DIVERSITY, STREETSCAPE AND ARCHITECTURAL DEVELOPMENT

Multiple housing options such as single family homes with attached garages, single family homes with detached garages, semi-detached homes, duplexes, townhomes and stacked multi-family condominiums will be available in Sunset Ridge. See Appendices for sample Multi-Family Housing.

The future architectural controls will support the small town Cochrane theme. This theme will be enhanced through its colour palette, natural stone and wood finishing materials (or materials designed to emulate these natural materials).

Variations in the streetscape will occur through different housing forms existing side-by-side, varying front setbacks, a variety of lot widths and different housing heights all adhering to Sunset Properties architectural guidelines (which shall be submitted prior to development).

The developer will work with the Cochrane Society for Housing Options to review options for Affordable Housing.

5.11 OFF-LEASH DOG AREA

Residents of the Town of Cochrane have desires for off-leash dog areas within the Town of Cochrane. As part of new Area Structure Plans, it is important that these areas are identified early in the process due to their incompatibility and extensive buffering requirements adjacent to low density residential development. The Sunset Ridge Stage 2 ASP was approved in in 2012, off-leash dog areas were not discussed within the Municipal Reserves areas. At the time of the ASP Open Houses it was expressed by local Sunset Ridge residents that Sunset Ridge Stage 1 was lacking in programmed park space, and there was a desire for amenities instead of linear strips of unusable reserve.

Based on the feedback received at the ASP Open Houses, Sunset Properties have proposed, within Stage 2, an extensive open space park system which includes small neighbourhood parks, a large community park (with seasonal activities), two school sites and a centrally connected green spine to offer direct pedestrian access into the amenities. The opportunities for a dog area within any of these proposed park spaces would displace the amenities proposed.

Administration has been actively looking for 'innovative' opportunities for this type of use within the Sunset Ridge Community. These types of uses typically exist, in other municipalities, within parks, but have also been very successfully located within utility parcels. Sunset Properties believes there are opportunities within Sunset Ridge Stage 1 and/or Sunset Ridge Stage 3 to accommodate a dog facility. A plan showing these possible sites has been included in the Appendices. Depleting a programmed park space from within the Sunset Ridge Stage 2 community is not an ideal objective for Sunset Properties, however, they are supportive of looking for a properly placed location within the existing Sunset Ridge Stage 1 and/or Sunset Ridge Stage 3.

6.0 LAND USES

The Stage 2 Sunset Ridge Area Structure Plan (SR-ASP) identifies the Stage 2 Neighbourhood Plan (SR2NP) area as future residential and public service (for open space, school sites and stormwater management facilities). The SR2NP conforms to the Stage 2 SR-ASP. General land use categories are illustrated on Figure 13. Phase 10, Phase 12 and Phase 13 Land Use Plans can be found in the Appendices.

6.1 RESIDENTIAL USE

The SR2NP will provide an integrated mix of residential housing forms throughout the community. The residential land use districts that will be included in the SR2NP are:

- Residential Single Detached Dwelling District (R-1)
- Residential Single and Two Dwelling District (R-2)
- Residential Multi-Unit Dwellings District (R-3)
- Residential High Density Multi-Unit Dwelling District (R-M)

A key design feature of the residential areas within the SR2NP is the integration of the different uses. A future resident will be able to find the housing form and size in all sectors of the community, close to the school sites, open spaces and pathway system.

The range of housing forms within Sunset Ridge provides the opportunity for residents to age in place. As families and individuals age and experience different housing needs, there will be opportunity to find suitable housing alternatives within the community they have become a part of.

The developer, Sunset Properties, will engage the Cochrane Society for Housing Options to determine whether an affordable housing need can be met within the SR2NP area.

6.2 PUBLIC SERVICE USE

The open space network in SR2NP will play a significant role in the community's identity. The central linear open space connects the north portion of the plan to the southern environmental reserve area, with only two road interruptions. The social development of the community will be enhanced by the connected open space system. The different types of Public Service Uses within the SR2NP are:

- Public Service – Municipal Reserve (MR)
- Public Service – Environmental Reserve (ER)
- Public Service – Public Utility Lot (PUL)

The public service – municipal reserve areas will include two school sites, a community centre site, multiple smaller parks for tot lots and playgrounds, as well as the significant central linear open space network.

The public service – environmental reserve area is found in the southern portion of the SR2NP area. It is a 23.14 hectare (57.18 acre) reserve. A regional pathway will connect to the Cochrane Ranche Historic Site and the Big Hill Creek Valley, further discussion to occur on the exact alignment within either Stage 1 or Stage 2.

Figure 20:
Proposed Land Use Plan

The public service – public utility lots will be utilized for stormwater management facilities. Two stormwater management facilities are located within the SR2NP and will provide a utility function and visual amenity to the community. Both stormponds will be connected to the existing system in Sunset Ridge.

6.3 COMMERCIAL USE

Local commercial uses are located within the existing developed areas of Sunset Ridge, meeting the daily needs of existing and future residents. The Stage 2 SR-ASP also identifies future commercial uses to the north of the SR2NP area should there be an identified market demand at the time of development of these lands.

7.0 TRANSPORTATION

7.1 EXTERNAL VEHICULAR TRANSPORTATION NETWORK

Access into the SR2NP will be achieved from the west on Highway 22 at Sunset Boulevard, and from the east via Carlson Trail in Rocky View County. Two additional access points are also available, with a secondary east access on Sunset Road and an emergency-only access at Ranche Road from Highway 22. The number of accesses ensure conformance with the National Fire Protection Agency (NFPA) standards. As development occurs, the Carlson Trail access from Highway 22 will be re-routed internally within the subdivision to ensure access to the east at all times.

The extent of SR2NP was selected in part to ensure that existing access to Highway 22 at Sunset Boulevard can support the level of development contemplated in this plan. Further build-out of Sunset Ridge beyond the SR2NP area will require implementation of a new north access at Highway 22, but transportation analysis confirms that it is not required to support build-out of SR2NP itself.

One change to Highway 22 access this will occur as part of SR2NP is revision of the Ranche Road access. Ranche Road currently provides all-turns access from Highway 22 to the southwest corner of the Sunset Ridge neighborhood. However, the steep grades, limited sightlines and minimal spacing to adjacent intersections do not meet Alberta Transportation standards for intersection access from a major highway, and as such, the access requires modification. Functional planning for Highway 22, along with the existing Sunset Ridge ASP and Town of Cochrane Transportation Master Plan (2009) identify full closure of this access.

From technical review of the Ranche Road access, it has been recommended that it be retained as an emergency-only access. This primarily benefits the existing built-out areas of Sunset Ridge (outside the SR2NP area,) along with the Cochrane Ranche House, and is a cost-effective solution at this location. Alberta Transportation has indicated that they would support maintaining an emergency access on an interim basis, until the north access is provided from Highway 22 (which will occur beyond the build-out for SR2NP.) It is understood that the Town of Cochrane is discussing alternative access options with Alberta Transportation, such as right-in / right-out access or right-in-only access, which would provide additional access to the Cochrane Ranche House. These alternative access solutions are not required to support developed in SR2NP, and therefore do not form part of this Neighborhood Plan.

Transportation analysis for build-out of both Sunset Ridge and other new communities in Cochrane beyond a 20-year horizon indicate that the Highway 22 / Highway 1A intersection will continue to be a critical location in the Town's transportation network. Major upgrades to this intersection have been designed by Alberta Transportation and are construction-ready, pending future funding approval by the Province. However, even with those changes, general growth of the Town will result in peak hour traffic delays at this location in the long-term. On review of SR2NP, Alberta Transportation has not identified any specific restrictions or conditions for development of Sunset Ridge, however they did highlight the need for the Town of Cochrane to independently pursue options for alternate network routing in future.

7.2 INTERNAL VEHICULAR TRANSPORTATION NETWORK

The vehicular transportation network within the SR2NP consists of two primary collector roads running north/south, serving the east and west portions of the plan area, respectively. These will be joined together by periodic east/west collector roads to create a well-connected grid of access roads. Residential roads intersect with the primary collector/collector loop in a modified grid format to provide multiple access points to the residential areas.

7.3 PEDESTRIAN CIRCULATION NETWORK

A key feature of the pedestrian circulation network within the SR2NP is the north/south central linear open space which includes the regional path. This open space will allow pedestrians and cyclist to utilize the multi-purpose pathway system for local exercise and enjoyment as well as for commuting via the Town's regional pathway system, which connects to the downtown area via Big Hill Creek.

The modified grid road network within the SR2NP includes short blocks, well-connected pathways, walkways and sidewalks to provide the pedestrian easy access to open spaces, schools and the community centre for recreation and gathering. The Neighbourhood Plan illustrates the pedestrian connectivity of the SR2NP and the abundance of pathways and sidewalks to facilitate comfort and convenience in the pedestrian environment.

As a standard design guideline in Cochrane, monolithic sidewalks are required on both sides of collector roads. The SR2NP will take this safety element a step further to ensure that separated sidewalks are provided on both sides of all collector roads. Separated sidewalks along the primary collector system will purposefully maintain a more comfortable distance between the pedestrian and the motor vehicle. A separated sidewalk places the pedestrian several metres from the curb whereas a monolithic sidewalk is built directly adjacent to the curb. This separation results in greater pedestrian protection and allowing for a more relaxing walking experience. See Figure 15: Proposed Collector Roadway

Figure 21: Proposed Collector Roadway

Monolithic sidewalks will be constructed on both sides of all residential streets within the SR2NP area.

The pathway and sidewalk system bring pedestrians and cyclists directly to the various green spaces located throughout the SR2NP area. This ease of accessibility to the commercial areas will allow them to flourish and become 'destination nodes' that will in turn foster the social development of the community.

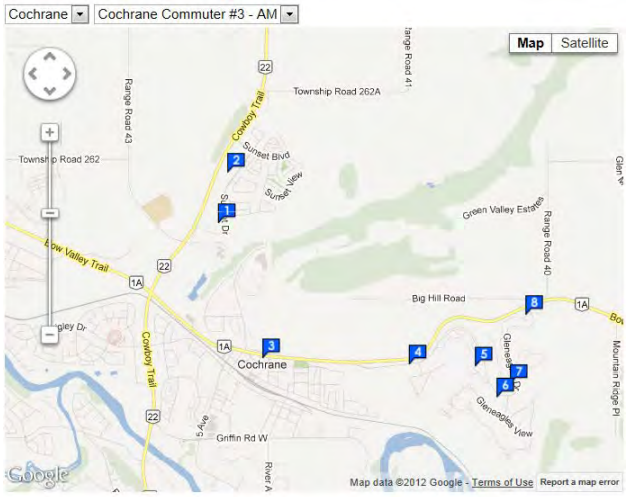
A regional pathway system is located within the North/South linear open space, all other pathways are proposed as locals.

A local pathway system also provides multiple connections throughout the community. Where the local path exists within parks or the stormwater management facility it will have asphalt material surface to minimize environmental impacts. In locations where the local path provides a connection from a sidewalk through a walkway between houses, the surface will be asphalt to provide ease of maintenance. The local pathway connections are provided in key locations to reduce walking distances to the school site, and provide connections for all expected demand lines where pedestrians would logically want them.

The combination of the SR2NP's sidewalks, pathways and the proposed linear green space with an additional regional pathway, along with multiple destination nodes, makes Sunset Ridge a very walkable community. Whether pedestrians are walking to the school site, the pocket parks, through the stormwater management facility or to the school sites and there will be multiple routes to get them there.

7.4 PUBLIC TRANSPORTATION

Figure 22: Existing Bus Stop Locations



Source: Southland Transportation website (http://www.southland.ca/cochrane-commuter.aspx)

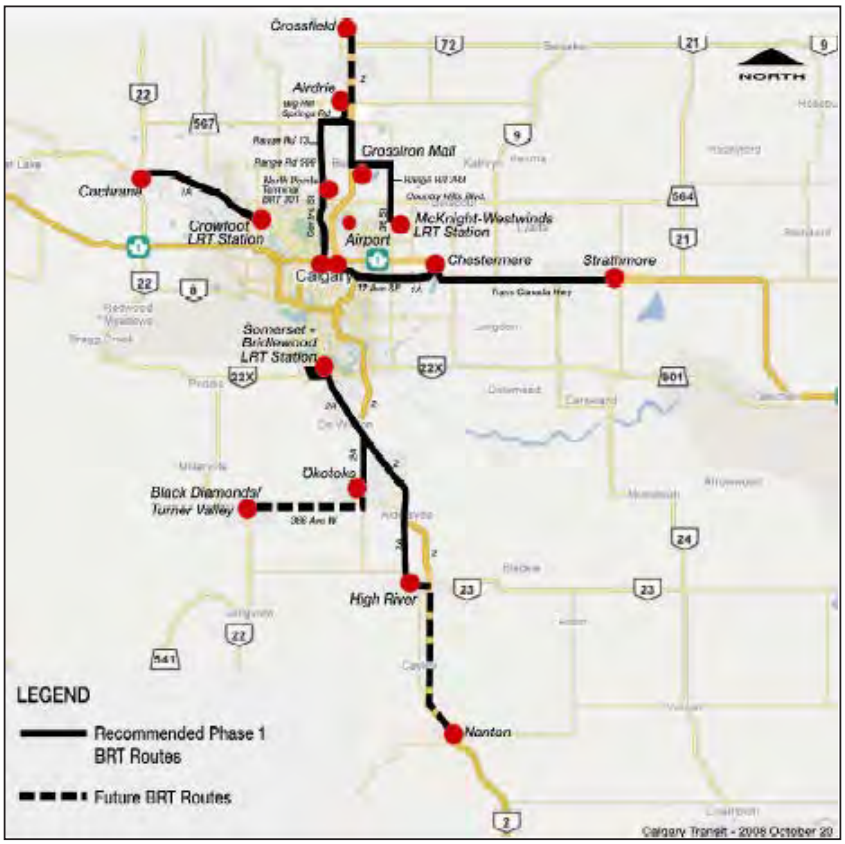
Currently, the Town of Cochrane does not operate a public transit service. Instead, Southland Transportation currently offers a private commuter bus service to/from the City of Calgary. Stops for the commuter service are distributed throughout town, and offer connections to the Calgary's downtown core. See Figure 16: Existing Bus Stop Locations. The commuter bus service is only available in the AM and PM peak hours. Commuter Bus #3 stops in the Sunset Ridge development with stops at Sunset Drive / Sunset Point and Sunset Drive / Sunset Blvd.

In addition to the private bus service, Cochrane commuters may also take advantage of Calgary Transit service, with ready connection to the City's LRT system at the Crowfoot Station, just west on Highway 1A / Crowchild Trail.

7.4.1 FUTURE REGIONAL TRANSIT SERVICE

In 2009, the Calgary Regional Partnership (CRP) approved the "Calgary Regional Transit Plan" study, which recommended short term and long term plans to connect the Calgary Transit system with surrounding communities, including the Town of Cochrane. The short term Regional Transit Plan (shown in Figure 17: Short Term Regional Transit Plan) is planned for implementation within the next 5-6 years, in part by using Provincial "Green Trip" funding. The near-term plan for Cochrane is to provide a Regional Express Bus Route to the Crowfoot LRT Station in Calgary. The Town is currently conducting an intensive public engagement and consultation campaign to evaluate how a transit system would reflect the community's values.

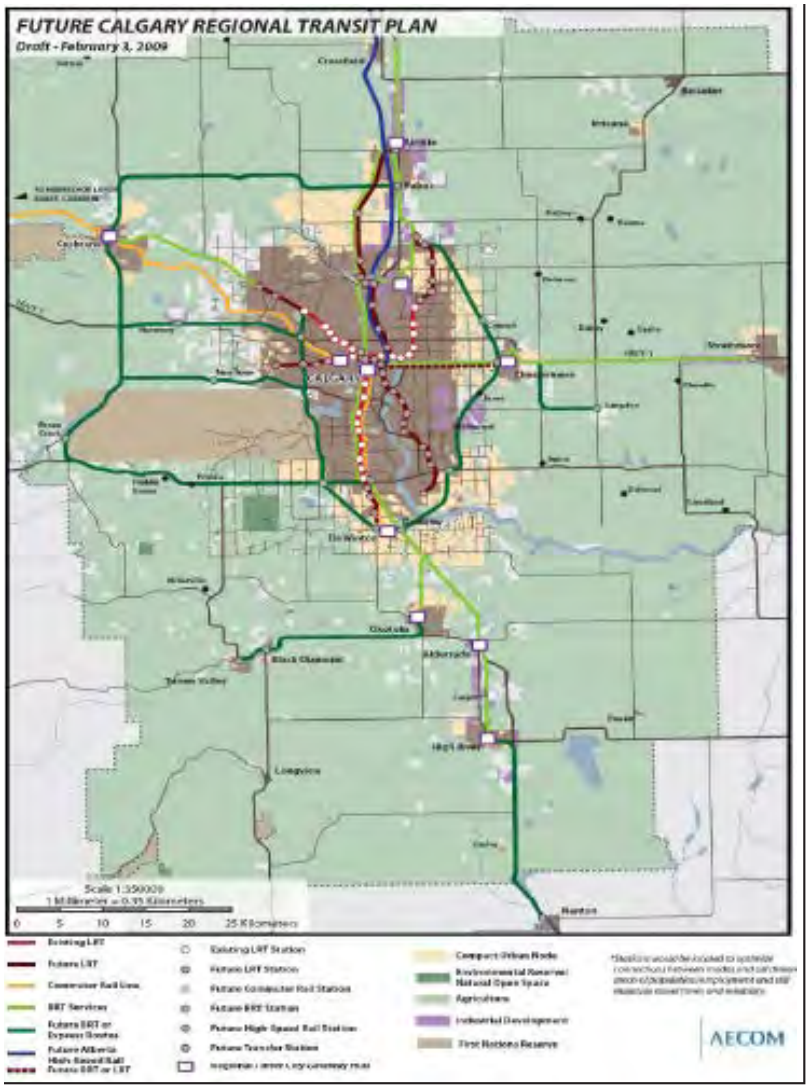
Figure 23:
Short Term Regional Transit Plan



Source: Regional Partnership "Calgary Regional Transit Plan" 2009

The long term Regional Transit Plan (see Figure 18: Long Term Regional Transit Plan) is planned for 2020 and beyond. The plan recommends that the Town of Cochrane will become a Regional Gateway Hub that provides: Bus Rapid Transit (BRT) services to the Crowfoot LRT Station in Calgary; a commuter rail line to downtown Calgary; and possible BRT/Express services to other rural communities including Balzac and Bragg Creek. It is expected that local transit service within the Town of Cochrane will be focused on providing connections to these primary services, and to major local hubs including the downtown core and schools.

Figure 24:
Long Term Regional Transit Plan



Source: Regional Partnership "Calgary Regional Transit Plan" 2009

Figure 25:
Proposed Sunset Ridge
Stage 2 Transit

Legend:

- Sunset Ridge Stage 3 Neighbourhood Plan Boundary
- Potential School Bus Route / Transit Route
- Standard 400m Walking Distance to Potential Transit Route
- Bus Stop Location

7.4.2 SUNSET RIDGE INTERNAL TRANSIT SERVICE

Future development beyond Sunset Ridge (i.e. – to the north and east) is largely unplanned at this time. Thus, it is likely that transit service to the community will be at the terminus of a local route. The internal road layout suggests that this would take the form of a one-way loop around Sunset Road, Sunset Ridge Boulevard, Sundown Drive and Sunvista Way, accessing Highway 22 via Sunset Boulevard.

With the exception of the one cul-de-sac in the southeast corner of the plan area, all other lots are within 400m walking distance of Sunset Road, the maximum typically provided for effective transit service. See Figure 19: Proposed Sunset Ridge Stage 2 Transit. Overall, ~99% of the development area is within 400m, and ~92% within 200m, which suggests a good level of connectivity to transit routes around the community. These thresholds well exceed typical City of Calgary standards for full service in the Calgary Transit system. All proposed schools and multi-family sites are also located directly adjacent to Sunset Road, and could be directly serviced by transit stops.

Figure 26: Servicing

8.0 SERVICING

8.1 WATER SERVICING

The water distribution system for Sunset Ridge Stage 2 will be supplied by extending existing water mains into the development lands (see Figure 20: Proposed Utility Servicing). The report prepared by MPE Engineering Ltd titled "Sunset Ridge Subdivision Water Network Design Brief" dated November 1, 2012 is currently being used as the basis for the design and construction of the future water network. As shown in the report, a new booster station is required to service the majority of the Stage 2 lands. This new booster station will be located directly north of the school site located in the SE portion of Stage 2. Figure 1, of the report, also shows the area within Stage 2 where pressure reducing valves will be required to be installed on house services (see Appendices). An upgrade to the existing pump station for the community is required and is being looked at during the review and approval of Phase 13. The capacity of the existing pump station will be reviewed on a regular basis as development progresses to ensure adequate capacity is available. Since the existing pump station is owned and operated by the Town of Cochrane, the upgrades will be completed by the Town at the expense of the Developer.

8.2 SANITARY SERVICING

Sanitary servicing of Sunset Ridge Stage 2 will be provided by extending existing sanitary sewers into proposed Sunset Ridge. The existing sanitary mains in Sunset Ridge have capacity for this development. The sanitary design will follow the alignments shown on Figure 20. Gravity trunk sewers will extend north in the collector roadways and lateral sewers will branch off the trunks to service the local areas of the plan.

SE corner of Stage 2 will be serviced by a siphon across the ravine that will tie into the existing sewers on the west side of the ravine. The grades of this area prohibit taking this system north to the collector roadway. The sanitary servicing will be designed according to City of Calgary Servicing Standards and Alberta Environment Standards and Guidelines.

8.3 STORMWATER SERVICING

Stormwater management for Sunset Ridge Stage 2 will follow the Sunset Ridge Stage 2 Staged Master Drainage Plan prepared by LGN Consulting Engineering Ltd. (August 2012) submitted with the Phase 13 land use application. This report provides the design basis for the overall drainage concept for the remainder of the Sunset Ridge development.

The storm water from Stage 2 will be managed with two storm ponds; one to the north of the gas line ROW and one located to the south east of phase 10. Runoff from Stage 2 will be conveyed to the ponds by the storm sewer (minor) and overland drainage (major) systems. These ponds will treat the storm water to Alberta Environment Standards and will discharge the water at the predevelopment flow rate of 3.97 L/s/ha (determined by the June 2006 Master Drainage Plan Update prepared by Operational solutions) into the existing storm system that flows into the existing storm pond at the south end of the community. Both ponds will be designed to accommodate up to the 1:100 year event at a minimum. The proposed storm pond facilities and the minor system network are shown on the Figure 26.

As per the existing approved servicing plan for Sunset Ridge, the storm water management plan for the SE corner of Stage 2 is similar to the sanitary system. The intent is to utilize a siphon that runs across the ravine to the existing storm sewers on the west side of the ravine. Once across the ravine the existing storm sewers will convey these flows to the existing storm pond in Stage 1. That existing storm pond has been sized to treat and store the flows that will be generated by this area.

As with the sanitary servicing, the design of the stormwater system will be in accordance to the City of Calgary Servicing Standards and Alberta Environment Standards and guidelines.

8.4 SHALLOW UTILITIES

Shallow utilities for Stage 2 will be provided by an extension of the existing utilities already servicing the community. Power, telephone, and cable services will be provided with underground construction. No overhead utilities will be constructed.

9.0 HOW THE SR2NP CONFORMS TO GUIDING POLICIES

9.1 ADDRESSING THE STAGE 2 SUNSET RIDGE AREA STRUCTURE PLAN

The Sunset Ridge Stage 2 Neighbourhood (SR2NP) Plan adheres to the policies within the Stage 2 Sunset Ridge Area Structure Plan (Stage 2 SR-ASP). The Stage 2 SR-ASP was recently updated to ensure it aligned with the Town of Cochrane Municipal Development Plan (MDP) and the Cochrane Sustainability Plan (CSP). The Stage 2 SR-ASP states that one of the primary objectives of the ASP is to ensure Sunset Ridge is a complete community, which it defines as a community that provides for the social, local, recreational and neighbourhood commercial needs of residents. To further this objective, the Stage 2 SR-ASP identifies seven Design Features in Section 4.3 that are to be incorporated in the design of the community. Each of these are addressed below:

Parks, Pathways and Public Open Spaces

The SR2NP provides for a well-connected open space system. A central linear greenspace system runs through the entire plan area from the north to the south, and connects the schools, community centre and to each of the smaller parks. This open space system will provide safe active and passive recreation opportunities to the entire community and will include tot lots and playgrounds, sports fields, pathways, benches, a community garden and public art to enhance sense of place. Each resident will be within 400m to the open space system. A regional pathway will connect the open space system to Big Hill Springs Creek.

Mobility

The transportation network utilizes a modified grid street pattern to increase the connectivity of the residential areas. Multiple route options are available into the residential areas to improve vehicular flow and offer pedestrians variety to their walking & bicycling opportunities. Connections to the open space system have been considered and walkways have been added, throughout the plan area, where logical to enhance access.

Efficient and Effective Use of Town's Land Base

Through a well-connected vehicular and pedestrian transportation network, well distributed open space, the provision of two school sites, and a community park site, the SR2NP strives to provide a unique community that is efficient in its design while meeting the density levels required by the MDP.

Sustainability

Open space will incorporate both natural areas and manicured spaces through a combination of native plant species, fescue sod and irrigated playfields.

Parks will be designed to capture and take advantage of rainfall and overland drainage through absorbent landscapes. Unirrigated areas will incorporate native, drought tolerant shrubs that are locally grown to better achieve thriving and successful landscape.

Institutional Services

The SR2NP provides two elementary (K-8 and K-9) school sites and a community centre site.

Town Gateway

An important gateway into the Town of Cochrane is located on Highway 22, just outside the plan boundary at the northwest corner. This land is not owned by Sunset Properties and won't be developed until the land is annexed to the Town. The SR-ASP has policies in place for the design and function of entrance features along Highway 22. It is anticipated that this entry will blend with the theme and design of the Stage 2 community.

Variety of Housing Types and Integrated Density

Housing forms will be integrated throughout the entire plan area. Single family, semi-detached, townhomes and innovative multi-family housing units will be spread throughout the community in an integrated manor.

9.2 ADDRESSING THE MUNICIPAL DEVELOPMENT PLAN

The Cochrane Municipal Development Plan requires that new developments within the Town address the five planning principles in their Sustainability Matrix. A summary of how the SR2NP addresses each of these principles is outlined below:

Principle 1: Responsible Growth Management

"Responsible growth management demands that the Town make every effort to meet the needs of a growing population, in an ecologically-aware and efficient manner, using limited natural, human, built, and financial resources".

The SR2NP meets the Town's Responsible Growth Management goals of accommodating a growing population in an efficient manner, by providing a new community with relatively high density, which is easily accessed by existing infrastructure.

The needs of a growing population are met by the SR2NP through its provision of institutional use provided through the inclusion of the two school sites, and areas for social interaction including parks and playfields. A variety of housing options will be available in SR2NP through a mix of higher density housing, semi-detached, and single family dwellings, to accommodate the different life stages and economic needs of future residents.

Principle 2: Social & Cultural Well Being

"Social well-being and a high quality of life is a reflection of living in a community that creates a safe, healthy, and comfortable environment in which to live, work and play."

The SR2NP provides residents with a variety of residential housing forms and multiple opportunities for social interaction. Details of how the SR2NP achieves this is provided in Section 5.2.4.

The layout of the SR2NP incorporates several elements of a pedestrian oriented development, as described further in Section 5.1. By accommodating pedestrian use, and providing areas for social interaction, including parks and open spaces, the safety of the community is increased through the active presence of its residents. This addresses one of the Crime Prevention Through Environmental Design (CPTED) principles. Further details of how the SR2NP addresses CPTED can be found in Section 5.5.

The schools, parks and green spaces provide recreational opportunity for residents. In addition, multiple pathways provide a variety of connection alternatives throughout the community, as expanded on in Section 5.1.

The SR2NP identifies a potential future transit route that minimizes impact on the community while providing direct access to the commercial-residential mixed use site and the school sites. Figure 17 illustrates this transit route.

Principle 3: Environmental Stewardship

"Environmental stewardship highlights the Town's commitment to careful and responsible management of our natural resources and ecological assets"

The SR2NP will protect the Bill Hill Creek Valley. This area contains significant vegetation and wildlife. Pathway locations will be explored at the detailed design stage that will not detract from the environmental significance of the valley but offer recreational enjoyment for residents and the larger Cochrane Community.

Principle 4: Economic Vitality

"Economic vitality provides the foundation for a healthy, diverse, active, prosperous, and resilient economy."

The SR2NP will provide an attractive, complete residential community that will increase the Town's population base, support local businesses, and encourage industries and new employers to base themselves in Cochrane.

The high residential density proposed in SR2NP, along with the diverse variety of accommodations suitable to a range of income levels, will aid in the sustainability of the commercial element of the larger community of Cochrane, and its resiliency in varying market conditions.

The walkability of the SR2NP will encourage an active community, which will draw residents to the open spaces, further enhancing the prosperity of the site.

Principle 5: Community Engagement

"Community engagement builds trust, ensures accountability, and improves the quality of decision making as the public plays a valuable role in formulation plans and developing services."

As part of the Neighbourhood Plan process, the project team held an Open House and presented the proposal to residents. The open house was well attended and minimal concerns were received on the application as presented. Concerns were expressed regarding the ravine pathway location and timing for the central pond amenity.

9.3 ADDRESSING THE COCHRANE SUSTAINABILITY PLAN

The Cochrane Sustainability Plan was adopted by Council in May 2009. The plan provides thirteen (13) Pathways to the Future to help guide future development within Cochrane. These pathways are grouped into four (4) categories.

1. We Build a Culture of Responsibility

Pathway 1: We are a socially responsible and empowered community.

The SR2NP exhibits social responsibility by providing an integrated building form, high density community adjacent to existing and future school sites, and a future commercial development. Design elements and amenities such as the green spaces and parks, the natural escarpment area, the school sites and community centre will help create a sense of place and ownership within the community. Residents of Sunset Ridge will feel connected to Cochrane through their enjoyment of their surroundings and natural amenities, and therefore empowered to become a voice in Cochrane's future.

The community centre and other gathering places within the community offer the opportunity for residents to get acquainted with each other and become involved in their community.

2. We are Responsible Citizens of the Planet

Pathway 2: We treat water as a precious resource.
Pathway 3: We use energy responsibly and innovatively.
Pathway 4: We contribute to the solution on climate change.

The SR2NP provides a density range of between of 18.7-21.4 units per hectare (7.6-8.7 units per acre). Higher density communities are more environmentally responsible than lower density communities as there is less land form disturbance for servicing, less vehicular impact (shorter

drive times and reduced road construction), and greater opportunity for residents to use alternate forms of transportation. The walkability of the SR2NP will further encourage pedestrian and bicycle mobility.

The protection of the escarpment and encouraging low impact building technology into the residential built forms will help foster an environmentally responsible community.

In the interest of an environmentally sensitive development, the Sunset Ridge Stage 2 development will implement the following Best Management Practices:

- All roof drainage from single family houses and garages are to be directed to landscaped areas prior to draining to streets or lanes;
- A minimum of 300 mm of topsoil shall be provided for all landscape areas (including the lots);
- Rear lot drainage from all homes backing up towards Big Hill Creek will discharge as sheet flow to the Big Hill Creek escarpment

The implementation of these Best Management Practices will allow more of the storm water to be absorbed into the landscaped areas and reduce the runoff volume being discharged to Big Hill Creek.

3. We Live Locally

Pathway 5: We consume the bounty of our local economy.
Pathway 6: Our local economy is healthy and diverse.
Pathway 7: Everyone has an opportunity to pursue their potential in Cochrane.
Pathway 8: We are a caring community that lives and celebrates together.

The SR2NP will provide homes for over 5768 new residents to Cochrane. These residents will utilize the nearby local convenience commercial centres, the future Village Centre, as well as the downtown core for their shopping, entertainment and service needs. The development of the community will help provide jobs to local trades people.

The SR2NP includes local opportunities for socializing, working and education. The local school sites will provide educational needs, jobs and volunteering opportunities for SR2NP residents. Active play areas will provide families with the opportunity to meet and socialize together; the community centre will provide a place for local celebration, community events and recreation. These amenities will provide a social focus for the community.

4. Cochrane is a Complete Community

Pathway 9: Everyone has a roof over their head.
Pathway 10: There's enough room for everything a community should have.
Pathway 11: Wherever you are in Cochrane, you're close and connected.
Pathway 12: There are diverse options for getting around.
Pathway 13: We build Cochrane on the strengths of our natural and cultural heritage.

The SR2NP provides the 'age in place' opportunity for residents through range of housing options integrated throughout the community. A resident who chooses to live in Sunset Ridge could live their entire life within a community that offers housing appropriate for all stages of life and affordability levels. When the applicant team met with the Affordable Housing Society, it was

expressed to them that a diversity of housing and price range would be included within the plan to ensure opportunities within Sunset Ridge.

The regional and local pathway system will provide residents with convenient, safe access to the amenities within their community, as well as services and jobs outside of their community.

The local school provides opportunities for education, jobs and volunteering within the community. When considering the variety of housing styles, the number of local schools, retail opportunities and jobs, Sunset Ridge will offer residents the benefits of a complete community.

9.4 MUNICIPAL ENVIRONMENTAL IMPACT STATEMENT

In accordance with Section 6.3.2 of the Town of Cochrane Municipal Development Plan a review of each of the factors contributing to the Municipal Environmental Impact Statement has been completed and outlined below. Further information can be found in the Geotechnical Evaluation by McIntosh Lalani Engineering Ltd., the Historical Resources Impact Assessment by FMA Heritage Resource Management Ltd., the Sunset Ridge Biophysical Impact Assessment by Sweetgrass Consultants Ltd., and the Phase 1 Environmental Site Assessment by Base Property Consultants Ltd.

Biophysical Assessment:

A Biophysical Assessment was completed for the lands within the plan area by Sweetgrass Consultants in 2004 and 2012. The reports concluded that habitat loss associated with development will be restricted to mainly non-native and intensively used native grassland habitats. The most productive and significant habitat, within the coulee complex, will be protected through the designation of these lands as Environmental Reserve. Therefore the proposed plan will not contribute significantly toward regional habitat fragmentation, loss of wildlife corridor potential, or loss of regional diversity.

Vegetation:

Sweetgrass Consultants have described in their report the condition of the upland grassland within the plan area being generally poor because of intensive livestock grazing and old surface disturbance. The original fescue grassland in this area had been largely transformed into a shorter, sparser grassland type. In the more intensively used areas, there has been significant invasion of non-native plants. Localized disturbance from concentrated cattle activity has also occurred in woodland and springs habitats of the coulee complex.

The coulee complex is a component of the regionally significant Big Hill Creek valley and is most likely the location of rare plants. This area will be dedicated as Environmental Reserve.

Wetlands:

Sweetgrass have identified 14 wetlands within their 2012 BIA. All wetlands have been significantly degraded through land use including cultivation and heavy grazing.

Wildlife:

No federally/provincially listed species of animals were identified for the study area by Sweetgrass Consultants.
A total of 7 bird, 2 mammals and 1 amphibian were recorded. Waterfowl were observed at only one wetland (in early May) and because of wetland degradation through cultivation, the potential for nesting waterfowl was relatively low on the entire property and no nesting evidence was found.

Ecologically Significant Lands:

The only ecologically significant lands within the SR-ASP are within the Big Hill Creek Valley coulee, as identified in the Biophysical Overview by Sweetgrass Consultants Ltd., which will be retained.

The coulee complex is part of a Regionally Significant Area that includes the entire Bighill Creek valley. Features that add to the significance of the valley include significant deer wintering habitat, undisturbed stretches of stream and mixed woodland, major springs, high breeding bird diversity, a flyway for migrating raptors (birds of prey), and a wildlife movement corridor.

Geotechnical:

As part of the Sunset Ridge Area Structure Plan, A Geotechnical and Slope Stability Assessment was prepared by McIntosh Lalani Engineering Ltd. It indicated that the escarpment of the Big Hill Creek Valley has a series of ravines or draws that extent northward into the proposed development area. The slopes of the escarpment include some areas with gradients as steep as 2:1. The soils in this area consist of a overbank sediment containing silts, sands and clays. Beneath these overbank sediments, a glacial till consisting of the Spy Hill drift is present on site which overlays the Porcupine Hills bedrock Formation. Along the escarpment of the Big Hill Springs Valley and in the ravines, the exposed outcroppings of this sedimentary bedrock are visible.

In 2010, McIntosh Lalani undertook a Geotechnical and Slope Stability Assessment of the plan area with particular attention to the Big Hill Creek Valley escarpment and the sloping lands in the pasture above the escarpment. They observed that these extensive escarpment slopes were not failing or sloughing and that there was limited spring activity coming from the slopes. They observed that the rolling slopes west of the escarpment were stable. The results of the slope stability analysis concluded that the slopes are stable where slopes are 3H:1V and flatter. However, a building setback for construction is required in areas where the slope gradient is steeper. Development setback distances of up to 35 metres from the top of slope have been established for development along this escarpment. At the established building setback line, a Factor of Safety of 1.50 is achieved against any slope instability.

Numerous Geotechnical evaluations have been undertaken across the initial lands in Sunset Ridge that have been developed. These existing development lands and the proposed Stage 2 lands primarily consist of farm land and cattle grazing lands. The topography is flat to rolling. The soils generally consist of a overbank silt, sand and clay sediments. The glacial tills and bedrock encountered in the slope are generally deeper than 9.0 metres depth below existing grades, further back from the slope escarpment The groundwater depth has been monitored in these areas and is typically deeper than the 9.0 meters depth that was drilled during the subsurface investigation.

In 2010, Sunset Properties contracted McIntosh Lalani to perform groundwater testing on the balance of the Stage 2 land. To date numerous Geotechnical Assessments have been undertaken for Phases 1-10 of Sunset Ridge. A copy of the Stage 2 Geotechnical Evaluation report was submitted under separate cover.

Flood Potential and Proposals for Mitigation:

There are no floodway or flood fringe lands within the SR2NP.

Stormwater Study:

Operational Solutions completed a Master Drainage Plan as part of the SR ASP. An update was prepared in June 2006. This report has been submitted under separate cover.

Water Quantity and Quality:

The stormwater management facilities proposed in the development have been designed to provincial standards to ensure release rates and water quality standards are met. Further information can be found in the Sunset Ridge Master Drainage Plan – South Stormwater Storage Facility Stormwater Management Report. Dated June 2006 and prepared by Operational Solutions.

Air Quality:

The SR2NP is predominantly a residential neighbourhood with an abundance of open space. The design of the community is such that pedestrian and bicycle transportation are encouraged as an alternative to internal use of motor vehicles. Although any development that results in the removal of existing vegetation will have some impact on existing air quality, the long term effects when considering the replacement of much of the existing vegetation by developer landscaped areas and private landowner plantings, the development is not expected to result in any appreciable reduction in the current air quality.

Visual Resources:

The rolling terrain of the land and the existing mountain views are visually appealing. The proposed development realizes the opportunity to retain the existing valley adjacent to the subject site.

Land and Resource Use:

Urban development, by nature, is an intensive form of development and will disturb most of the lands on which it is placed.

The SR2NP proposes high density urban development. High density developments provide residential accommodation to a greater amount of residents while utilizing less land. Through this means, the SR2NP is an environmentally responsible, high density community. Further details on the density provided in the SR2NP can be found under Section 5.0.

Cultural and Heritage Resources:

A Cultural and Archeological Overview Report was prepared for the majority of the Area Structure Plan

area by FMA Heritage Resource Consultants. This overview indicated that given that cultivation had been practiced on the uplands within the plan area, there is little likelihood that any areas intended for development contain any historical, archaeological, or paleontological resources. The report indicated the escarpment and valley bottom, however, have significant potential for archaeological resources.

Historical sites were identified as part of work completed for Stages 1 and 2 by FMA Heritage Resource Consultants. Within this work, 3 sites were located within Stage 2 lands, with only 1 of those sites found in developable lands. Lifeways of Canada Limited will be addressing this site (EhPo-105), prior to any Stripping and Grading of the Stage 2 land within proximity of EhPo-105. The EhPo-105 is located in a topographic bowl, towards the northern end of the project area. Two positive backhoe tests excavated here identified buried butchered bison bone at depths of 100 to 140cm below the surface. Mitigative requirements outlined by ACCS call for the hand excavation of 10 square meters adjacent to each of the positive backhoe tests; 20m in total for the site. Once cleared by Alberta Cultural and Community Spirit (ACCS), copies will be provided to the Town of Cochrane.

Construction and Demolition Waste Management:

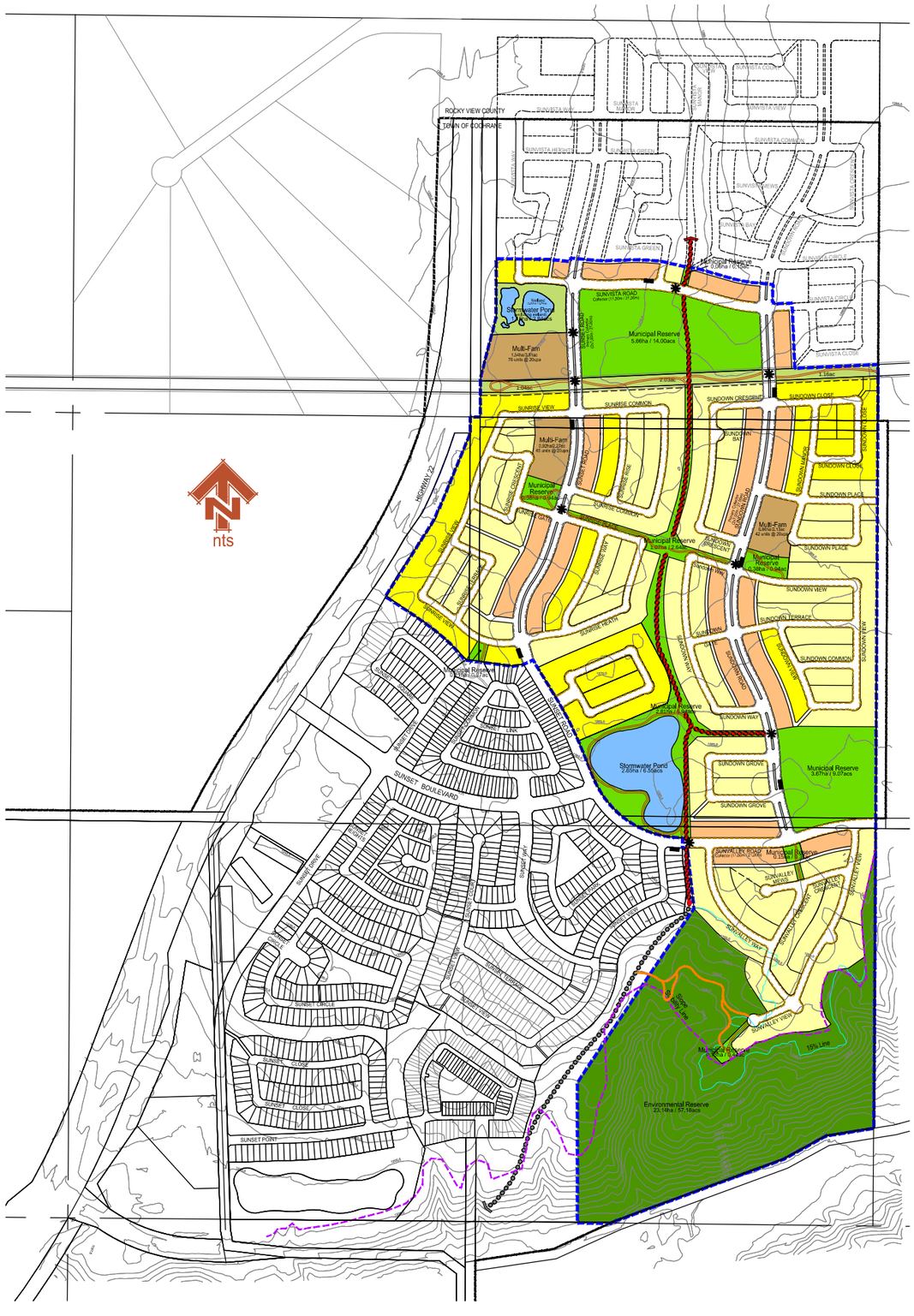
A construction and demolition waste management plan will be provided with each Subdivision application and Development Permit application to ensure proper procedures are followed at the time of construction.

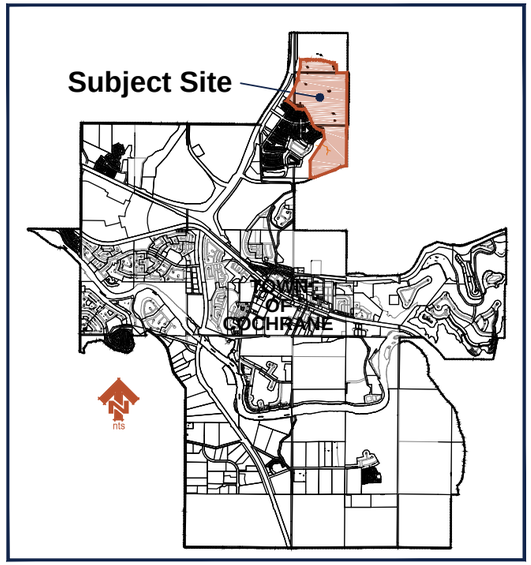
Appendices

1. Neighbourhood Plan (11x17)
2. Slope Stability Assessment - McIntosh Lalani
3. Muncipal Reserve Summary
4. Open Space Concepts
5. Multi-Family Housing Samples
6 Approved Phase 10 Land Use Plan
7. Approved Phase 12 Land Use Plan
8. Proposed Phase 13 Land Use Plan
9. Proposed Land Use Plan
10. 10 Year Recommended Lane Configurations and Traffic Controls
11. Water Network
12. Overall Stages 2, 3 and 4 Projected Units and Density
13. Wetland Overlay
14. Stormpond Enhancement Details
15. Proposed Wetland & Stormwater Monitoring Program
16 Samples-Enhanced Pedestrian Crossings
17. Possilbe Off-Leash Dog Areas

Neighbourhood Plan (11x17)

JULY 2013





Location map

- Single Detached Dwelling
- Single and Two Dwelling District
- Multi-unit Dwelling District
- High Density Multi-dwelling District
- Municipal Reserve
- Environmental Reserve
- Stormwater Management Facility

Legend:

- Cochrane City Limits
- Neighbourhood Plan Boundary
- 1000 Contour Interval 5m
- Monolithic Sidewalk
- Separate Sidewalk
- Regional Pathway 3.0m
- Local Asphalt Pathway 3.0m
- Local Granular Pathway 1.5-2.0m
- Regional Pathway by Others 3.0m
- Bus Stop Location
- Enhanced Pedestrian Crossing

Notes:

All roads are residential standard (9m/15m) unless otherwise noted. All lanes are 6.0m wide

SUNSET RIDGE
COCHRANE

Sunset Ridge Stage 2
Neighbourhood Plan

Legal Descriptions:

Portions of: NW & SW 14-26-4-W5 , NW 11 26-4-W5, Plan 0511019 Blk 1 Lot 1, Plans: 0610825 Blocks C & D & Other Title 26-4-W5M

Prepared for:
SUNSET PROPERTIES INC.

Prepared by:
PASQUINI & ASSOCIATES CONSULTING LTD.
b&a PLANNING GROUP
ISL Engineering and Land Services
L.A. West

SUNSET RIDGE NEIGHBOURHOOD PLAN STATISTICS	frontage (m)	lot width /units (m)/(upa)	Hectares (+/-)	Acres (+/-)	Number of units	% of GDA
Total Land Area			119.48	295.24		
Environmental Reserve			23.14	57.18		
Gross Developable Area (GDA)			96.34	238.06		100%
General Land Uses						
Residential			54.66	135.06		56.7%
Residential Single Detached Dwelling District						
Anticipated number of lots based on 9.75m lot width					881	
Maximum number of lots based on 9.0m lot width	8823	9	31.41	77.61	980	32.6%
Residential Single and Two-Dwelling District District						
Anticipated number of lots based on 7.62m lot width					361	
Maximum number of lots based on 6.0m lot width	3154	6	11.71	28.94	525	12.2%
Residential Multi-Unit Dwelling District						
Anticipated / Maximum number of lots based on 6.1m lot width	2498	6.1	8.22	20.31	395	8.5%
High Density Multi-Unit Dwellings						
Anticipated / Maximum number of units based on 20upa		20	3.32	8.20	164	3.4%
Total frontage	14475					
Total number of units						
Anticipated					1801	
Maximum					2064	
Density						
Anticipated					*18.7 uph*	*7.6 upa*
Maximum					*21.4 uph*	*8.7 upa*
Municipal Reserve (Credit)			14.47	35.76		15.0% *
Municipal Reserve (Credit)			14.47	35.76		
Public Utility Lot			5.79	14.31		6.0%
Stormwater Ponds			3.78	9.34		
Wetland			0.30	0.74		
Utility Right of Way			1.71	4.23		
Roadways and Lanes			21.42	52.93		22.2%

*See Municipal Reserve breakdown in the Appendices.

Slope Stability Assessment - McIntosh Lalani

JULY 2013

GEOTECHNICAL SLOPE
STABILITY SETBACK LINE

TOP OF SLOPE

GEOTECHNICAL SLOPE
STABILITY SETBACK LINE

TOP OF SLOPE

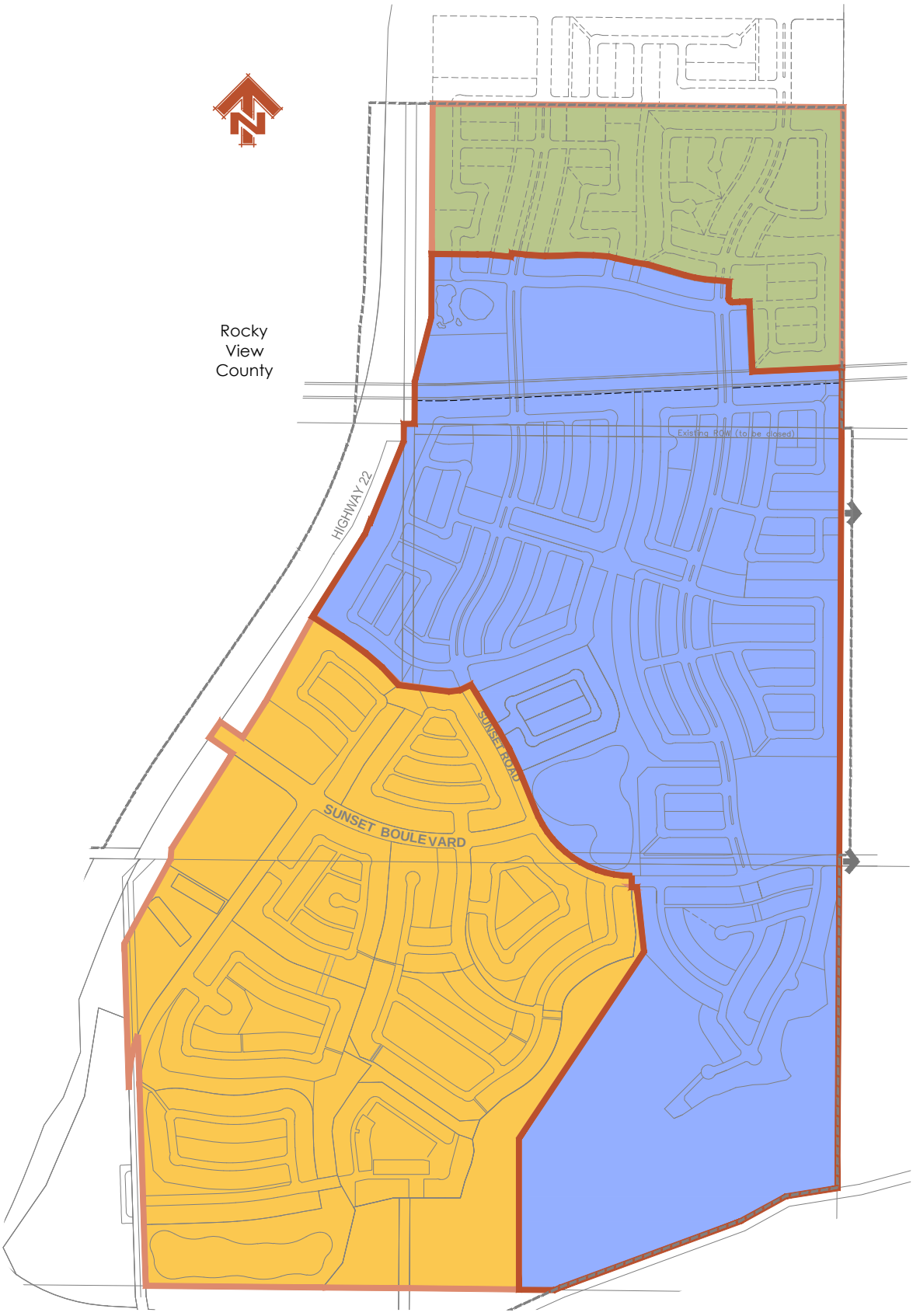
0m 25m 50m 75m 100m

N

McINTOSH LALANI
ENGINEERING LTD.

Muncipal Reserve Summary

JULY 2013


Rocky
View
County
HIGHWAY 22
Existing ROW (to be closed)
SUNSET ROAD
SUNSET BOULEVARD

MR Balance - Sunset Ridge Overall Community

		Hectares	Acres
	Sunset Ridge Community Area (Tirion/Sunset Properties)	**231.339**	**571.616**
	Less Environmental Reserve (Registered, Not-Registered & Proposed)	*37.626*	*92.970*
	Sunset Ridge Gross Developable Area	**193.713**	**478.645**
	TOTAL MR OWING FOR THE COMMUNITY	**19.371**	**47.865**
Stage 1	**Total Area (Stage 1 by Tirion)**	**85.449**	**211.136**
	Less ER (Dedicated Phase 1,1b,3 & 7)	*5.414*	*13.377*
	Gross Developable Area (GDA) as per TP's	**80.035**	**197.758**
	Less ER (Outstanding - Tirion's Not Registered)	9.072	22.416
	TOTAL GDA (STAGE 1 by Tirion)	**70.963**	**175.342**
	10% MR Owing for Stages 1 by Tirion	7.096	17.534
	Dedicated to Date	3.047	7.529
	Stage 1 by Tirion - Outstanding MR Deferred	**4.049**	**10.005**
Stage 2	**Total Area (Proposed Stage 2/Sunset Properties)**	**119.480**	**295.223**
	Less Environmental Reserve	*23.140*	*57.177*
	TOTAL GDA (Entire Land Holding/Sunset Properties)	**96.340**	**238.047**
	10% MR Owing for Sunset Properties	9.634	23.805
	Proposed within the Stage 2 Neighbourhood Plan	14.470	35.760
	Balance	4.836	11.955
Stage 3	**Total Area (Future Stage 3/Sunset Properties)**	**26.410**	**65.256**
	TOTAL GDA	**26.410**	**65.256**
	10% MR Owing for Sunset Properties	2.641	6.526
	Proposed within the Stage 3 Neighbourhood Plan	1.854	4.581
	Balance	-0.787	-1.945

SUMMARY:

Sunset Ridge Community Area (Tirion/Sunset Properties)	**231.339**	**571.616**
Less Environmental Reserve (Registered, Not-Registered & Proposed)	*37.626*	*92.970*
Sunset Ridge Gross Developable Area	**193.713**	**478.645**
TOTAL MR OWING FOR THE COMMUNITY	**19.371**	**47.865**

Stage 1 MR Dedication	3.047
Stage 2 Proposed MR Dedication	14.470
Future Stage 2 Proposed MR Dedication	1.854
Total MR Dedication	**19.371**
Balance of MR for Sunset Ridge Community	**0.000**

Open Space Concepts

JULY 2013

Open Space Key Plan

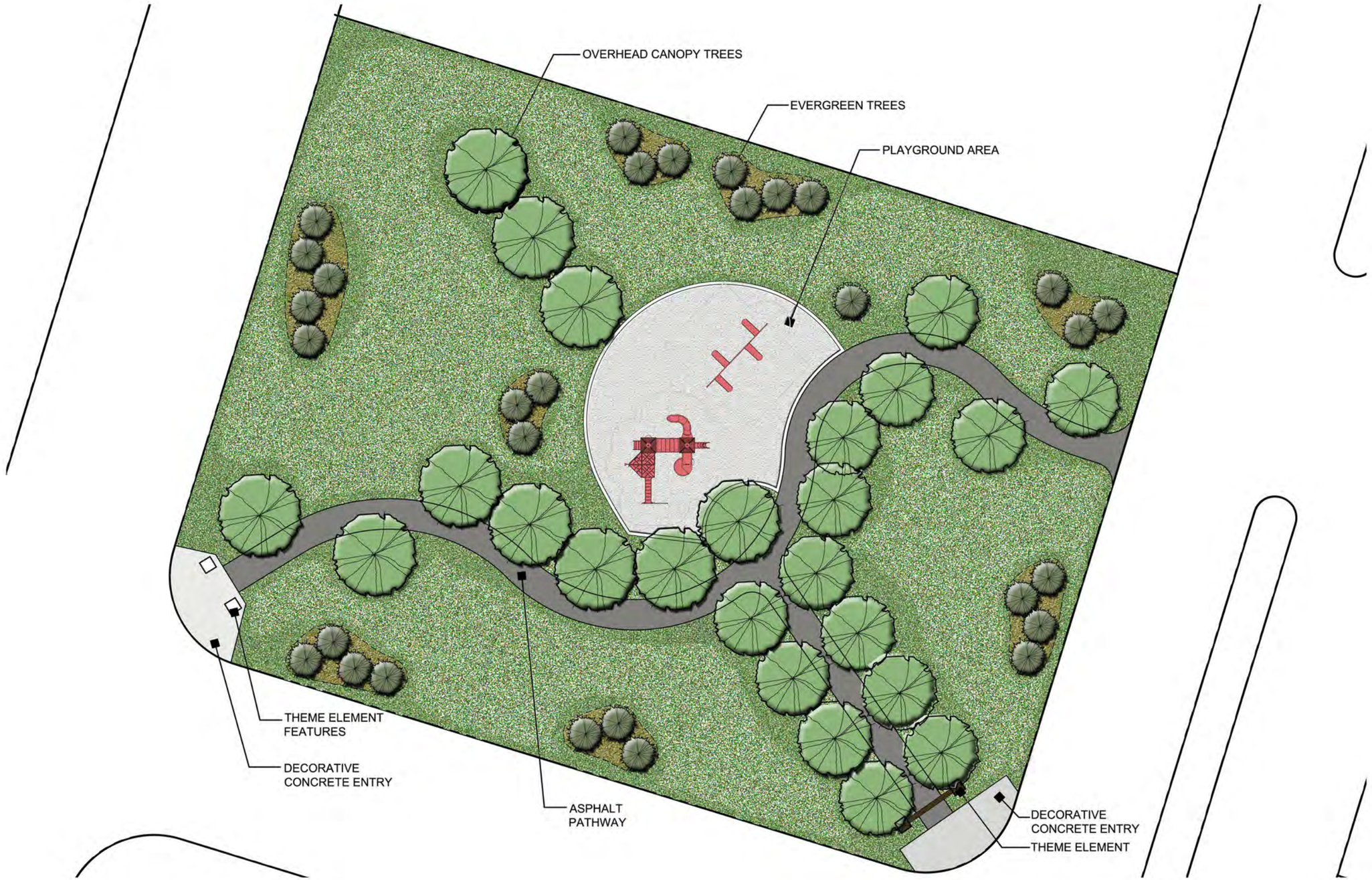

DECORATIVE CONCRETE SIDEWALK
ENTRY PLAZA
LOW AESTHETIC MOUNDING
THEME ELEMENT FEATURE
DECORATIVE CONCRETE ENTRY PLAZA
PLAYGROUND
EVERGREEN TREES
SPLASH PAD
ASPHALT PATHWAY
DECORATIVE CONCRETE ENTRY PLAZA
PARKING LOT
BUILDING ENVELOPE
MAJOR/MINOR SOCCER FIELD
PARK SHELTER
BENCHES
SKATE SHACK
OUTDOOR ICE RINK/ MULTI-COURT
PARKING LOT
PARKING LOT
SHELTER VIEW NODE
OVERHEAD CANOPY TREES
BOULDER RETAINING WALLS
COMMUNITY GARDEN
SEATING AREA c/w BENCHES
SHRUB PLANTING
ASPHALT PATHWAY

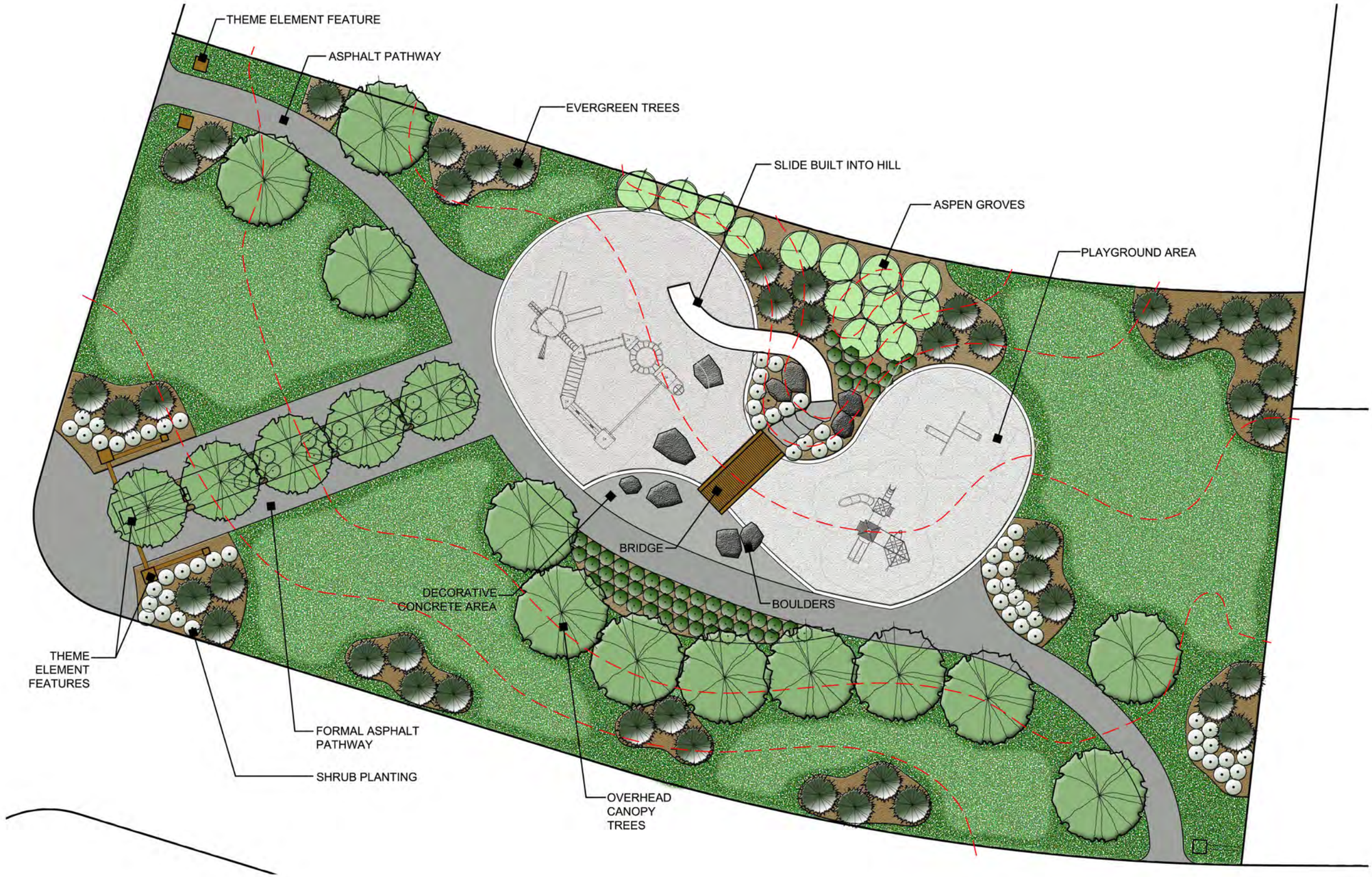

PICNIC AREA
OVERHEAD CANOPY TREES
EVERGREEN TREES
SEATING AREA
ASPHALT PATHWAY
FOREBAY
VIEWING NODE
AQUATIC EDGE TREATMENT
FOREBAY
FOUNTAIN
VIEWING NODE
LOWLAND PLANTING
VIEWING NODE
ENTRY PLAZA WITH THEME ELEMENT
NATURAL GRASSLAND
OPEN GRASS AREA
SEATING AREA
SANDSTONE RETAINING WALL
NATURAL PLAYGROUND AREA
SEATING AREA
THEME ELEMENT
4.0M MAIN ACCESS/PATHWAY
PICNIC AREA
Manicured Zone
Irrigated turf area with deciduous and coniferous tree groupings, shrubs to include variety's of Willow and Dogwood.
Emergent wetland zone
0.3 - 0.5m depth benches varying in width. Recommended species include: awned seed, water smartweed, tall manna grass, fowl bluegrass, slough grass.Topsoil sourced and placed from selected existing wetland.
Active fluctuation zone (PWL - HWL)
Riparian and wetland seed mixes combined with lowland or semi permanent plant material that will tolerate periods of inundation. Recommended species include: beaked willow, northern reed grass, balsam poplar, aspen, buckbrush, inland bluegrass, needle grass, june grass and northern wheat grass.Topsoil sourced and placed from selected existing wetland.

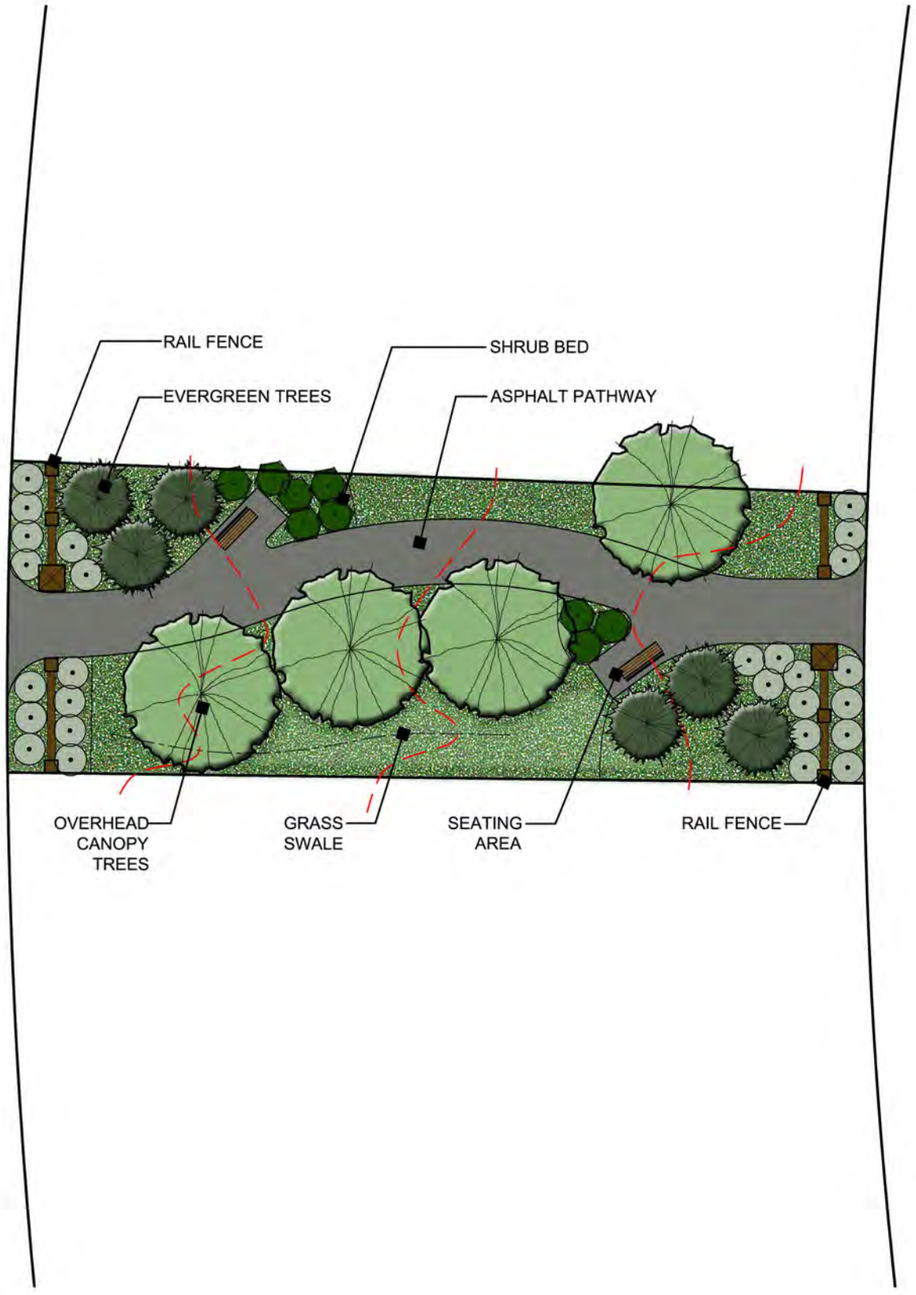

61.5
62.0
62.5
1.5%
1.6%
MAJOR / MINOR
SOCCER FIELD
76m BALL DIAMOND
62.5
62.0
61.5
BUILDING ENVELOPE
(4.0 ACRES)
Bus Loading (144m - 8 Buses)
PARKING
(30 STALLS)
PARKING
(40 STALLS)
PARKING
(30 STALLS)
Parent Drop Off (145m - 20 Cars)
61.0
SUNSET ROAD

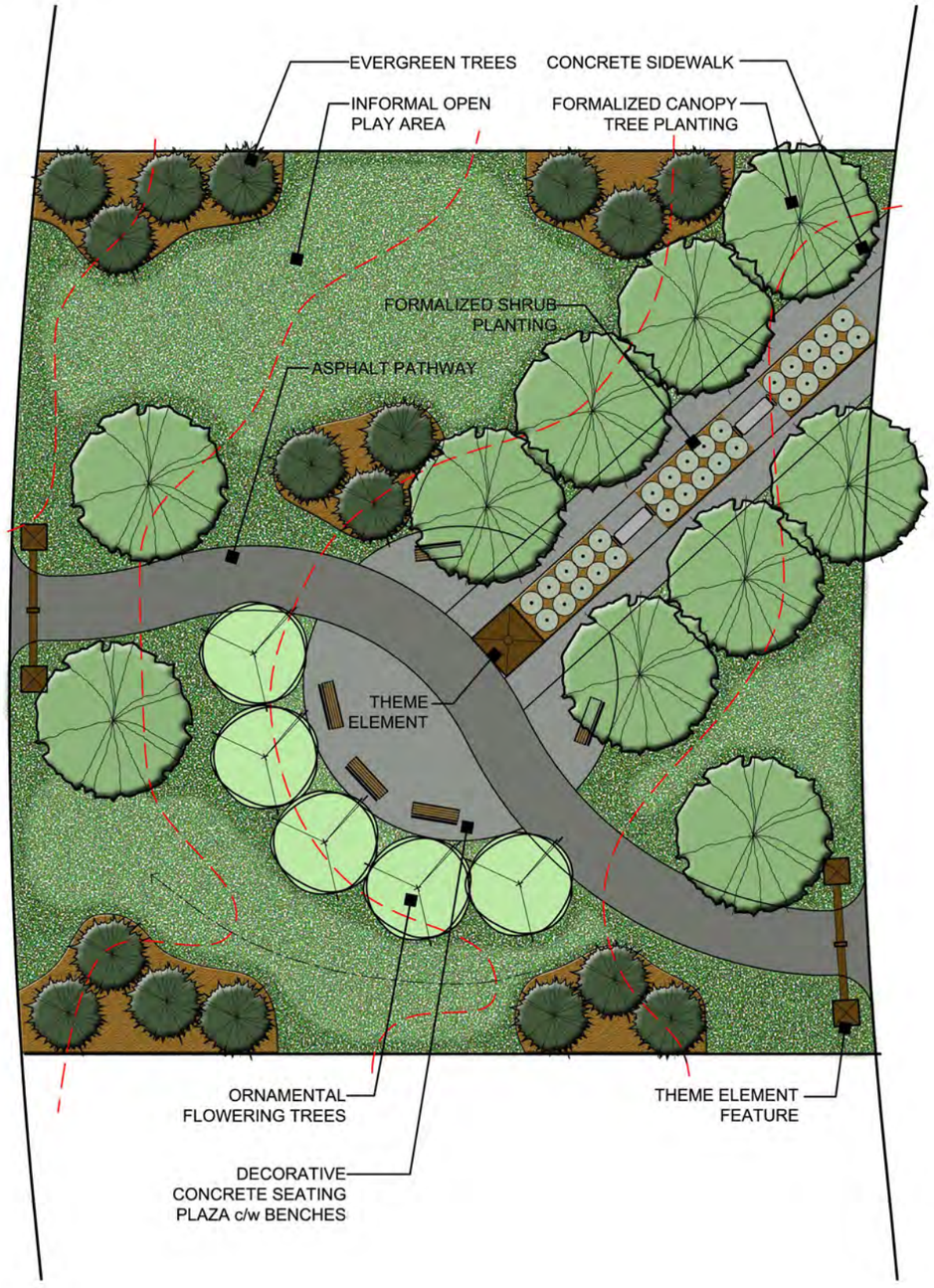

PICNIC TABLE
PLAYGROUND
SEATING BENCHES
OVERHEAD CANOPY TREES
EVERGREEN TREES
PERGOLA w/ BENCHES BELOW
THEME ELEMENT
ASPHALT PATHWAY
PICNIC TABLE

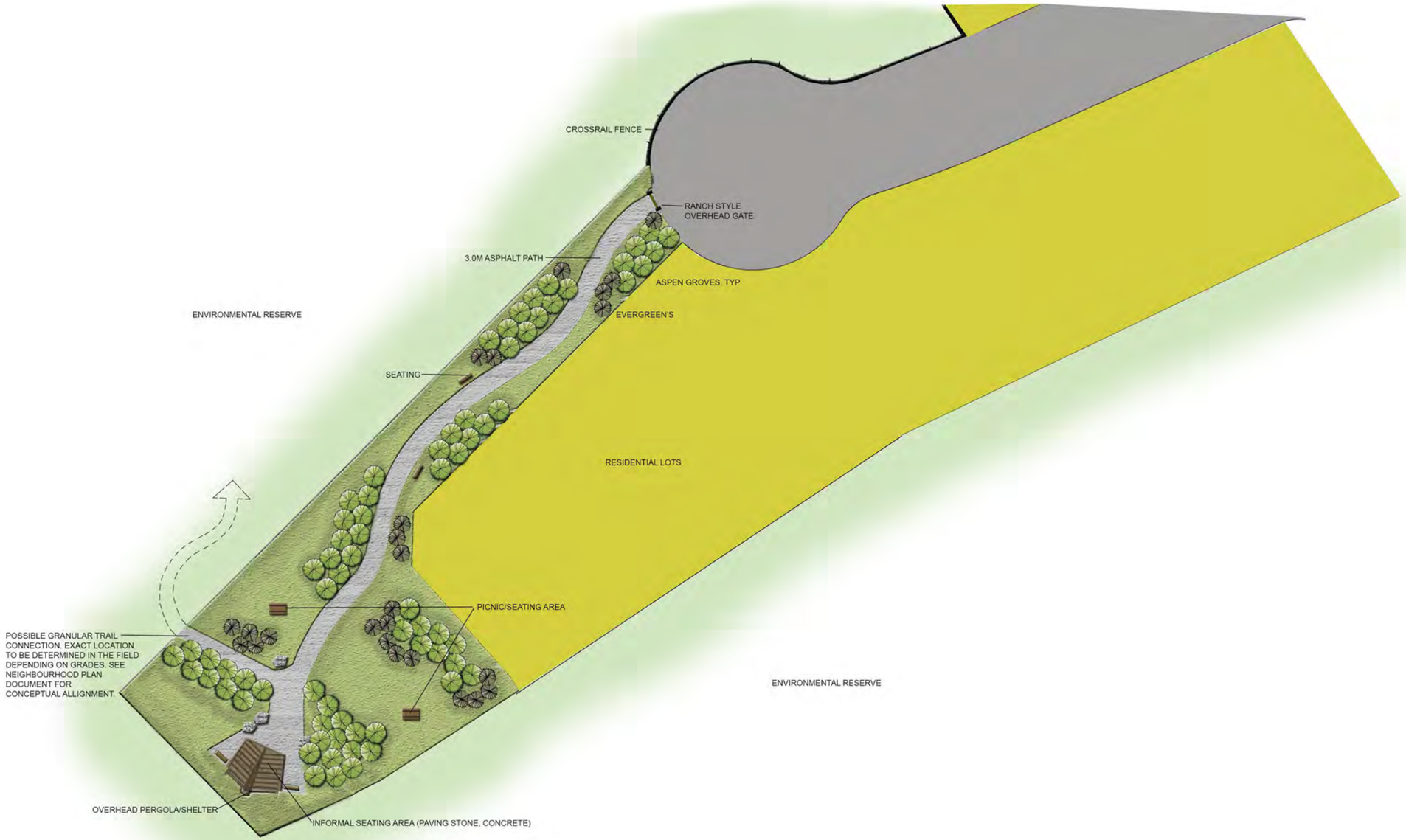

BOULDER RETAINING WALL
SEATING AREA
EVERGREEN TREES
PERGOLA
THEME ELEMENT
ASPHALT PATHWAY
OVERHEAD CANOPY TREES

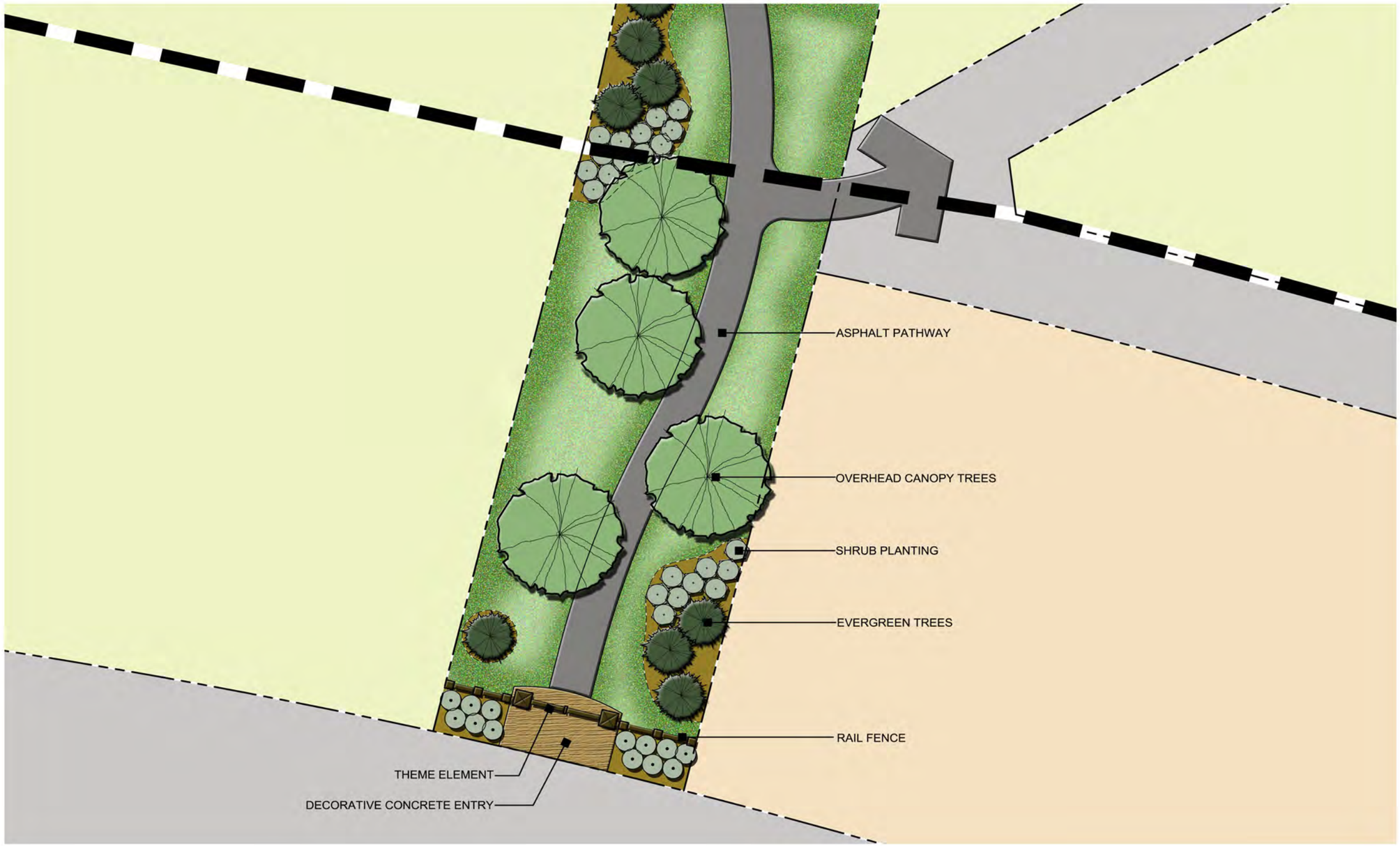

OVERHEAD CANOPY TREES
EVERGREEN TREES
PLAYGROUND AREA
THEME ELEMENT FEATURES
DECORATIVE CONCRETE ENTRY
ASPHALT PATHWAY
DECORATIVE CONCRETE ENTRY
THEME ELEMENT

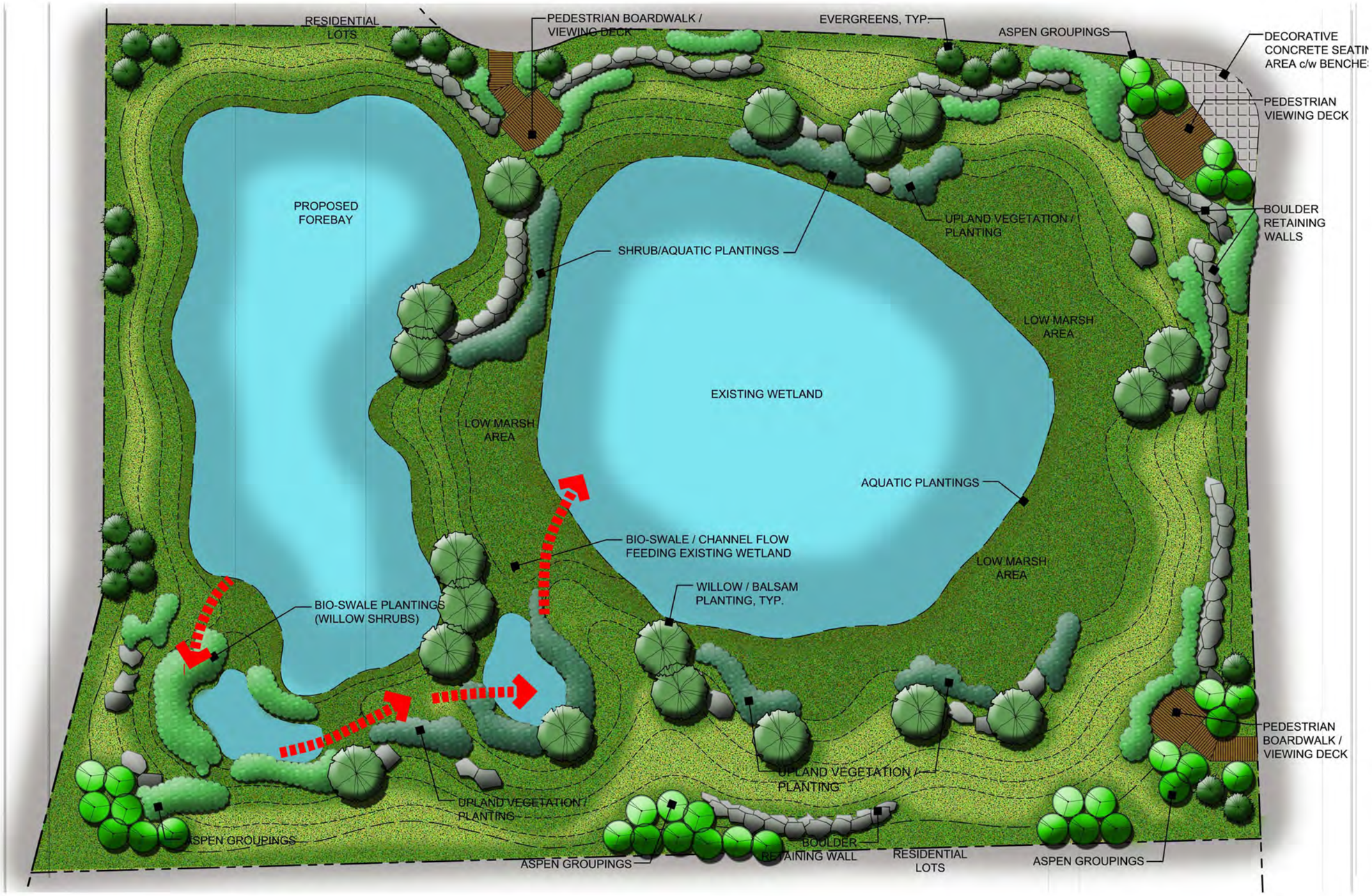

THEME ELEMENT FEATURE
ASPHALT PATHWAY
EVERGREEN TREES
SLIDE BUILT INTO HILL
ASPEN GROVES
PLAYGROUND AREA
BRIDGE
BOULDERS
DECORATIVE CONCRETE AREA
THEME ELEMENT FEATURES
FORMAL ASPHALT PATHWAY
SHRUB PLANTING
OVERHEAD CANOPY TREES

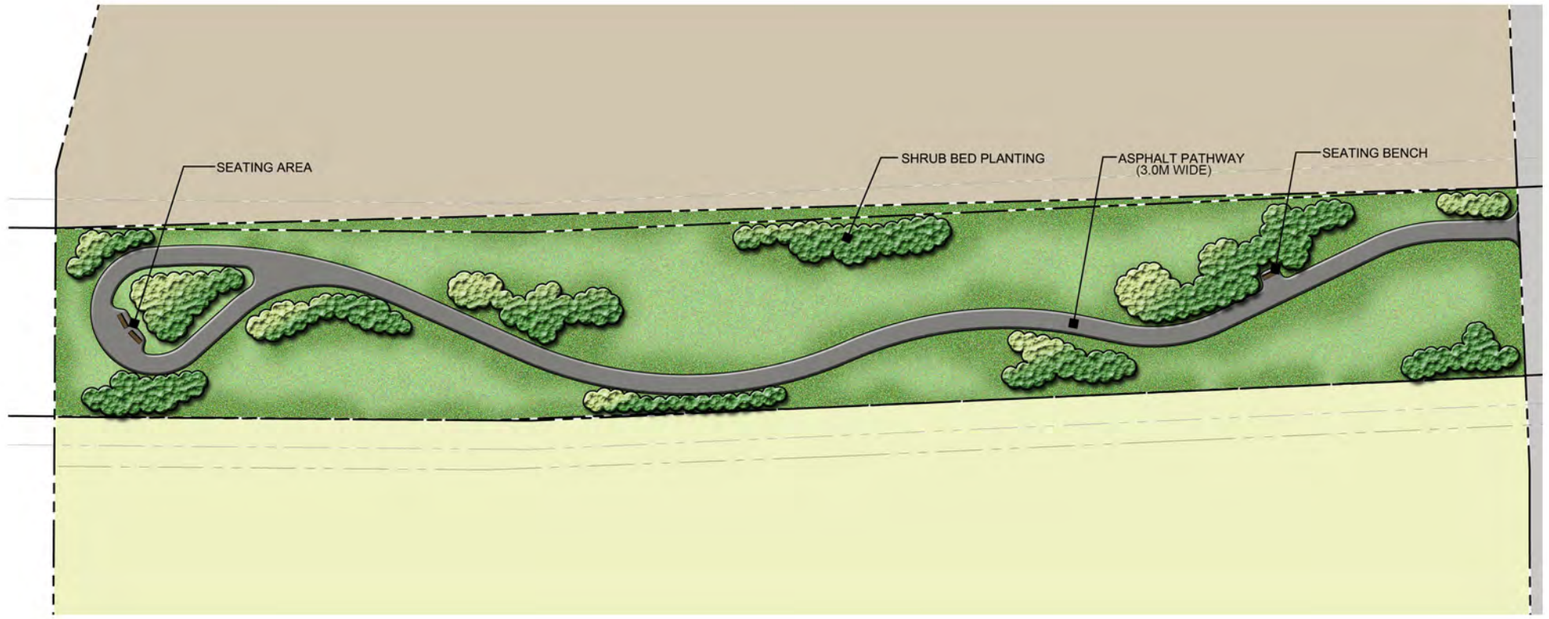

RAIL FENCE
EVERGREEN TREES
SHRUB BED
ASPHALT PATHWAY
OVERHEAD CANOPY TREES
GRASS SWALE
SEATING AREA
RAIL FENCE

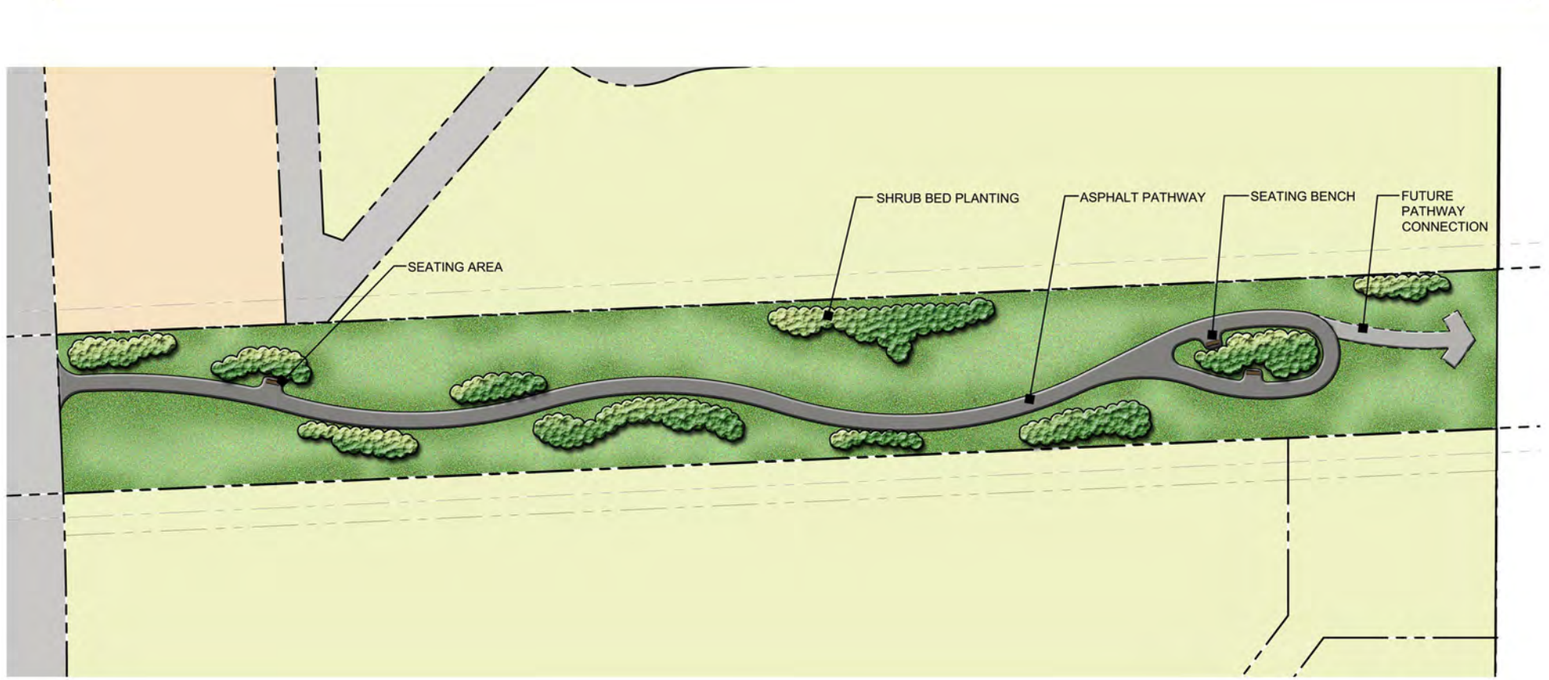

EVERGREEN TREES
CONCRETE SIDEWALK
INFORMAL OPEN PLAY AREA
FORMALIZED CANOPY TREE PLANTING
FORMALIZED SHRUB PLANTING
ASPHALT PATHWAY
THEME ELEMENT
ORNAMENTAL FLOWERING TREES
DECORATIVE CONCRETE SEATING PLAZA c/w BENCHES
THEME ELEMENT FEATURE


CROSSRAIL FENCE
RANCH STYLE OVERHEAD GATE
3.0M ASPHALT PATH
ASPEN GROVES, TYP
EVERGREEN'S
ENVIRONMENTAL RESERVE
SEATING
RESIDENTIAL LOTS
PICNIC/SEATING AREA
POSSIBLE GRANULAR TRAIL CONNECTION. EXACT LOCATION TO BE DETERMINED IN THE FIELD DEPENDING ON GRADES. SEE NEIGHBOURHOOD PLAN DOCUMENT FOR CONCEPTUAL ALLIGNMENT.
ENVIRONMENTAL RESERVE
OVERHEAD PERGOLA/SHELTER
INFORMAL SEATING AREA (PAVING STONE, CONCRETE)


ASPHALT PATHWAY
OVERHEAD CANOPY TREES
SHRUB PLANTING
EVERGREEN TREES
RAIL FENCE
THEME ELEMENT
DECORATIVE CONCRETE ENTRY


RESIDENTIAL LOTS
PEDESTRIAN BOARDWALK / VIEWING DECK
EVERGREENS, TYP.
ASPEN GROUPINGS
DECORATIVE CONCRETE SEATI AREA c/w BENCHE
PEDESTRIAN VIEWING DECK
PROPOSED FOREBAY
UPLAND VEGETATION / PLANTING
BOULDER RETAINING WALLS
SHRUB/AQUATIC PLANTINGS
LOW MARSH AREA
EXISTING WETLAND
LOW MARSH AREA
AQUATIC PLANTINGS
BIO-SWALE / CHANNEL FLOW FEEDING EXISTING WETLAND
LOW MARSH AREA
WILLOW / BALSAM PLANTING, TYP.
BIO-SWALE PLANTINGS (WILLOW SHRUBS)
PEDESTRIAN BOARDWALK / VIEWING DECK
UPLAND VEGETATION / PLANTING
UPLAND VEGETATION / PLANTING
ASPEN GROUPINGS
BOULDER RETAINING WALL
RESIDENTIAL LOTS
ASPEN GROUPINGS
ASPEN GROUPINGS


SEATING AREA
SHRUB BED PLANTING
ASPHALT PATHWAY
(3.0M WIDE)
SEATING BENCH


SHRUB BED PLANTING
ASPHALT PATHWAY
SEATING BENCH
FUTURE
PATHWAY
CONNECTION
SEATING AREA


OPEN GRASS AREA
2 - TREMBLING ASPEN
3 - WHITE SPRUCE
URBAN 'B' SEED ON
300mm TOPSOIL
2.5 HGT
2.0 HGT
2.0 HGT
3- TREMBLING ASPEN
SUNSET
SQUARE
water
URBAN 'B' SEED ON
300mm TOPSOIL
5- SCHUBERT CHOKECHERRY
SUNSET
COMMON
water


SUN VALLEY WAY
SUN VALLEY ROAD
NATURALIZED PLANTING BEDS
RESIDENTIAL LOTS
3m ASPHALT REGIONAL PATHWAY
A
A
NATIVE GRASS
NATURAL SHRUB PLANTING
RESIDENTIAL LOTS
SUNSET VIEW

NATURAL LANDSCAPING
SWALE
3.0m REGIONAL PATHWAY
NATIVE GRASS
SWALE

Section A-A

Multi-Family Housing Samples

JULY 2013


Rocky
View
County
A
B
C
Existing ROW (to be closed)
HIGHWAY 22
SUNSET ROAD
SUNSET BOULEVARD
Environmental Reserve

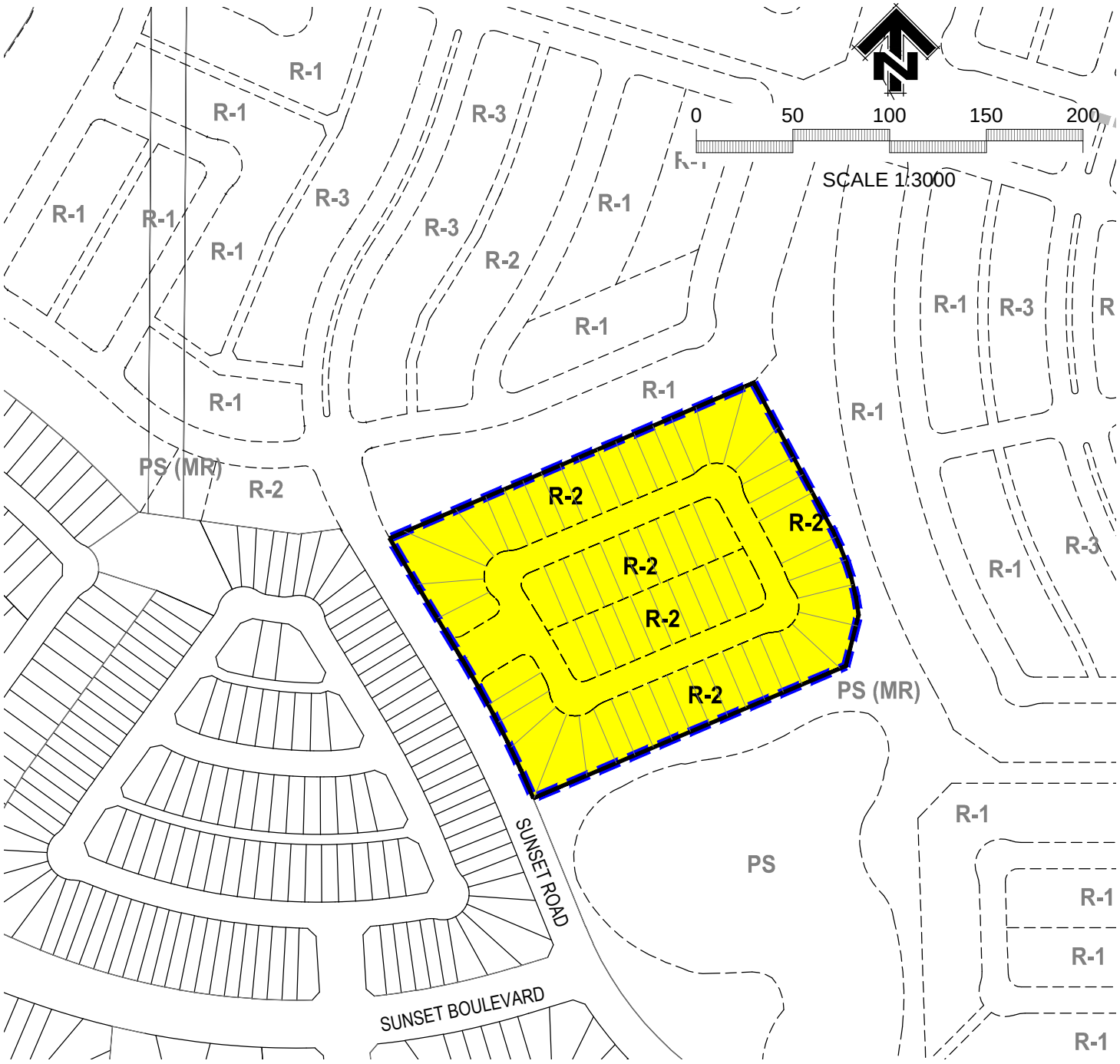
Multi-Family Sample Concept - Site A

Multi-Family Sample Concept - Site B

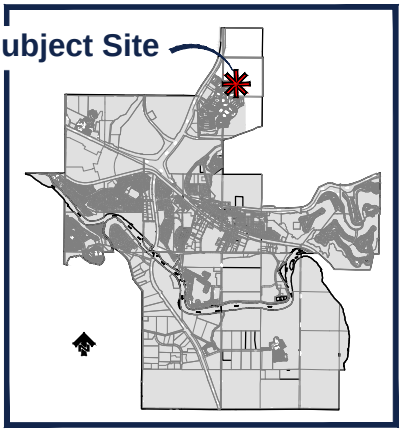
Multi-Family Sample Concept - Site C

Approved Phase 10 Land Use Plan

JULY 2013



Subject Site



Location map within Town of Cochrane

Legend:

- Phase 10 Land Use Boundary
- R-2 Single and Two Dwelling District

Land Use Statistics				
Area	ha	acs	From	To
	3.74	9.24	UR	R-2

Cochrane, AB
Sunset Ridge

Land Use Plan Phase 10

Legal Descriptions:
Portions of: SW 14-26-4-W5M

Prepared for:
SUNSET PROPERTIES INC.

Prepared by:
PASQUINI & ASSOCIATES CONSULTING LTD
b&a PLANNING GROUP

Jan 25, 2013 – 11:37am W:\1293 Sunset ...e Stage 3\dwg\1293 Phase 10.dwg Layout: Phase 10

Approved Phase 12 Land Use Plan

JULY 2013

Cochrane, AB

Sunset Ridge

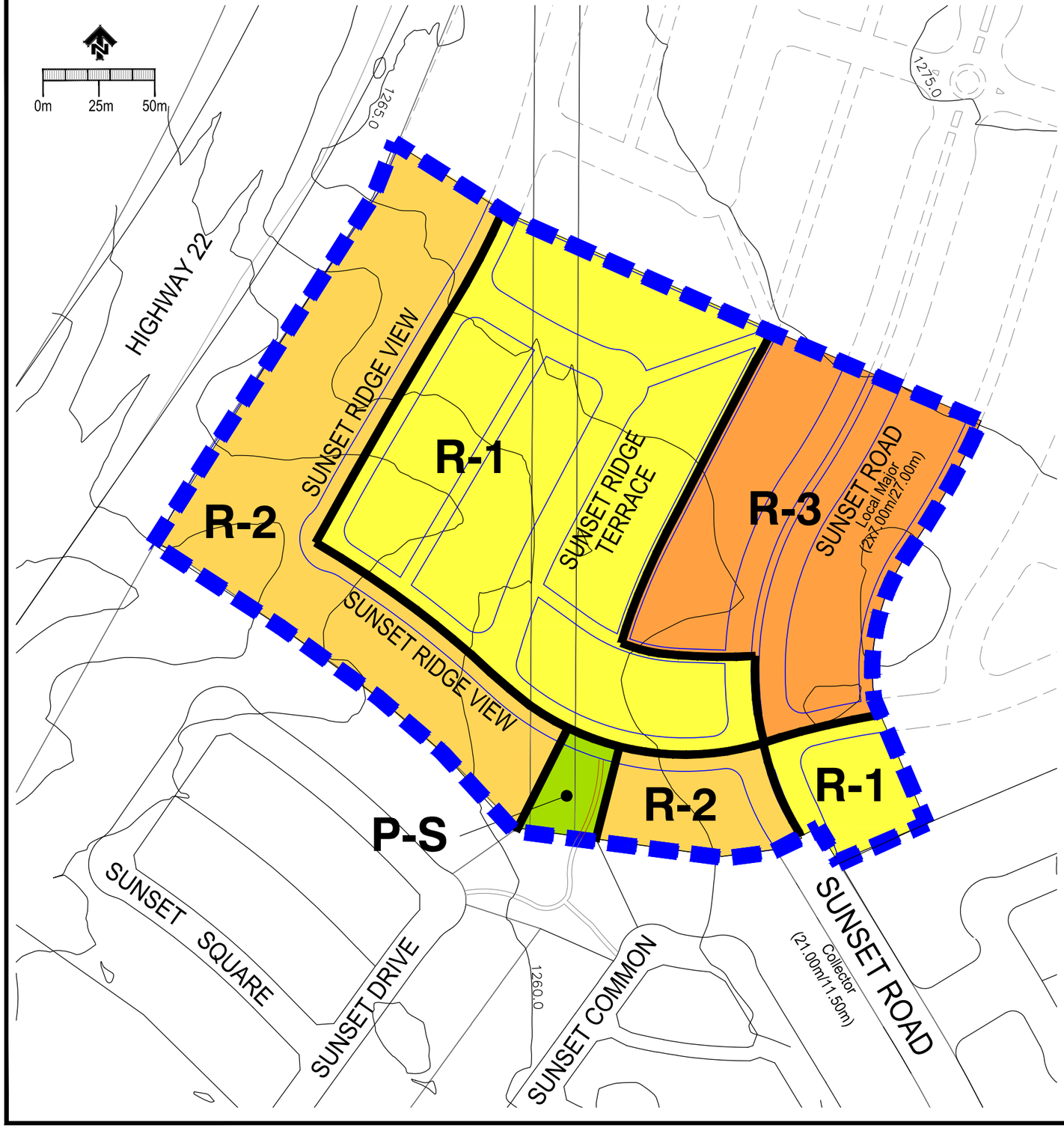
LAND USE PLAN

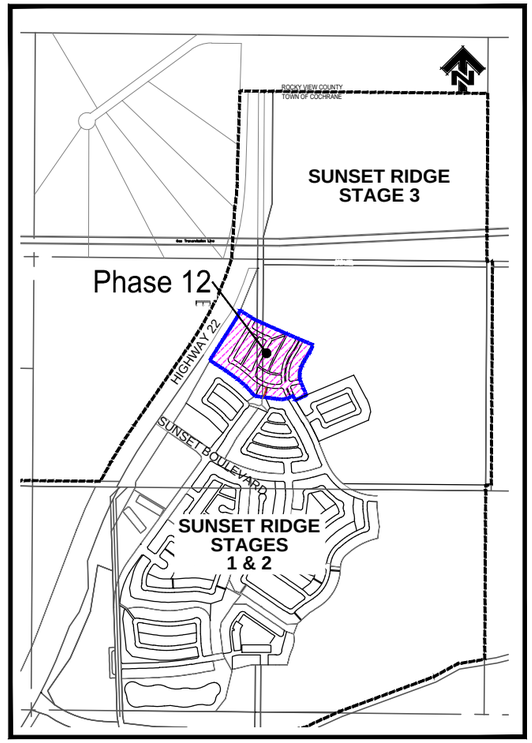
Phase 12

Legal Descriptions:
Portions of: SW 14-26-4-W5 &
Portions of Plans: 0511019 Blk 1 Lot 1 & 0610825 Blocks C

Prepared for:
SUNSET PROPERTIES INC.

Prepared by:
brown & associates PLANNING GROUP
ISL Engineering and Land Services | L.A. West | PASQUINI & ASSOCIATES CONSULTING LTD.





Subject Site

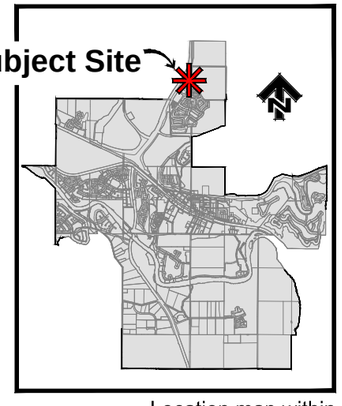
LAND USE STATISTIC				
General Land Uses			HA	ACS
Residential Single Detached Dwelling District (R-1)	UR	R-1	3.12	7.71
Residential Single and Two-Dwelling (R-2)	UR	R-2	2.18	5.39
Multi-Unit Dwelling District (R-3)	UR	R-3	1.59	3.93
Public Service	UR	PS	0.14	0.34
TOTAL			7.03	17.37

Legend:

- PHASE 12 BOUNDARY
- SINGLE DETACHED DWELLING LANED AND LANELESS (R-1)
- SINGLE AND TWO DWELLING DISTRICT LANELESS (R-2)
- MULTI-UNIT DWELLING DISTRICT (R-3)
- PUBLIC SERVICE (PS) PARK
- LOCAL PATHWAY 2.0m

Notes:

ALL ROADS ARE RESIDENTIAL STANDARD (9m/15m)
UNLESS OTHERWISE NOTED
ALL LANES ARE 6.0m WIDE



Location map within
Town of Cochrane

Scale 1:2,000

Prepared for:
SUNSET PROPERTIES INC.
Prepared by:
BROWN AND ASSOCIATES PLANNING GROUP

REVISIONS	DATE
CIRC. COMMENTS	13th OCTOBER 2011
PLAN APPROVED	9th JANUARY 2012

Proposed Phase 13 Land Use Plan

JULY 2013

Cochrane, AB

Sunset Ridge

LAND USE PLAN

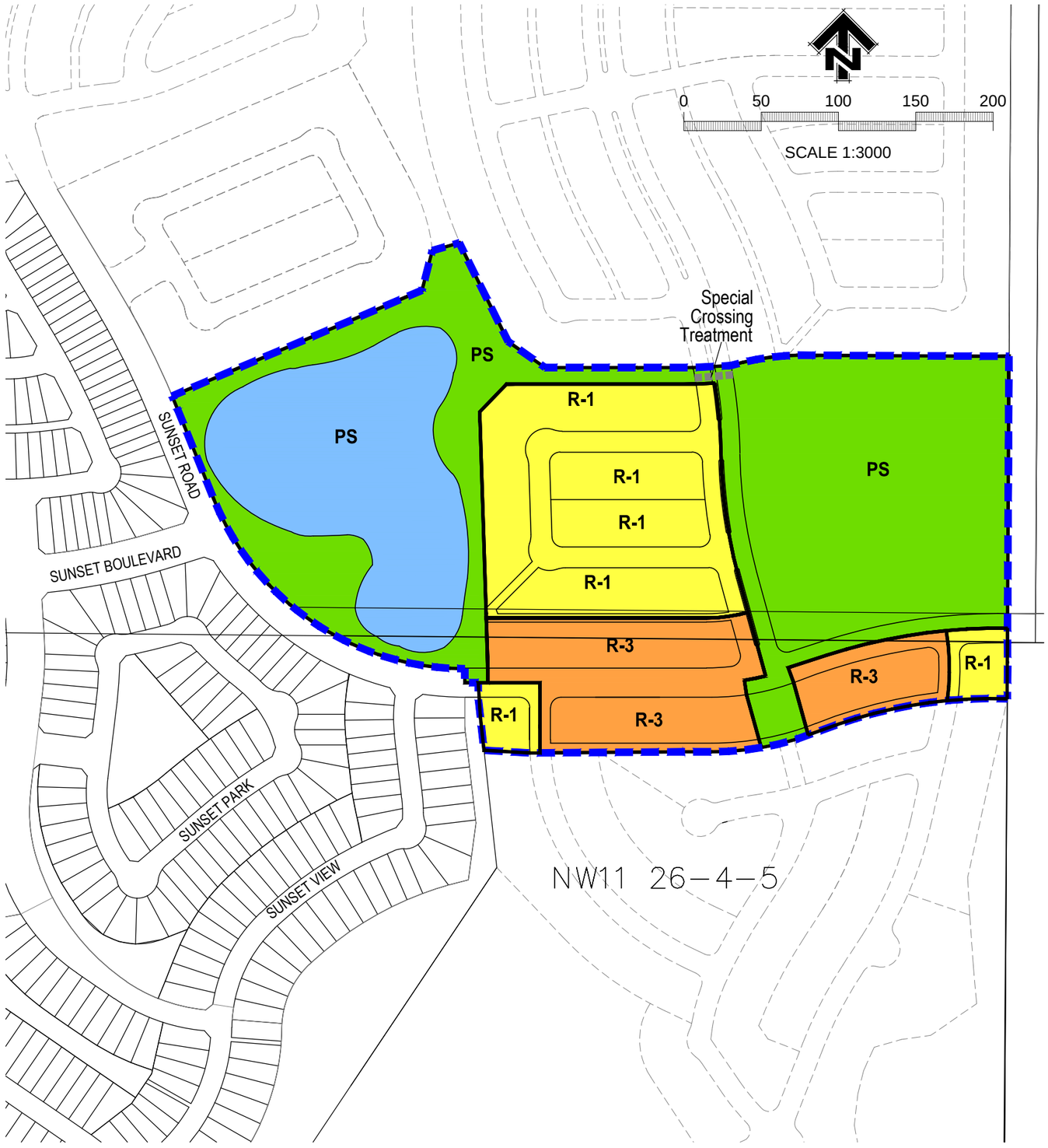
Phase 13

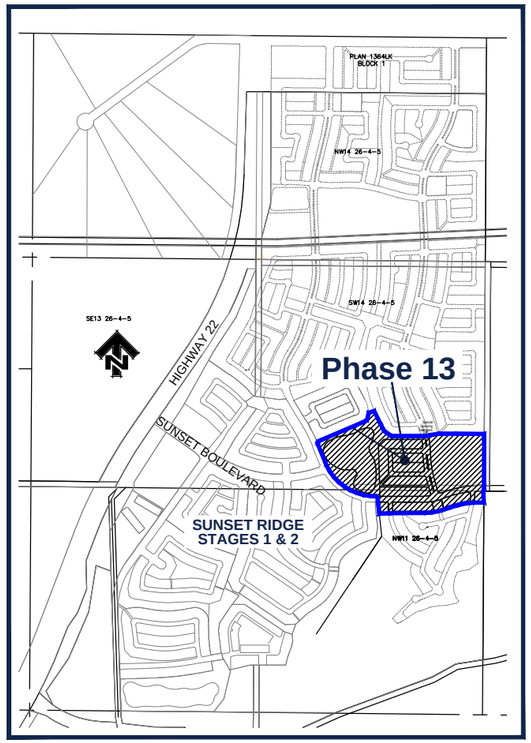
Legal Descriptions:

Portions of: NW 11-26-4-W5M, SW 14-26-4-W5M & OT26-4-W5M

Prepared for:
SUNSET PROPERTIES INC.

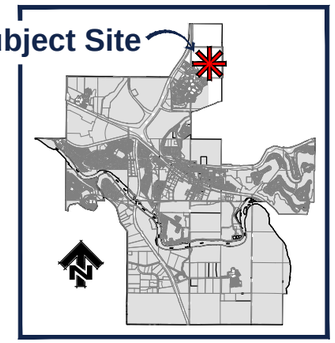
Prepared by:
ISL Engineering and Land Services
b&a PLANNING GROUP
L.A. West Landscape Architectural Design Consultants
PASQUINI & ASSOCIATES CONSULTING LTD.





Subject Site

Subject Site



Location map within Town of Cochrane

LAND USE STATISTIC					
General Land Uses		FROM	TO	HA	ACS
Residential Single Detached Dwelling District (R-1)		UR	R-1	3.36	8.30
Multi-Unit Dwelling District (R-3)		UR	R-3	2.22	5.49
Public Service		UR	PS	9.06	22.39
TOTAL				14.64	36.18

Legend:

- PHASE 13 BOUNDARY
- SINGLE DETACHED DWELLING (R-1)
- MULTI-UNIT DWELLING DISTRICT (R-3)
- PUBLIC SERVICE - PARK (PS)
- PUBLIC SERVICE - STORMWATER POND (PS)

Notes:

ALL ROADS ARE RESIDENTIAL STANDARD (9m/15m)
UNLESS OTHERWISE NOTED
ALL LANES ARE 6.0m WIDE

Prepared for:
SUNSET PROPERTIES INC.
Prepared by:
BROWN AND ASSOCIATES PLANNING GROUP

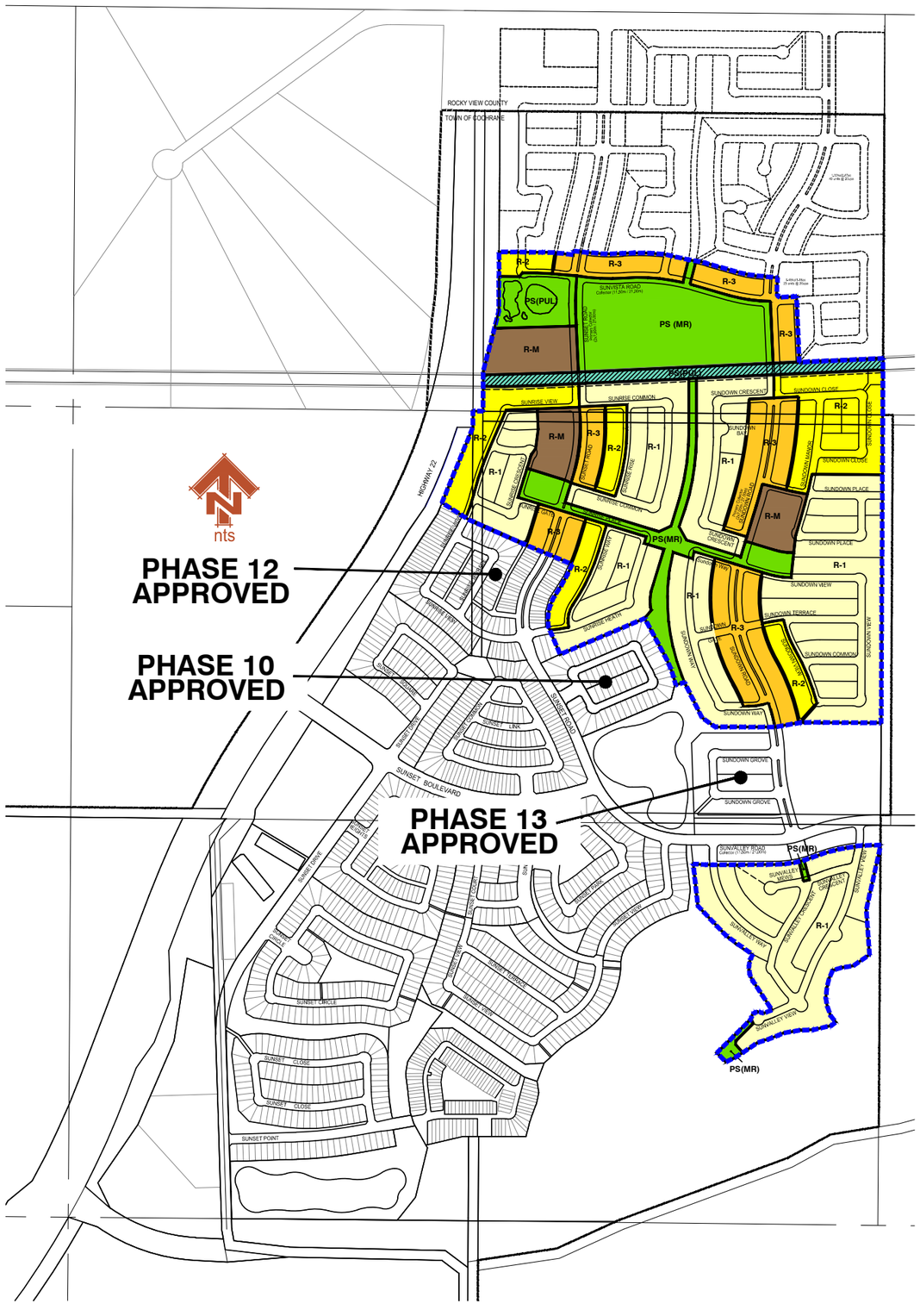
LOC ####

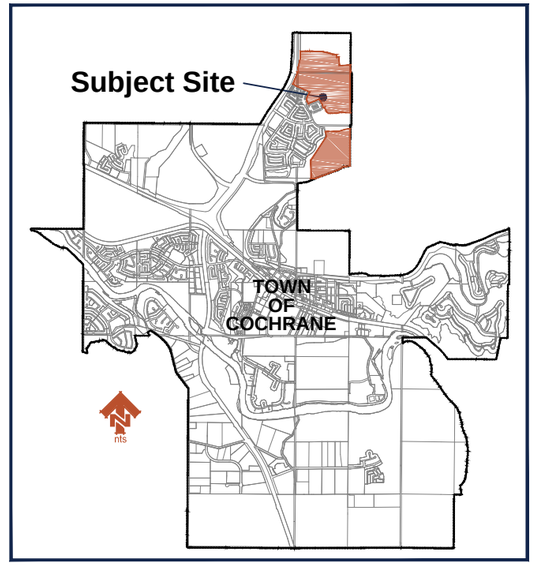
REVISIONS	DATE

Jan 18, 2013 - 4:05pm W:\1293 Sunset Ridge Stage 3\dwg\1293 Phase 13.dwg Layout: Phase 13

Proposed Land Use Plan

JULY 2013





Location map

SUNSET RIDGE COCHRANE

Sunset Ridge Stage 2
Land Use Plan

Legal Descriptions:

Portions of: NW & SW 14-26-4-W5 , NW 11 26-4-W5,
Plan 0511019 Blk 1 Lot 1, Plans: 0610825 Blocks C & D
& Other Title 26-4-W5M

Prepared for:
SUNSET PROPERTIES INC.

Prepared by:

PASQUINI & ASSOCIATES CONSULTING LTD.
b&a PLANNING GROUP
ISL Engineering and Land Services
L.A. West

LAND USE STATISTICS			Hectares	Acres
General Land Uses	**FROM**	**TO**	**(+/-)**	**(+/-)**
Residential Single Detached Dwelling District (R-1)	UR	R-1	34.41	85.03
Residential Single and Two-Dwelling (R-2)	UR	R-2	9.09	22.46
Multi - Unit Dwelling District (R-3)	UR	R-3	9.93	24.54
High Density Multi Dwelling (R-M)	UR	R-M	4.01	9.91
Public Service - Municipal Rseserve (PS-MR)	UR	PS	9.97	24.64
Public Service - Environmental Reserve (PS-ER)	UR	PS	23.14	57.18
Public Utility Lot (PS-PUL) (Stormpond and Utility Righ of Way)	UR	PUL	3.51	8.67
TOTAL			94.06	232.42

- R-1 Single Detached Dwelling
- R-2 Single and Two Dwelling District
- R-3 Multi - Unit Dwelling District
- R-M High Density Multi - Unit Dwelling District
- PS (MR) Public Service - Municipal Reserve
- PS (PUL) Public Service - Stormwater and Utility right of way

Legend:

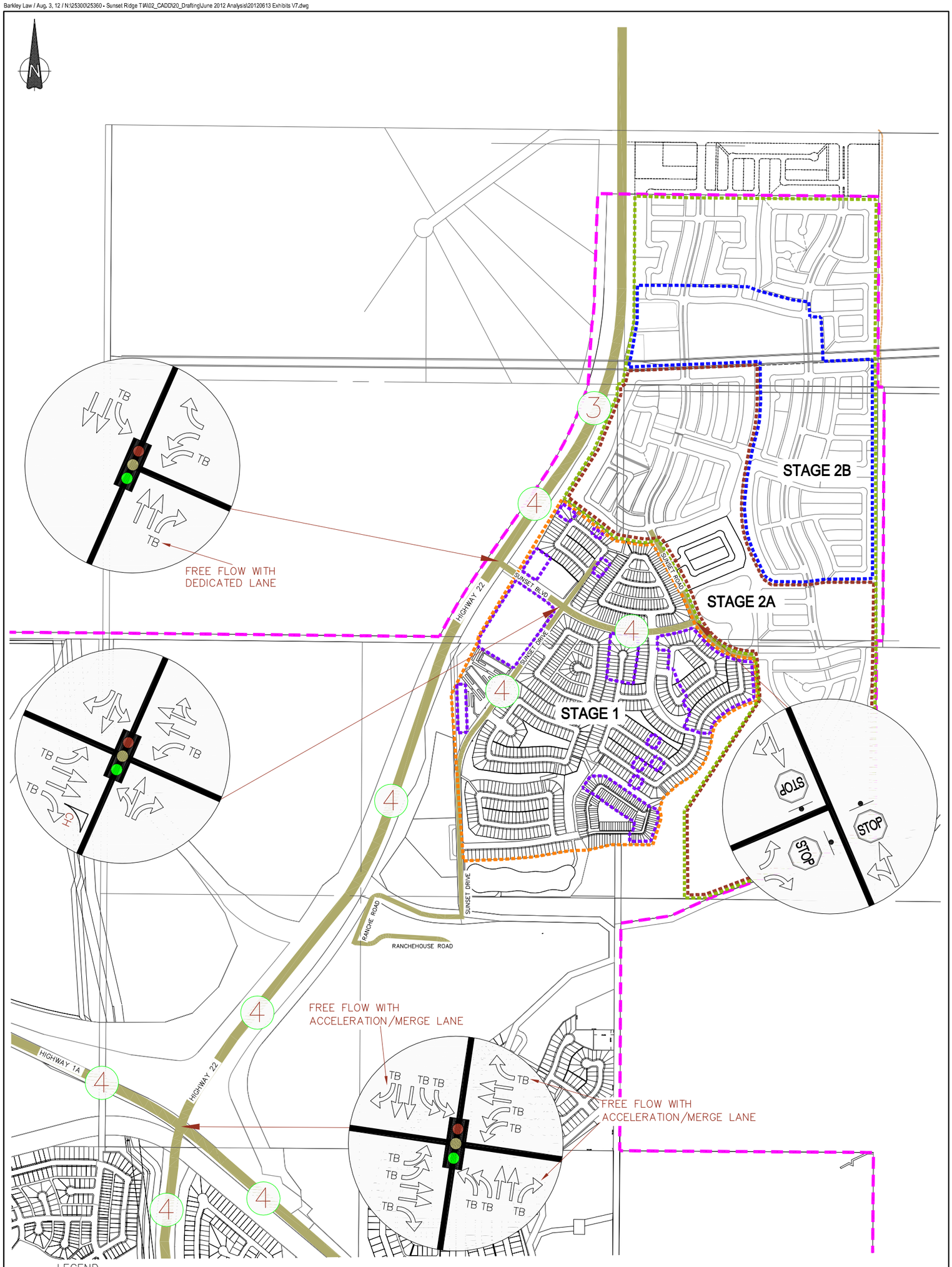
- Cochrane City Limits
- Neighbourhood Plan Boundary

Notes:

All roads are residential standard (9m/15m)
unless otherwise noted. All lanes are 6.0m wide

10 Year Recommended Lane Configurations
and Traffic Controls

JULY 2013



ISL Engineering and Land Services

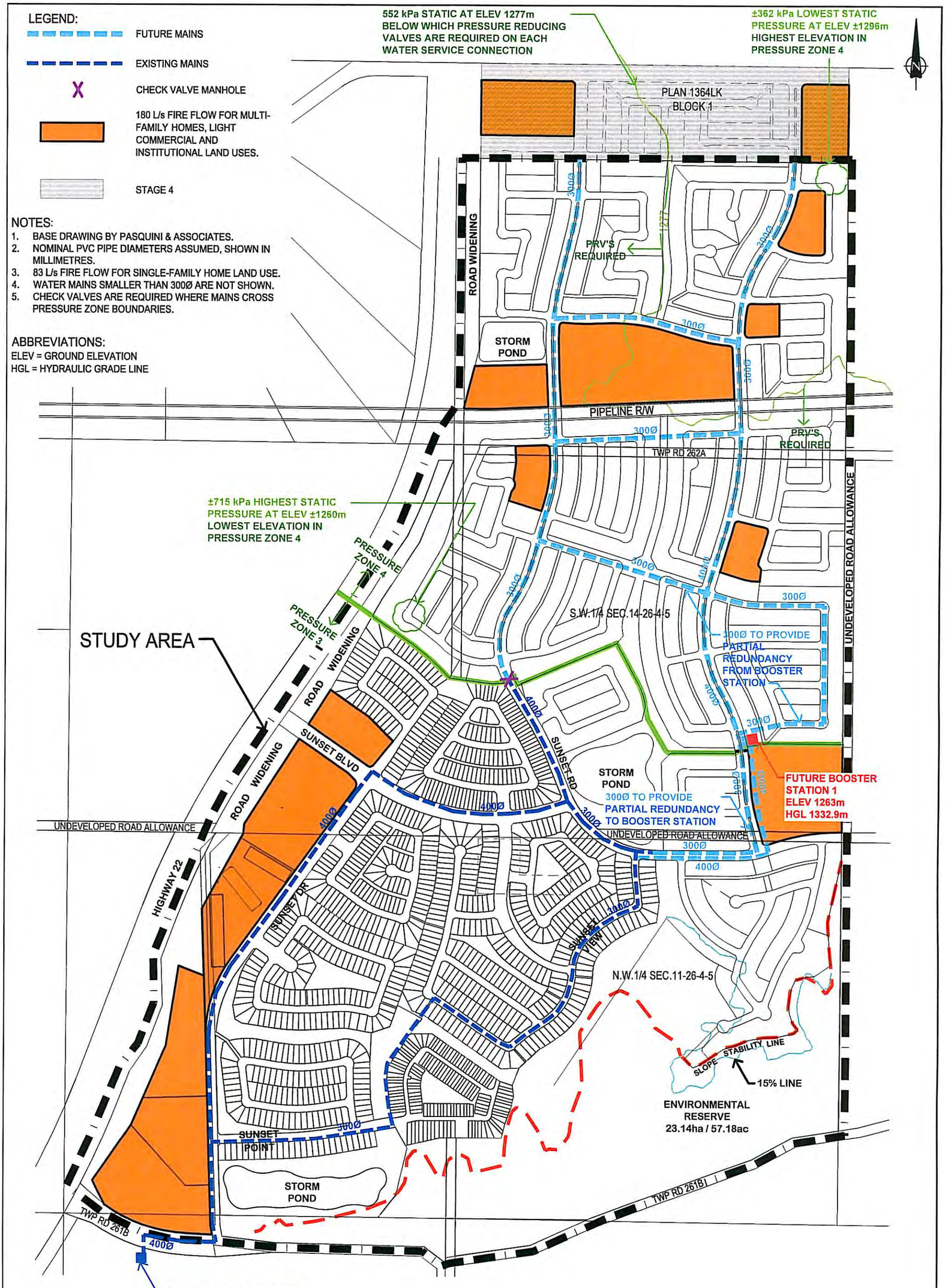
SUNSET RIDGE COCHRANE

SUNSET PROPERTIES INC.

SUNSET RIDGE NEIGHBOURHOOD PLAN
10-YEAR RECOMMENDED LANE CONFIGURATIONS AND TRAFFIC CONTROLS

Water Network

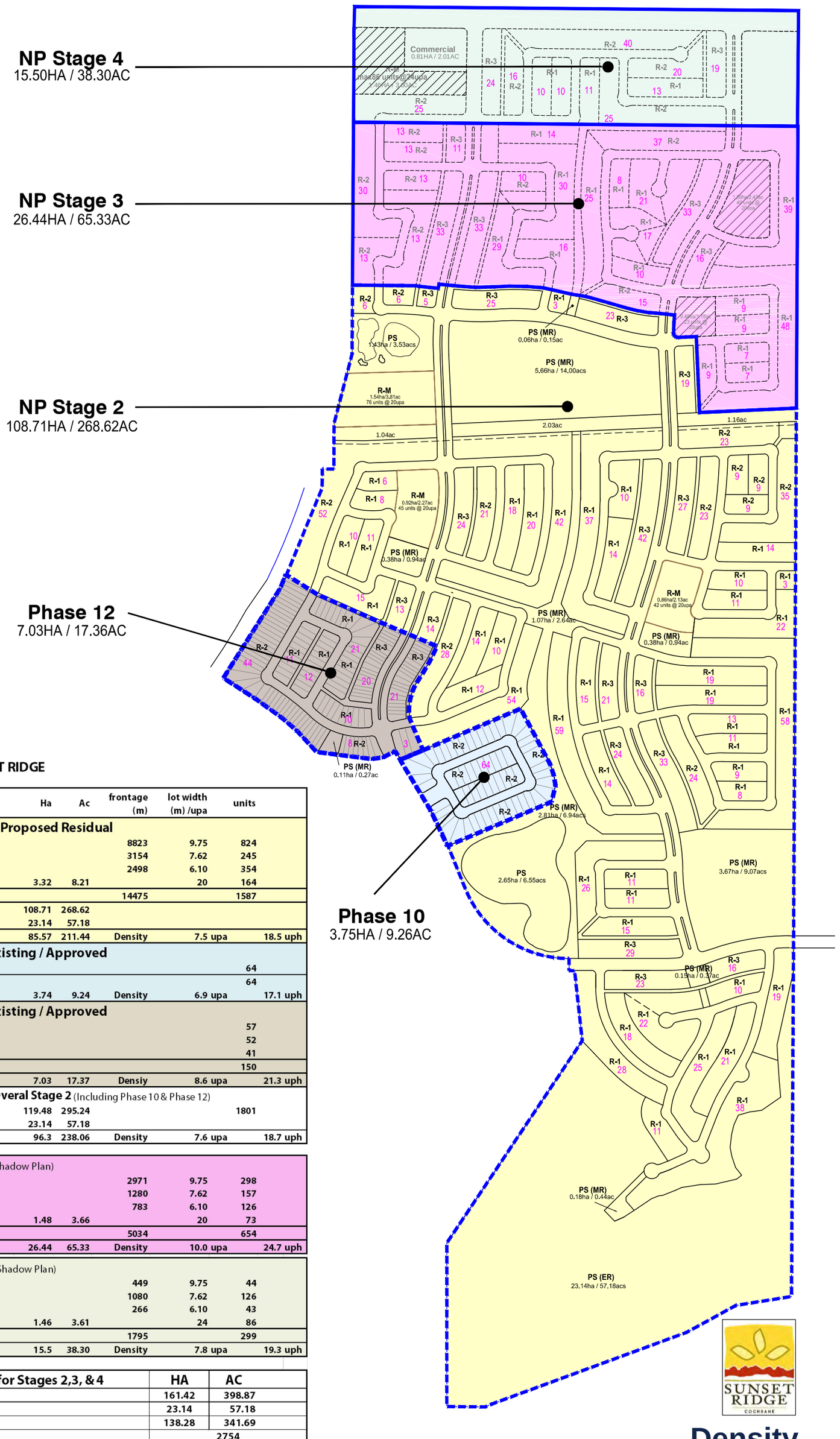
JULY 2013



MPE Engineering Ltd.		PASQUINI & ASSOCIATES	
		SUNSET RIDGE WATER NETWORK SCENARIO 1 - ONE BOOSTER STATION EXCLUDING STAGE 4	
SCALE: 1:7500	DATE: NOVEMBER 2012	JOB: 2717-002-00	FIGURE: 1

Overall Stages 2, 3 and 4 Projected Units and Density

JULY 2013



1293 SUNSET RIDGE

22nd Oct 2012

Category	Ha	Ac	frontage (m)	lot width (m) /upa	units	
NP Stage 2 - Proposed Residual						
R-1			8823	9.75	824	
R-2			3154	7.62	245	
R-3			2498	6.10	354	
R-M	3.32	8.21		20	164	
TOTAL			14475		1587	
TOTAL AREA	108.71	268.62				
ER	23.14	57.18				
GDA	85.57	211.44	Density	7.5 upa		18.5 uph
Phase 10 - Existing / Approved						
R-2					64	
TOTAL					64	
TOTAL AREA	3.74	9.24	Density	6.9 upa		17.1 uph
Phase 12 - Existing / Approved						
R-1					57	
R-2					52	
R-3					41	
TOTAL					150	
TOTAL AREA	7.03	17.37	Densiy	8.6 upa		21.3 uph
NP Stage 2 - Overal Stage 2 (Including Phase 10 & Phase 12)						
TOTAL	119.48	295.24			1801	
ER	23.14	57.18				
GDA	96.3	238.06	Density	7.6 upa		18.7 uph

NP Stage 3 (Shadow Plan)						
R-1			2971	9.75	298	
R-2			1280	7.62	157	
R-3			783	6.10	126	
R-M @20upa	1.48	3.66		20	73	
TOTAL			5034		654	
TOTAL AREA	26.44	65.33	Density	10.0 upa		24.7 uph

NP Stage 4 (Shadow Plan)						
R-1			449	9.75	44	
R-2			1080	7.62	126	
R-3			266	6.10	43	
R-M @24upa	1.46	3.61		24	86	
TOTAL			1795		299	
TOTAL AREA	15.5	38.30	Density	7.8 upa		19.3 uph

NP - Overall for Stages 2,3, & 4	HA	AC	
TOTAL AREA	161.42	398.87	
Less ER	23.14	57.18	
GDA	138.28	341.69	
TOTAL UNITS	2754		
OVERALL DENSITY (Stages 2, 3, & 4)	8.06 upa		19.9 uph

SUNSET RIDGE
COCHRANE

Density

Wetland Overlay

Wetland Overlay

Legend:

- Sunset Ridge Stage 2 Neighbourhood Plan Boundary
- Class I Wetland - Area 0.053 ha
- Class II Wetland - Area 0.201 ha
- Class III Wetland - Area 2.223 ha

Stormpond Enhancement Details

JULY 2013

PICNIC AREA
OVERHEAD CANOPY TREES
EVERGREEN TREES
SEATING AREA
ASPHALT PATHWAY
FOREBAY
VIEWING NODE
AQUATIC EDGE TREATMENT
FOREBAY
VIEWING NODE
FOUNTAIN
LOWLAND PLANTING
VIEWING NODE
ENTRY PLAZA WITH THEME ELEMENT
NATURAL GRASSLAND
OPEN GRASS AREA
SEATING AREA
SANDSTONE RETAINING WALL
NATURAL PLAYGROUND AREA
SEATING AREA
THEME ELEMENT
4.0M MAIN ACCESS/PATHWAY
PICNIC AREA

Manicured Zone
Irrigated turf area with deciduous and coniferous tree groupings, shrubs to include variety's of Willow and Dogwood.

Emergent wetland zone
0.3 - 0.5m depth benches varying in width. Recommended species include: awned seed, water smartweed, tall manna grass, fowl bluegrass, slough grass.Topsoil sourced and placed from selected existing wetland.

Active fluctuation zone (PWL - HWL)
Riparian and wetland seed mixes combined with lowland or semi permanent plant material that will tolerate periods of inundation. Recommended species include: beaked willow, northern reed grass, balsam poplar, aspen, buckbrush, inland bluegrass, needle grass, june grass and northern wheat grass.Topsoil sourced and placed from selected existing wetland.

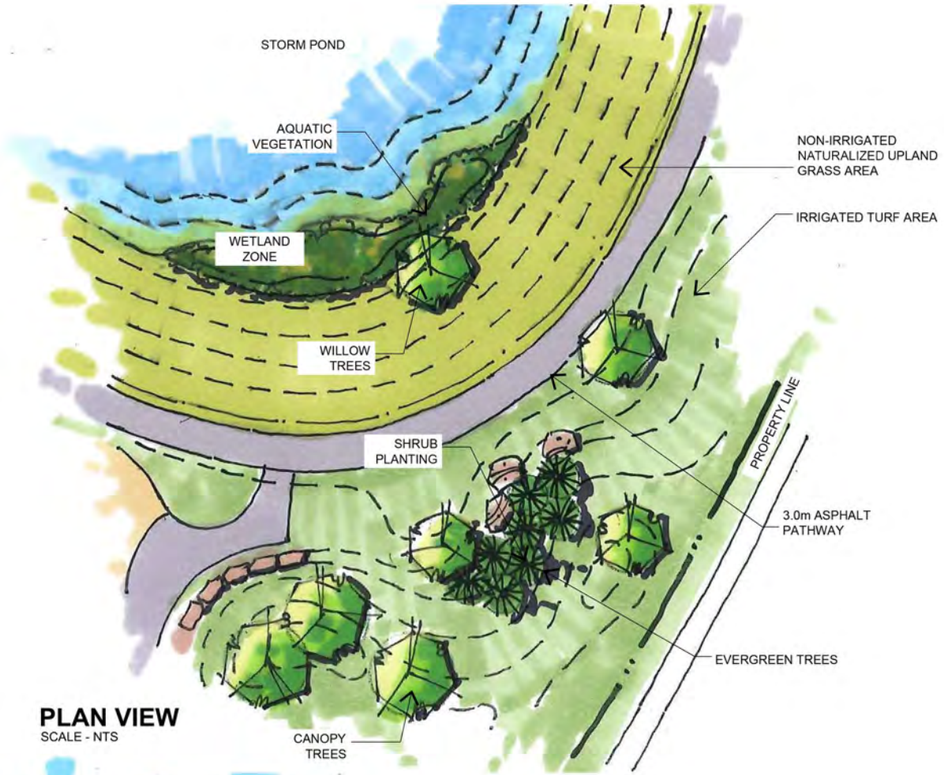

Pedestrian viewing nodes


Pond edge treatment

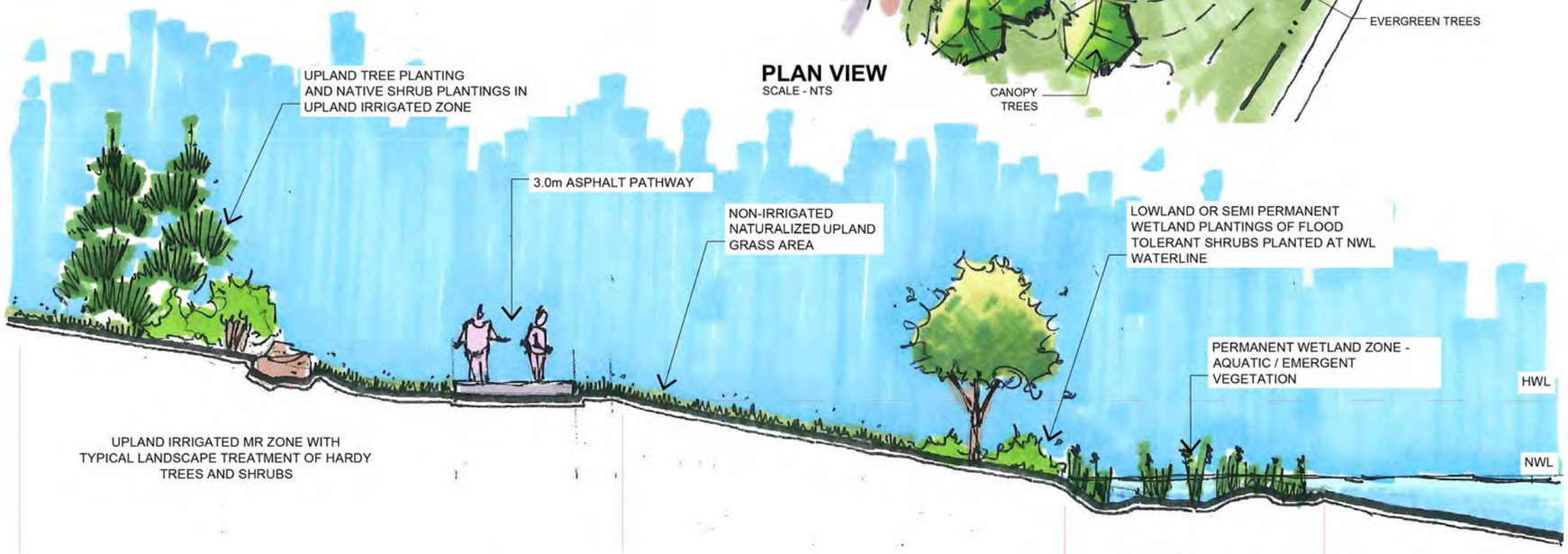

Pond aeration


Emergent wetland edge treatment

SUNSET RIDGE
COCHRANE

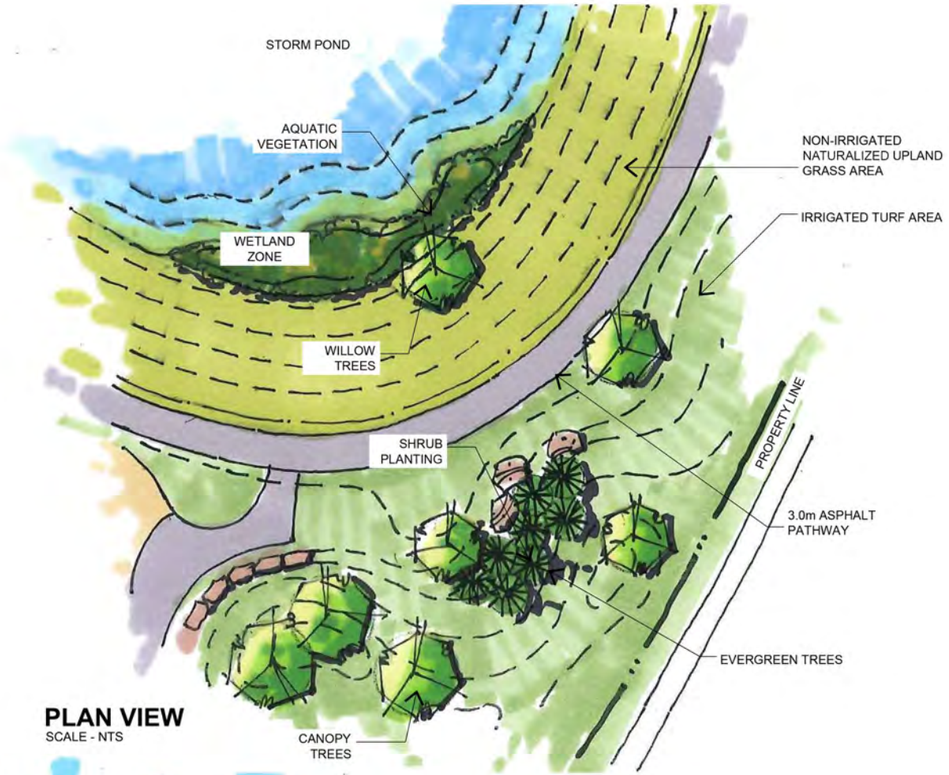


PLAN VIEW
SCALE - NTS

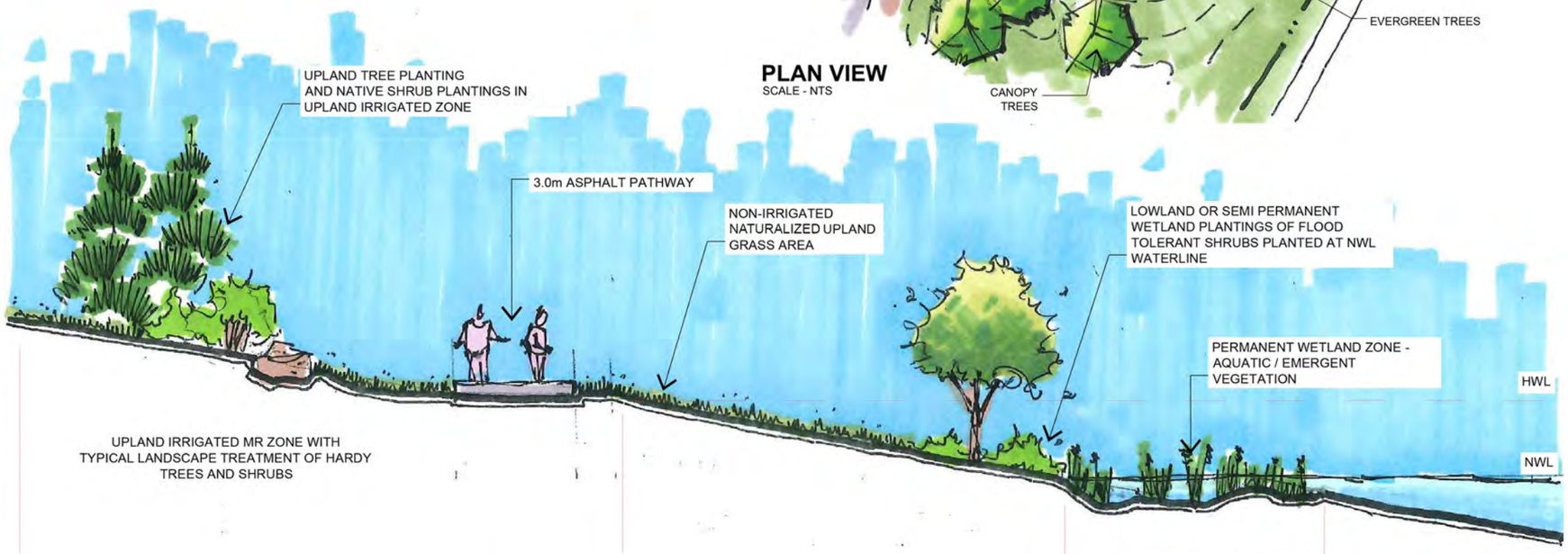


CROSS SECTION
SCALE - NTS

SUNSET RIDGE
COCHRANE



PLAN VIEW
SCALE - NTS



CROSS SECTION
SCALE - NTS

Proposed Wetland & Stormpond Monitoring Program

JULY 2013

PROPOSED SUNSET RIDGE WETLAND MONITORING PROGRAM

A monitoring program for the retained wetland will survey vegetation and wildlife over a three-five year period and will focus on the documentation of general habitat features, vegetation, and plant and animal biodiversity. Monitoring will not begin until construction of the forebay and channel, and planting has been completed and conditions have stabilized to the extent that vegetation has begun to grow. In the interim, general wetland conditions (water, wildlife, vegetation) will be documented to provide guidance for monitoring and management.

The monitoring program will help to assess success of the wetland retention and also identify wetland health and the need for prescriptive management.

Wetland Parameters and Targets:

Wetland Parameters	Goal	Targets
Vegetation	Retain Wetland #3 as a functional wetland.	**Maintenance of the existing wetland zones (shallow marsh and wet meadow/low prairie). Vegetation is healthy and does not show significant indicators of stress. Limited component of Noxious Weeds (less than 5% canopy coverage). No Prohibited Noxious weeds present.
Wildlife	Provide potential seasonal habitat for a range of wildlife including waterfowl, other water birds, songbirds and amphibians, and songbirds.	That there are observations of seasonal use of the wetland by wildlife
Landform	Design and landscape the outer buffer zone of the wetland to support long-term terrain stability	That the appropriate erosion and sediment controls are established and maintained pre, during and post construction. That erosion and sedimentation is controlled and constructed landform features are maintained.

**It is recognized that it is difficult to maintain a Class III wetland within a development and that there is the chance that there may be changes in vegetation (e.g. cattails invasion). Efforts will be made to keep a regime of flooding and drying out of the wetland that is within the natural regime. Publications and personal interviews of experts (e.g., Lisette Ross, Native Plant Solutions) with experience in wetland creation will be consulted to assist in development of an appropriate management plan. Information will also be collected on the dynamics of Wetland #3, between now and the construction of the backshore enhancement and forebay-stream channel at the site, which will be useful in management of the wetland. Since some wetlands become drier if retained in an urban development, a stormwater forebay will be created adjacent to the wetland and connected with a meandering channel that can feed clean water into the wetland as a prescribed measure to retain wetland qualities if the wetland becomes too dry. In times when water is not required, stormwater will be routed away from the wetland via a planned bypass.

Monitoring Details:

Vegetation	Location and numbers of plots will be dependent on habitat configuration and size and will be developed, along with standardized methodology, in consultation with the Town during the first year's survey. Baseline Surveys: • Baseline surveys on water levels and vegetation between 2013 and when enhancement occurs at the wetland (approx. 5-7 years) to add to BIA information for baseline data that can provide guidance for wetland management. Monitoring Surveys • Reconnaissance in spring and summer during wildlife surveys. • Plot surveys (5m X 5m) Several plots will be surveyed in representative wetland zones/habitats and the data averaged. Vegetation will be described for species composition, relative abundance/dominance, and cover for the various growth types (graminoids, forbs, shrubs and trees). Surveys will be conducted annually when most wetland vegetation has matured, the exact date dependent on the growth of vegetation in a particular year.	Data will be entered into a Microsoft Access database for analysis of vegetation features. A photographic record will be kept of vegetation plots and the various wetland zones over the course of the monitoring program. Survey protocol will be carefully documented and sites will be documented with GPS technology, and mapped. A list of all plant species observed will be recorded, with notations for non-native species and noxious weeds. An annual update report will be prepared.

Wildlife	Location and numbers of plots will be dependent on habitat configuration and size and will be developed, along with standardized methodology, in consultation with the Town during the first year's survey. Surveys will include: • Early May for calling amphibians. • Timed shoreline visual encounter surveys for amphibians and reptiles in late spring/early summer. • Mid-late June for breeding birds. Point counts will be used from sites along the shore to sample breeding birds in representative habitats/vegetation zones. All singing, calling and non-vocal birds observed within a specified area of habitat from an established point will be counted over a specified time period. • July-August for waterfowl broods: counts from points along the shore. • September for transient birds—timed linear walking survey. • General reconnaissance surveys for mammals and mammal sign.	Data will be entered into a Microsoft Access database and analyzed for species richness and relative abundance. Survey protocol will be carefully documented and sites will be documented with GPS technology, and mapped. A list of all wildlife species observed will be recorded, with notations on nesting/breeding status. An annual update report will be prepared.

PROPOSED SUNSET RIDGE STORMWATER POND MONITORING PROGRAM

Introduction

The goal of the naturalization of the storm ponds is to create a wetland-riparian environment on the outer edges of the storm pond. Through the creation of a diversity of water depths/moisture regimes, planting native plant species that presently are found on the property, and the addition of salvaged of wetland soil and plant material from selected existing wetlands on the property, a band of shallow marsh-wet meadow vegetation will be promoted. On the outer edge of this zone of aquatic habitat and wetland vegetation there will be a band of riparian vegetation (willow and balsam poplar). Collectively, the wetland and riparian vegetation will provide a pleasant environment with wildlife habitat potential.

A monitoring program will follow the colonization of vegetation and wildlife over a one-three year period and will focus on the documentation of general habitat features, vegetation, and plant and animal biodiversity. Monitoring will not begin until construction and planting have been completed and conditions have stabilized to the extent that vegetation has begun to grow.

The monitoring program will help to assess the value of the naturalized habitats for wetland vegetation and wildlife. The initiation of monitoring will be determined by the progress of plant establishment. This will most likely be the first spring following the initial planting or the second spring following the initial planting after supplemental planting. To gauge the progress of plant and habitat establishment, visual inspections would be conducted at various times between early summer and fall. From the inspections, recommendations would be made as to areas requiring additional treatments.

Parameters and Targets:

Parameters	Goal	Targets
Vegetation	Create a naturalized marsh-wet meadow-riparian environment at the edge of the storm pond	That vegetation maintains canopy coverage within the range of natural wetlands, with native species comprising at least 30% canopy coverage. Vegetation is healthy and does not show significant indicators of stress Limited invasion of Noxious Weeds (less than 5% canopy coverage) No Prohibited Noxious weeds present
Wildlife	Provide potential seasonal habitat for wildlife.	That there is native wetland-riparian habitat that could be used by wildlife.
Landform	Design and landscape the storm pond to support long-term terrain stability	That the appropriate erosion and sediment controls are established and maintained pre, during and post construction. That erosion and sedimentation is controlled and constructed landform features are maintained.

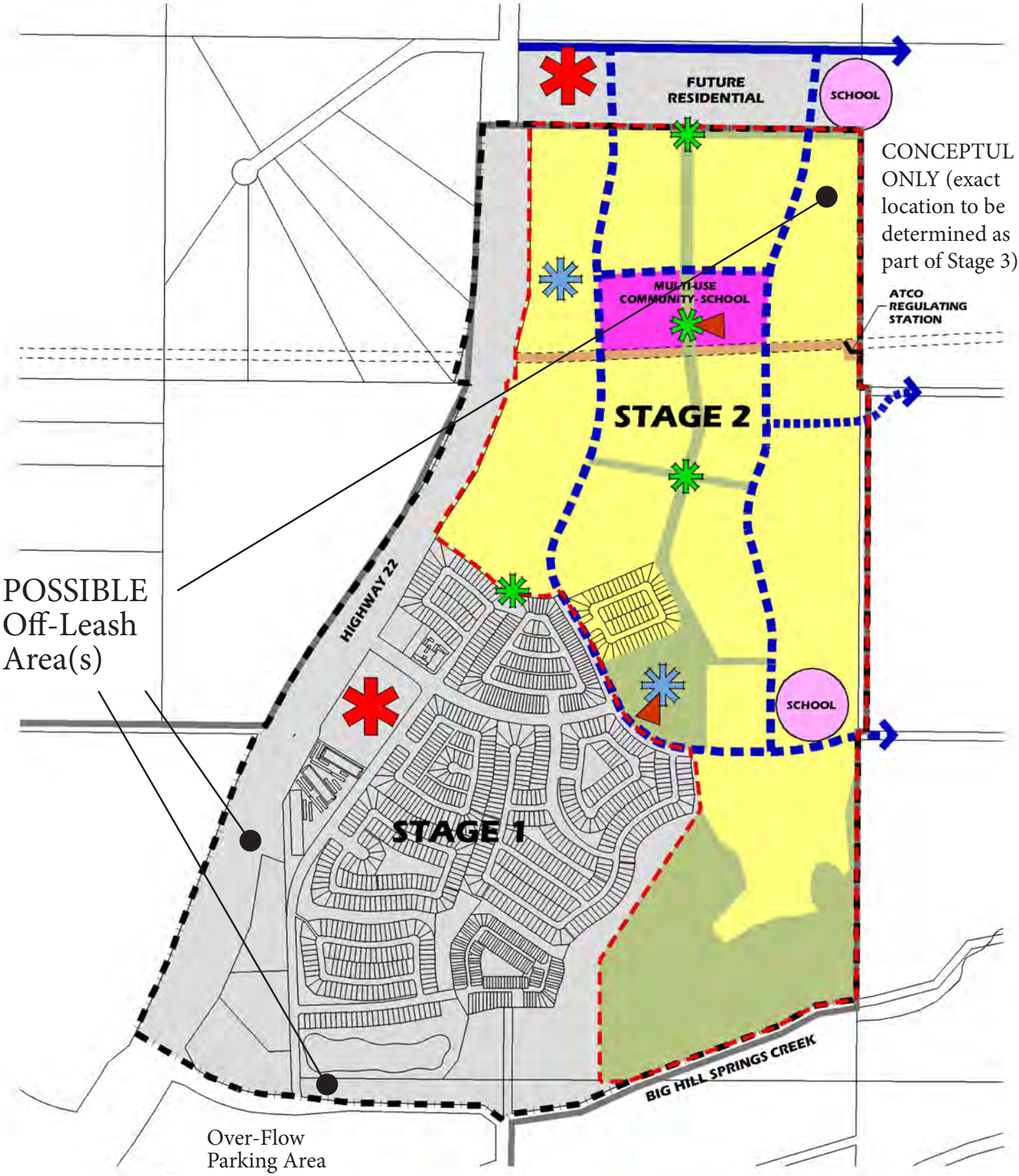
Monitoring Details:

Vegetation	Location and numbers of plots will be dependent on habitat configuration and size and will be developed, along with standardized methodology, in consultation with the Town during the first year's survey. Surveys will include: • Baseline survey in summer 2013 in the various wetland zones to add to BIA vegetation information for a baseline that can provide a comparison with monitoring surveys in subsequent years. • Reconnaissance in spring and summer during wildlife surveys. • Plot surveys (5m X 5m) Several plots will be surveyed in representative wetland zones/habitats and averaged. Vegetation will be described for species composition, relative abundance/dominance, and cover for the various growth types (graminoids, forbs, shrubs and trees). Surveys will be conducted annually when most wetland vegetation has matured, the exact date dependent on the growth of vegetation in a particular year.	Data will be entered into a Microsoft Access database. A photographic record will be kept of vegetation plots and the various wetland zones over the course of the monitoring program. Survey protocol will be carefully documented and sites will be documented with GPS technology, and mapped. A list of all plant species observed will be recorded, with notations for non-native species and noxious weeds. An annual update report will be prepared.

Samples-Enhanced Pedestrian Crossings

JULY 2013

Possible Off-Leash Dog Areas



TOWN OF COCHRANE

Not to Scale

SUNSET RIDGE AREA STRUCTURE PLAN Date: March, 2012

FIGURE 6
LAND USE CONCEPT