



## The Uplands Area Structure Plan

City of Cold Lake, NE & SE 13-63-2-W4

July 2009

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Biophysical Assessment	
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Traditional Knowledge Assessment	



## **1 Background information**

### **1.1 Foreword**

Since 1986 the City of Cold Lake has experienced significant population growth which is attributed to a strong, and diversified economic base supported by industries such as heavy oil, national defence and tourism. With the strength of Alberta's economy, particularly in the north, Cold Lake's future growth potential looks promising. In response to the optimistic growth potential of the City, the Cold Lake-Samson Limited Partnership is proposing an Area Structure Plan that sets the framework to develop a community which will broaden the range of affordable and supportive housing choices, while respecting the natural environment and culturally significant areas on the site.

The intent of the landowners is to develop this property into a unique residential community comprised of approximately 900 residential lots, 480 multi-family units and a comprehensive development area for medical care, palliative care, assisted living and aging in place opportunities (referred to in this document as a "health care facility"). It is expected that the area will develop steadily over an extended period of time, with new stages being introduced in response to market demand and the availability of other competing residential developments in the City of Cold Lake.

### **1.2 Purpose**

The purpose of preparing an Area Structure Plan is to illustrate how the proposed development will integrate with existing and future land use in the area, and the document will be used to support future applications for land use bylaw amendments and subdivisions in the plan area. The plan also provides an overview of the land use patterns, transportation and servicing concepts that will be implemented, and demonstrates how the pedestrian and open space features will incorporate and enhance many of the natural features that currently exist on the site.

### **1.3 Plan Area and Location**

The plan area is at the north eastern edge of the City of Cold Lake, and includes the eastern part of NE13-63-2-W4 and SE13-63-2-W4, approximately 37.56 ha and 64.31 ha, respectively.

The plan area is adjacent to the eastern boundary of the City of Cold Lake where it abuts the Municipal District of Bonnyville, and there is an existing subdivision to the west. Undeveloped lands within the Municipal District of Bonnyville are to the east and south of the plan area. Immediately north of the plan area is the Cold Lake Indian Reserve # 149A.

The plan location is shown in Figure 1.

## **1.4 Ownership**

This Area Structure Plan has been prepared on behalf of CLFN Economic Development Corporation and Samson Management Ltd. (the partners in the Cold Lake – Samson Limited Partnership), and the registered owners of the plan area.

## **2 Factors Influencing Development**

### **2.1 Policy Context**

#### **2.1.1 Statutory Plans**

The City of Cold Lake Municipal Development Plan (Bylaw 291-LU-07) as adopted by City Council on August 14, 2007 identifies the plan area as future residential.

The City of Cold Lake, in partnership with the Municipal District of Bonnyville, are in the process of developing an Intermunicipal Development Plan to address current and future land use concepts for lands that will be required for the future growth of the City of Cold Lake. The Area Structure Plan is consistent with these growth concepts, and ensures that the development of these lands will be compatible with future adjacent land uses.

#### **2.1.2 Land Use Bylaw**

Most of the land is zoned as Urban Reserve and will eventually have to be rezoned for a variety of residential, public utility, recreational and health care uses.

The existing land use is shown in Figure 2.

## **3 Natural Features**

### **3.1 Site Description**

The plan area is comprised of approximately 101.87 hectares of undeveloped land, approximately two thirds of which is treed, with the remainder under cultivation. There is a low area at the eastern boundary of the site, and overall the topography is undulating, with a 42 meter elevation difference across the site. Surface drainage is generally towards the north to Cold Lake.

The topography is shown in Figure 3.

### **3.2 Adjacent Land Use**

Adjacent land uses include the following:

- Single family residential and park space to the west;

- Agriculture to the east, south and west;
- Forested areas to the east and south; and
- Undeveloped Cold Lake First Nation Reserve #149A to the north.

Within the residential development immediately to the west, there is the Cold Lake North Arena and sports field.

### **3.3 Phase I Environmental Site Assessment**

A Phase I Environmental Site Assessment was conducted by Hoggan Engineering & Testing Ltd (1980) to identify the potential of actual environmental contamination associated with the current or past activities on the site, and to determine whether or not additional investigation is required.

Based on the research conducted and the data reviewed, there are no outstanding or potential environmental contamination concerns associated with past or present use of the subject site or local area at this time. No further environmental investigation or remedial action is recommended.

A copy of the Phase I report has been submitted under separate cover to the City of Cold Lake

### **3.4 Biophysical Assessment**

EBA Engineering Consultants Ltd. (EBA) were retained by the landowners to conduct a biophysical assessment on the subject property in the fall of 2008.

The biophysical assessment, including a wetland survey, was conducted at the site on October 8 and 9, 2008. The focus of the investigation was on wetland and forested areas with the potential for wildlife habitat. The assessment also included current biophysical conditions such as wetland health and extent, wetland and forest vegetation, wildlife presence and habitat use, and local soils. Additional regional information about species of interest, soils, and surrounding land use was collected from desktop research.

From the site visit, nine wetlands were identified on the property. These wetlands were classified according to the Stewart and Kantrud's Classification of Natural Ponds and Lakes of the Glaciated Prairie Region (1971). Since the area is within the Aspen Parkland Region, the classification was also supplemented with the Canadian Wetland Classification System. Using this system, the wetlands were further classified as either isolated basin marshes, or basin swamps. None of the wetlands have been claimed as "bed and shore" by Alberta Sustainable Resource Development (May 2009).

The results of the biophysical and wetlands survey are shown in Figure 4, and the Biophysical Assessment has been submitted under separate cover to the City of Cold Lake.

### **3.5 Resource Extraction**

Information received from the Alberta Energy Resources Conservation Board indicated that there are no active or suspended sour or natural gas facilities, oil pipelines or resource extraction facilities in or in the vicinity of the plan area.

### **3.6 Geotechnical Assessment**

A total of sixteen boreholes were drilled by Hoggan Engineering & Testing (1980) Ltd. to a depth of 7.3 metres. Piezometric standpipes were also installed in the boreholes for groundwater level determination.

Detailed recommendations on Residential Housing Units, Underground Utilities, Surface Utilities, Groundwater Issues, and Concrete are in the Geotechnical Investigation report. In general, site conditions and ground water levels are good for residential construction and servicing except for isolated locations where wetlands exist.

A copy of the final report has been submitted under separate cover to the City of Cold Lake.

### **3.7 Historical Resources Impact Assessment**

Alberta Community Development has indicated that a Historical Resources Impact Assessment (HRIA) was conducted in 1980 and no further work is required.

A copy of their response has been submitted under separate cover to the City of Cold Lake.

### **3.8 Traditional Knowledge Assessment**

A Traditional Knowledge Assessment was conducted by Nu Nenne-AXYS Inc. to determine the effects of the proposed residential development on Cold Lake First Nation traditional lands, land use and culturally significant sites.

The recommendations of the report are to:

- preserve the 1931 Gathering Camp area as a historic landmark;
- integrate existing historical trails into the subdivision planning; and
- integrate wildlife habitat patches and corridors into the subdivision planning.

These site attributes have been identified in the Traditional Knowledge assessment have been incorporated into the design of the community, and will be preserved and enhanced as park areas, open space and a pedestrian trail network.

A copy of the report has been submitted under separate cover to the City of Cold Lake.



## 4 Development Concept

### 4.1 Residential Development

The majority of the plan area is intended for residential development. A mixture of low and medium density residential dwelling units are proposed, and will be implemented based on market conditions and consumer preferences at the time of development.

Low density housing forms will be predominantly single and semi-detached housing, providing a variety of lot and house sizes. Three development sites have been designated for medium density residential uses in the plan area. These sites may be developed into townhouses, stacked row housing or low-rise apartments. Future market demands will determine the type of development pursued in each particular circumstance. For all land use types, approximate area and capacity projections are provided below in Tables 1 and 2.

The details of the development concept are shown in Figure 5.

Land Use Statistics	Area (ha)	% Gross Area
Gross Area	101.9	100
Municipal Reserve	12.7	12.5
Single Family Residential	45.2	44.3
Multi-family Residential	9.6	9.4
Health Services and Mixed Use	5.0	4.9
Roads and Lanes	21.5	21.1
SWMF and Existing Wetlands	7.9	7.8

*Table 1: Land Use Statistics*

Type	# Units	% of Units	Units/ha	People/unit	Population	Density
Single Detached	904	65.32 %	20	3.47	3137	69.4/ha
Multi-Family	480	34.68 %	50	2.52	1210	126 /ha

*Table 2: Demographic Profile*

### 4.2 Health Care and Mixed Use

A 5.0 hectare health care and mixed use area is proposed in the north eastern corner of the site. This site is favourable for a comprehensive development project due to its excellent

exposure and access opportunity from 16th Avenue, and the associated traffic generated by visitors to the Cold Lake Provincial Park. In addition to the proximity of existing and proposed collector roadways, the site provides a unique opportunity to build a comprehensive development project that can take advantage of the natural and manmade amenity provided by a storm water management facility that retains its natural attributes, and is augmented by pedestrian trails and open space. The site is of sufficient size to support a variety of business, medical and professional office uses that will serve the local and regional trade area, as well as provide a future site for extended medical care, palliative care, assisted living, and aging in place opportunities.

### **4.3 Open Space/Municipal Reserve**

Neighbourhood open space and pedestrian linkages are an important element of the plan, and where possible historical trails have been preserved and integrated into the planning of the lands in order to provide enhanced recreational opportunities. These historical trails form an integral part of the pedestrian network and provide additional green space for passive recreation, and access between residential areas, the storm water facilities and open space, the comprehensive development site, and adjacent neighbourhoods.

In addition to the historical trails, the plan provides an array of open space opportunities. Though the drainage swale that currently bisects the north east quarter section will eventually be abandoned, it will be maintained as a major landscape feature that will include a multi-use trail, grassed or naturalized plantings, park furniture (e.g. benches, garbage receptacles), trees and shrub beds, and possibly directional and interpretative signage.

Two large parcels of park space will be provided. A 6.5 hectare parcel is located adjacent to the two multi-family sites in the south eastern portion of the plan area. This site has a unique topographical feature in the form of a large hill that will provide various recreational opportunities throughout the seasons. The establishment of this area as a park will also retain the mature tree cover and wildlife habitat.

The 3.2 hectare parcel in the north eastern portion of the plan area adjacent to the storm water pond, will also provide public green space for the community to enjoy. The biophysical assessment designated this area as a significant lowland containing a forested swamp. Since this area remains accessible and dry except during extreme storm events, this area is designated as municipal reserve. It will also preserve the existing wildlife habitat, and provide amenity space for both the health care and mixed use project, as well as the adjacent multi family site.

A small neighbourhood park of 0.5 ha has also been proposed for the west central portion of the plan area. The location of this park would make it ideal for a playground and picnic area as it has both high visibility, and accessibility for both the users of the historical trail system and the adjacent residents.

The historic park at the northern edge of the plan area is intended to preserve the site of the 1931 Gathering Camp as a historic landmark. The site has been designated as municipal

reserve in the plan, and it is intended that the site will fall under the stewardship of the City of Cold Lake as a historic landmark.

#### **4.4 Vehicular and Pedestrian Circulation**

The plan area is well served by a system of local and collector roads. The major collector that runs north-south serves as the major transportation route to and from the plan area. While that roadway will terminate to the west at 8<sup>th</sup> Street in the short term, provision has been made for that major collector roadway to make a future connection to 75<sup>th</sup> Avenue (Township Road 632) when required. As well, a collector roadway connection to the east has been provided, with a future extension and intersection with Range Road 15A. To facilitate this future roadway connection, the owners of The Uplands plan area (who also own the intervening lands to the east of the plan area) have agreed to pre-dedicate the collector road ROW at a time that is in sequence with the development staging of The Uplands plan area.

Local roadways will provide access throughout the neighbourhood. Pedestrian linkages replicating and preserving historical trails will be provided throughout the plan area, and will connect points within and outside the neighbourhood. In areas where sight lines have been reduced due to curvilinear roads, laneways have been planned in order to provide a rear lane access option, reduce vehicular conflict, and improve pedestrian and vehicular safety overall.

Direct access from 16th Avenue to the comprehensive development site is proposed, as it would avoid bisecting the naturalized storm water and open space area with a road, and reduce the amount of traffic that would unnecessarily flow into, and out of, that portion of the neighbourhood that is primarily residential.

Overall, the intent of the plan is to create a community with an efficient roadway network to accommodate vehicular traffic, and a strong pedestrian theme that will encourage an active lifestyle. Through the integration of the historical trails into the subdivision design, passive recreation linkages have been provided to both existing and proposed amenity areas, and community facilities such as schools, shopping and recreation destinations.

The vehicular and pedestrian circulation system is shown in Figure 6.

#### **4.5 Servicing**

##### **4.5.1 Water Distribution**

In response to water supply issues in the vicinity of the area structure plan, the City of Cold Lake is currently upgrading the water supply system. A new 300 mm water main has been installed on 16th Avenue to 16th Street, and the City plans to upgrade the pumps at the north reservoir. The City also plans to extend the 300 mm water main on 16th Avenue from 16th Street to 8th Street in 2009. The further extension of this 300 mm water main from 8th Street to the plan area will provide the initial water supply to the proposed development.

Ultimately, it is expected that a water main will be installed on 8th Street, from 16th Avenue to 20th Avenue by the developer of the lands in this area (NW 13-63-2-W4). When this water main is constructed, and connected to the existing development in the NE 13-63-2-W4 and the proposed development in the plan area, the water supply will be looped.

The water servicing concept is shown in Figure 7.

#### **4.5.2 Storm Water Management**

In order to service the plan area, a storm water management facility is proposed for the low lying area in the eastern portion of the site. The facility will be designed to take into account the requirements of the Department of National Defence, Alberta Sustainable Resource Development, Alberta Environment, and the City of Cold Lake.

The intention is to construct a storm water management facility that is not only functional, but takes into account the environmentally sensitive wetlands and habitat areas that currently exist. In descending order of preference, the development of the area will accommodate existing wetlands and environmentally sensitive areas as follows:

- Avoid impact through wetland preservation.
- Reduce impacts of disturbance through the restoration and enhancement of other climatically challenged wetlands on site.
- Wetland compensation for disturbance through monetary compensation towards the restoration and enhancement of significant wetlands off site.

All of the preceding actions would follow the *Provincial Wetland Restoration / Compensation Guide of Alberta*, and would be done with the approval of Alberta Environment and in keeping with the Provincial Water Act.

The storm water management system will be designed so that post development flows are no greater than pre-development flows, and so that the drainage sub-basins form logical boundaries, and are of sufficient size to meet prevailing design standards and operate efficiently. The storm water management facility at the northern edge of the property will be designed to accommodate storm water run-off for a 1:100 year storm event, and with the consent of the Cold Lake First Nations, the storm water management facility will release water into Cold Lake through the Cold Lake Reserve # 149A. As well, the storm water management facility will improve the quality of the storm water to an acceptable standard, before it is discharged into Cold Lake.

In addition, some of the storm water runoff will be directed to the existing wetlands, so that these wetlands will be maintained throughout the season. A sedimentation bay will be constructed at the upper end of the wetlands in order to improve water quality. Thereby, the function of the existing wetlands will be maintained, or enhanced.

The storm water management concept is shown in Figure 8.

#### **4.5.3 Sanitary Sewer System**

The sanitary sewage from the plan area will be collected through a lift station to be constructed at the northern edge of the plan area, as shown in Figure 9. Originally it was thought that the sanitary sewage could be pumped into the existing collection system on 16th Avenue. However, the City is experiencing problems with the existing sanitary sewage collection system.

Instead of adding sewage to a system that appears to be overloaded, and that would require the sewage to be re-pumped at Lift Station # 3, it was determined that a preferred solution would be to route the sanitary sewage directly to the existing Lift Station # 4, or a re-located Lift Station # 4.

Various options for the route were considered. Although the most direct route would be along 16th Avenue, it is not the preferred route because it provides no other benefit, and would not be the most cost effective. The proposed route would require a force main to be constructed to the northwest edge of the SE 13-63-2-W4, and a new gravity main to be constructed within the current boundary of the City, to Lift Station # 4. This route would provide an added benefit by enabling Lift Station # 6 to be eliminated. This route would also provide an outlet for the sanitary sewage collected from most of the NW 13-63-2-W4, as well as the sanitary sewage from the NE and NW 14-63-2-W4.

Depending on the upgrades required to existing Lift Station # 4, there may be merit for the City to consider the relocation of the lift station to the southwest corner of the NW 14-63-2-W4.

In all the recommended sewage collection options, the proposed improvements can be constructed within the municipal boundaries of the City of Cold Lake, and do not introduce inter-municipal utility alignment or routing issues.

The sanitary servicing concept is shown in Figure 9.

#### **4.5.4 Franchise Utilities**

Franchise utilities such as natural gas, telephone, cable and electricity are readily available and will be extended as development occurs.

### **5 Implementation and Amendment**

The preceding sections have set out the general objectives and the “blue print “ upon which the further planning, design, and subsequent development of the area will be based. Implementation of the plan to facilitate development and construction will also depend on several major factors. The most significant of these being the municipal approvals required at

different stages of the planning process, and the development aspirations of the property owners in effecting the staging of development.

The landowners are enthusiastic about this unique development opportunity. While the owners of the land would initiate development of their land holdings immediately following municipal approval, it is expected that the build out of the plan area could take up to 10 years.

## **5.1 Development Sequence**

The rate of development in the plan area will be influenced by many factors, particularly the local real estate market, and the status of the economy. Given that servicing will be primarily from the north and west, and primary access will be from the north, the pattern of growth will be from north to south. Since the staging will be based on market demand and the cost of servicing, the staging plan may change over time once more information is known.

The development sequence is shown in Figure 10.

## **5.2 Plan Approval Process**

The Area Structure Plan has been prepared to permit flexibility with respect to the future planning of the adjacent lands, which will become clearer as and when planning commences for the larger planning area. This will of course be influenced by outcome of the Intermunicipal Plan process.

The implementation of the plan will begin with the approval of the Area Structure Plan as a bylaw, thereby ensuring adherence to the policies of the Municipal Development Plan regarding the orderly and efficient development of the land. There will also be a requirement for land use bylaw amendments, and subdivisions will occur once those amendments have been approved.

Subsequent to the approval of The Uplands Area Structure Plan, amendments to the plan may be initiated by the City of Cold Lake, or the landowners as deemed necessary. As part of the amendment process, the City shall provide all affected parties an opportunity to provide input to any proposed change through the public hearing process, as required under the Act.

## Figures





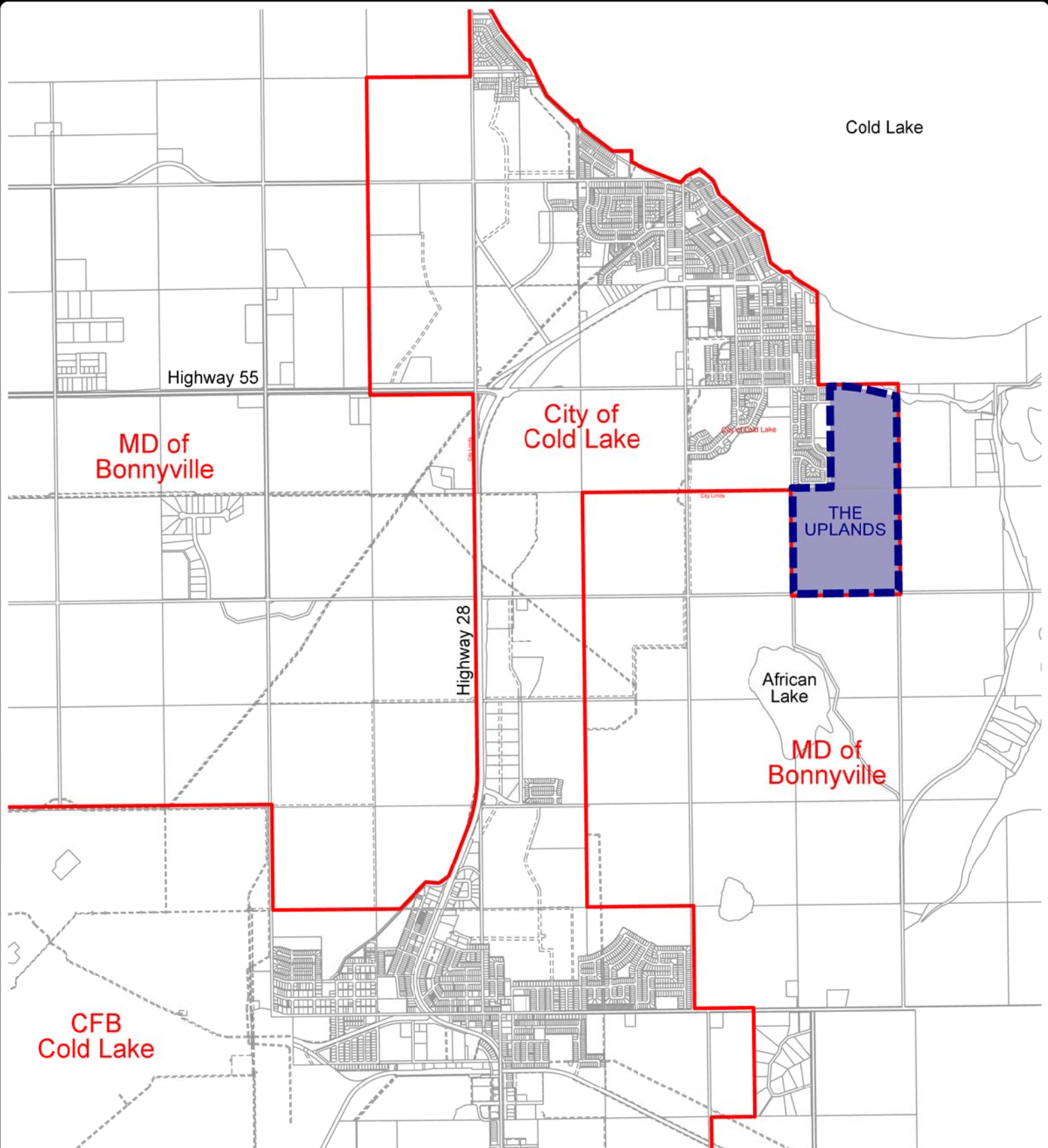
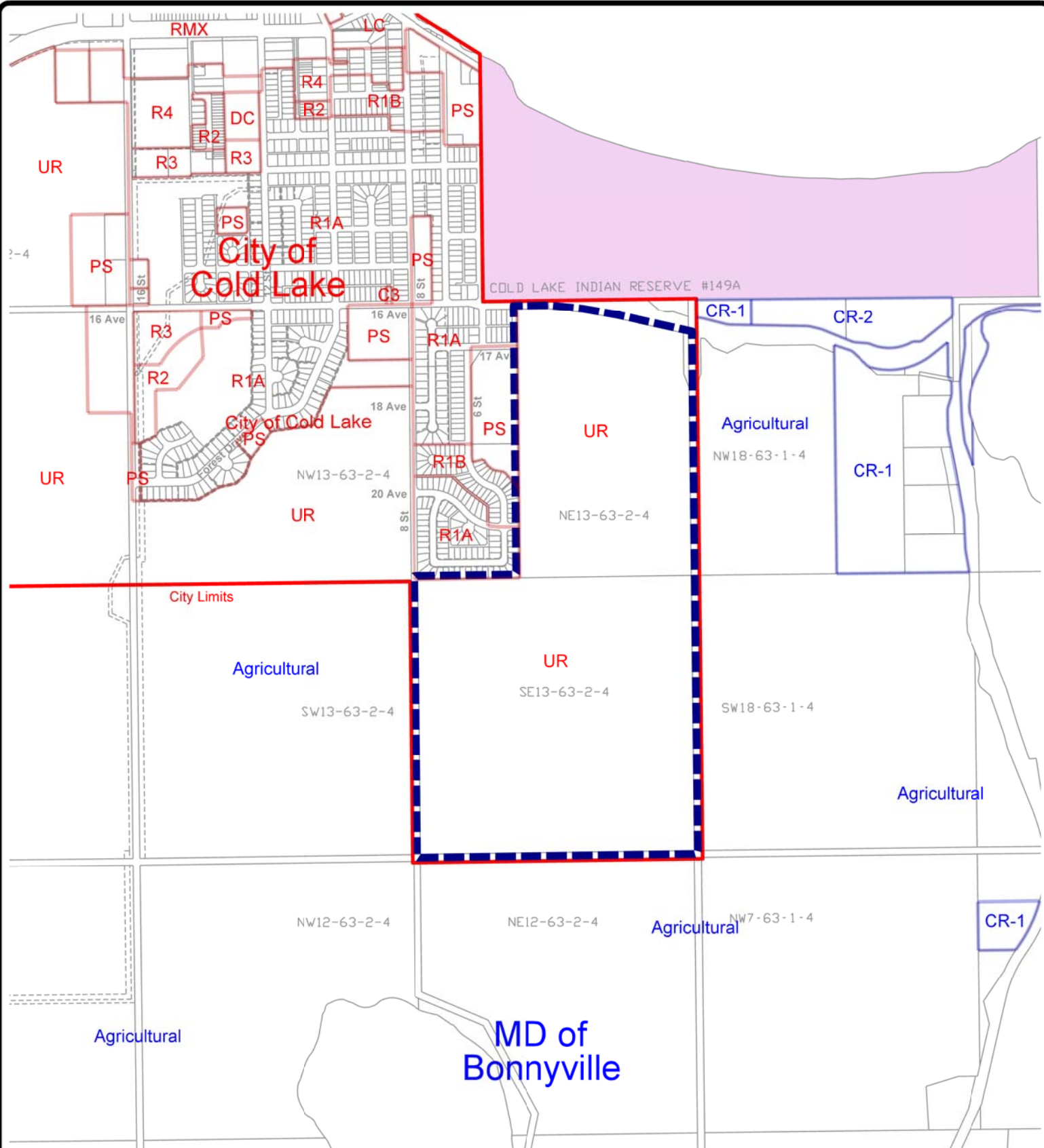


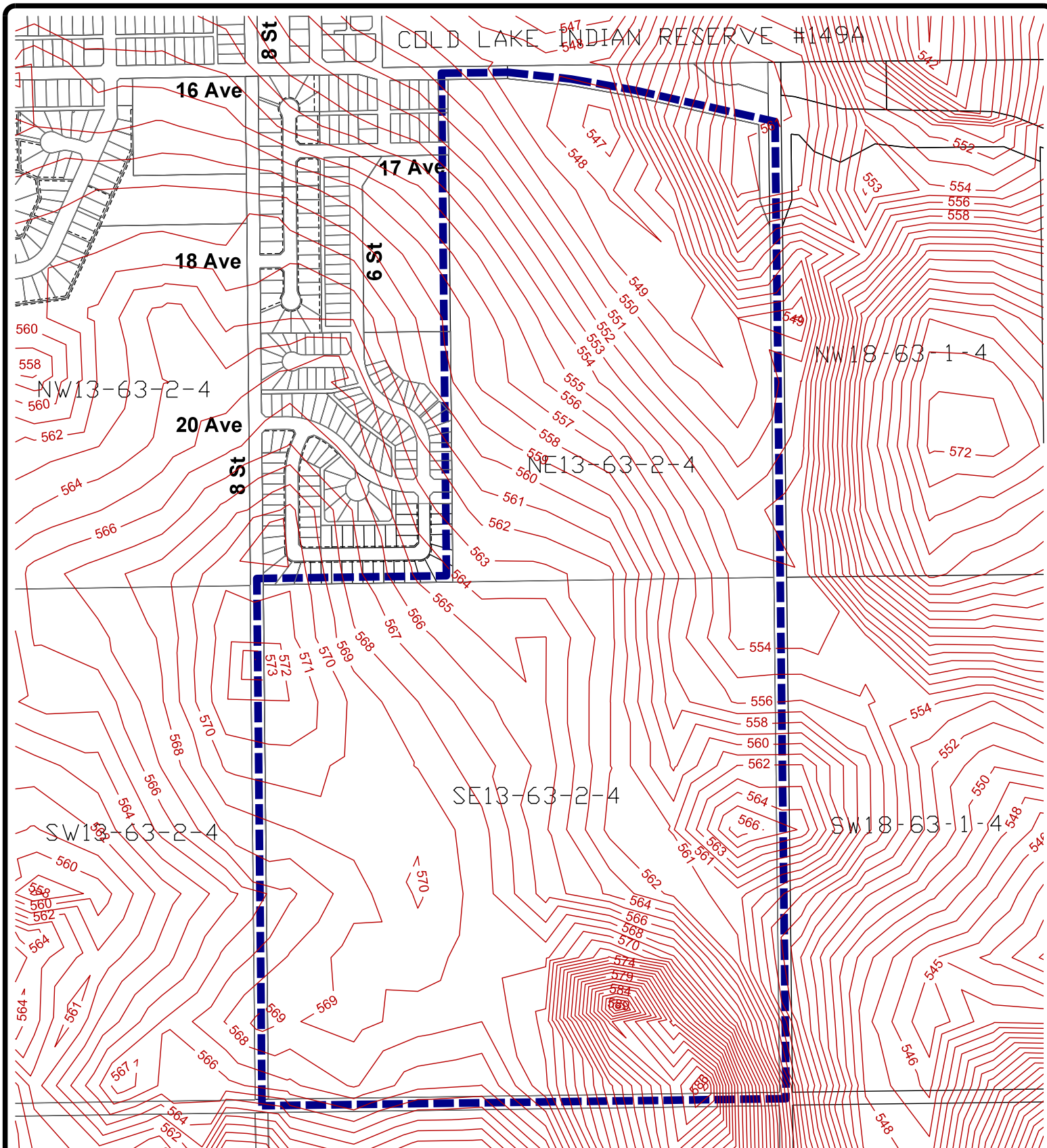
FIGURE 1  
**LOCATION PLAN**  
THE UPLANDS  
AREA STRUCTURE PLAN

NE & SE 13-63-2-4  
CITY OF COLD LAKE

Scale 1:40000  
July, 2009

6200100 ASP b0.dgn





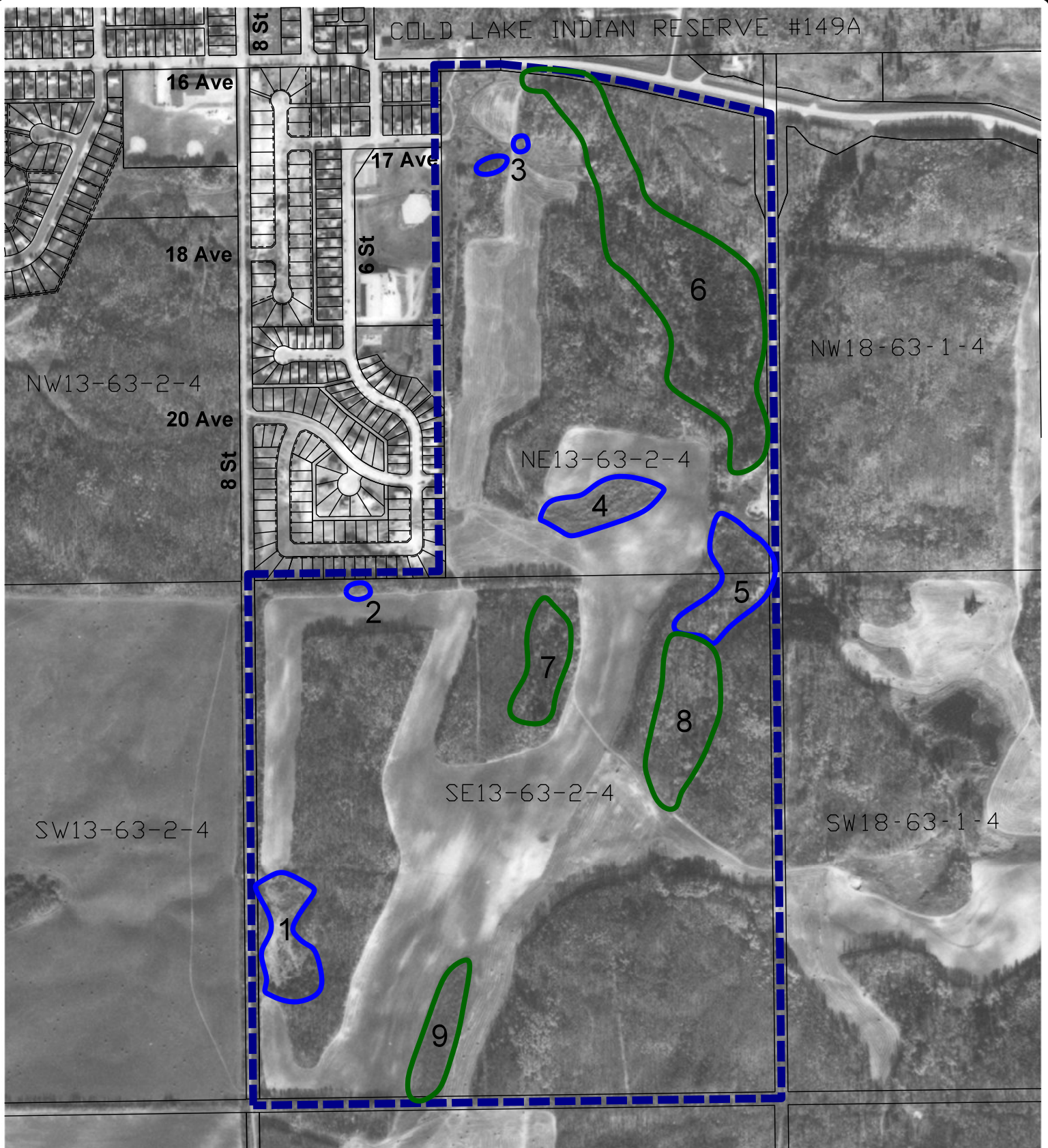
— — — ASP Boundary  
— — — Contours at 1m intervals

**FIGURE 3**  
**TOPOGRAPHY**  
 THE UPLANDS  
 AREA STRUCTURE PLAN

NE & SE 13-63-2-4  
 CITY OF COLD LAKE

Scale 1:8000  
 July, 2009  
 6200100 ASP b0.dgn





- ASP Boundary
- Wetlands - Isolated Basin Marshes
- Lowlands - Forested Swamps

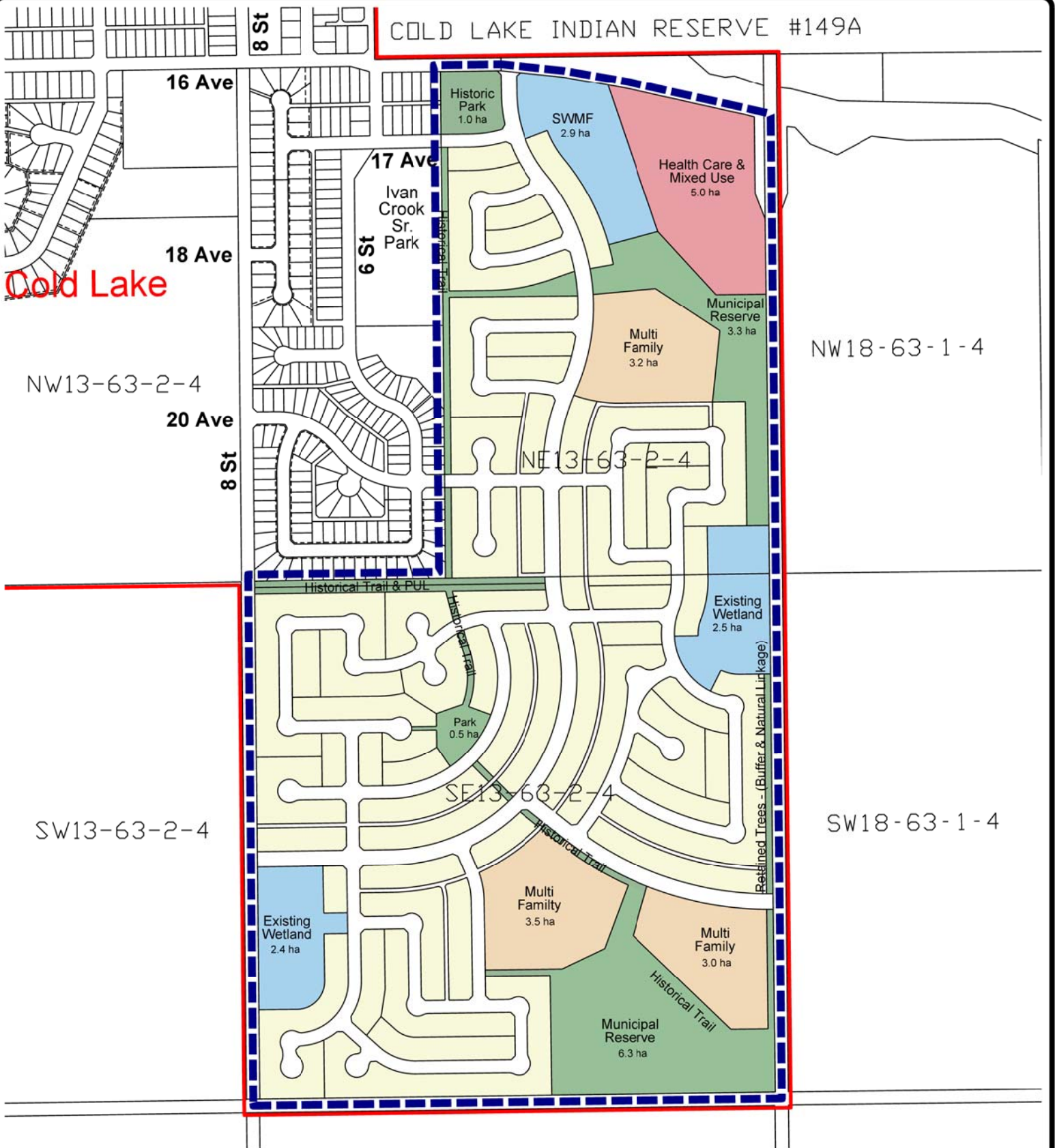
## FIGURE 4 BIOPHYSICAL AND WETLANDS SURVEY

THE UPLANDS  
AREA STRUCTURE PLAN

NE & SE 13-63-2-4  
CITY OF COLD LAKE

Scale 1:8000  
July, 2009  
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# COLD LAKE INDIAN RESERVE #149A



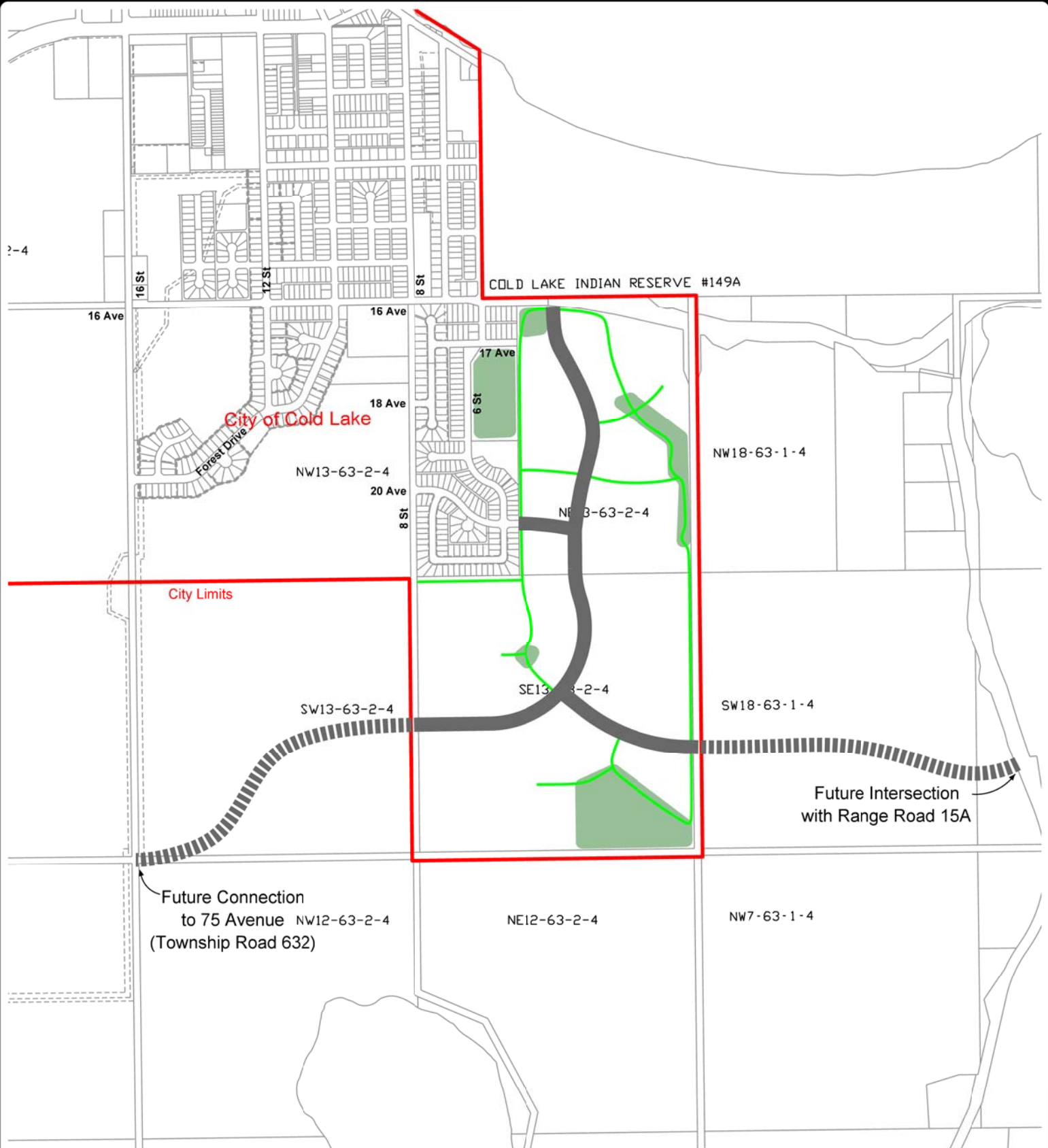
- ASP Boundary
- Municipal Boundary

**FIGURE 5**  
**LAND USE CONCEPT**  
**THE UPLANDS**  
**AREA STRUCTURE PLAN**

NOTE: Road network and areas are subject to revision at time of subdivision

NE & SE 13-63-2-4  
CITY OF COLD LAKE





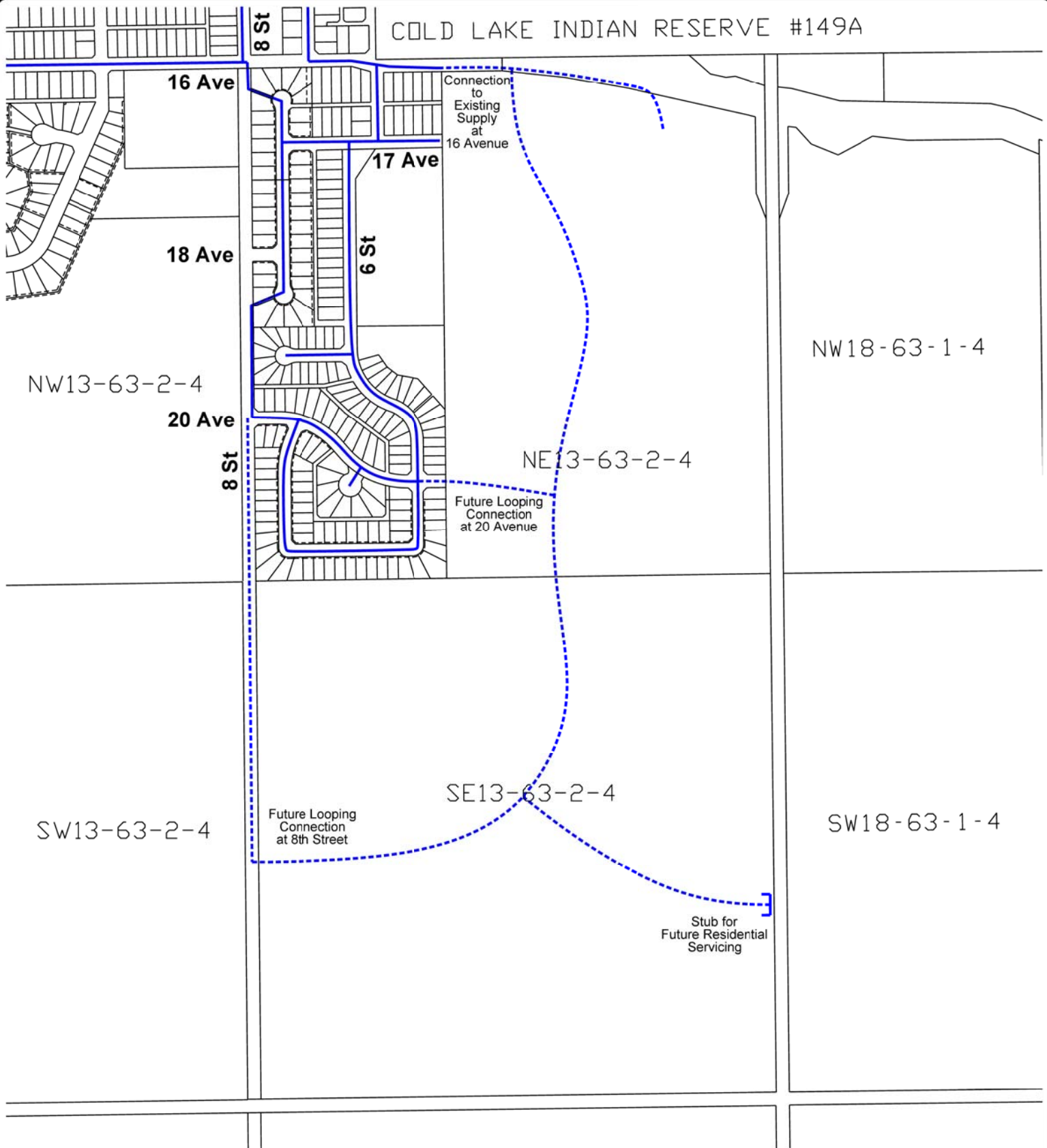
**FIGURE 6**  
**VEHICULAR & PEDESTRIAN CIRCULATION**  
**THE UPLANDS**  
**AREA STRUCTURE PLAN**

NE & SE 13-63-2-4  
 CITY OF COLD LAKE

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 July, 2009

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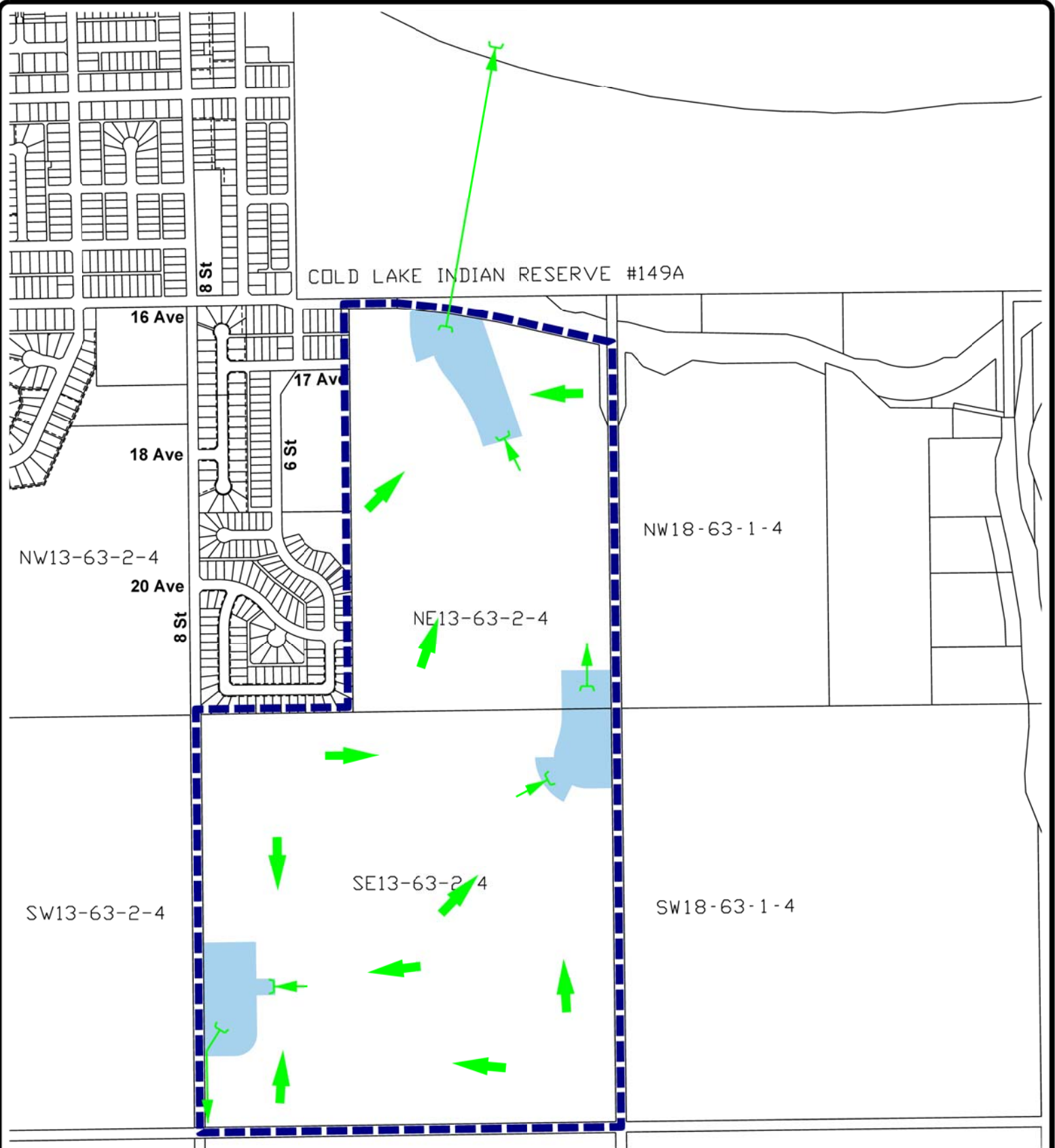


----- Proposed Main  
 ——— Existing Main

**FIGURE 7**  
**WATER SERVICING**  
 THE UPLANDS  
 AREA STRUCTURE PLAN

NE & SE 13-63-2-4  
 CITY OF COLD LAKE

Scale 1:8000  
 July, 2009  
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- ASP Boundary
- T Inlet / Outfall
- Drainage Direction

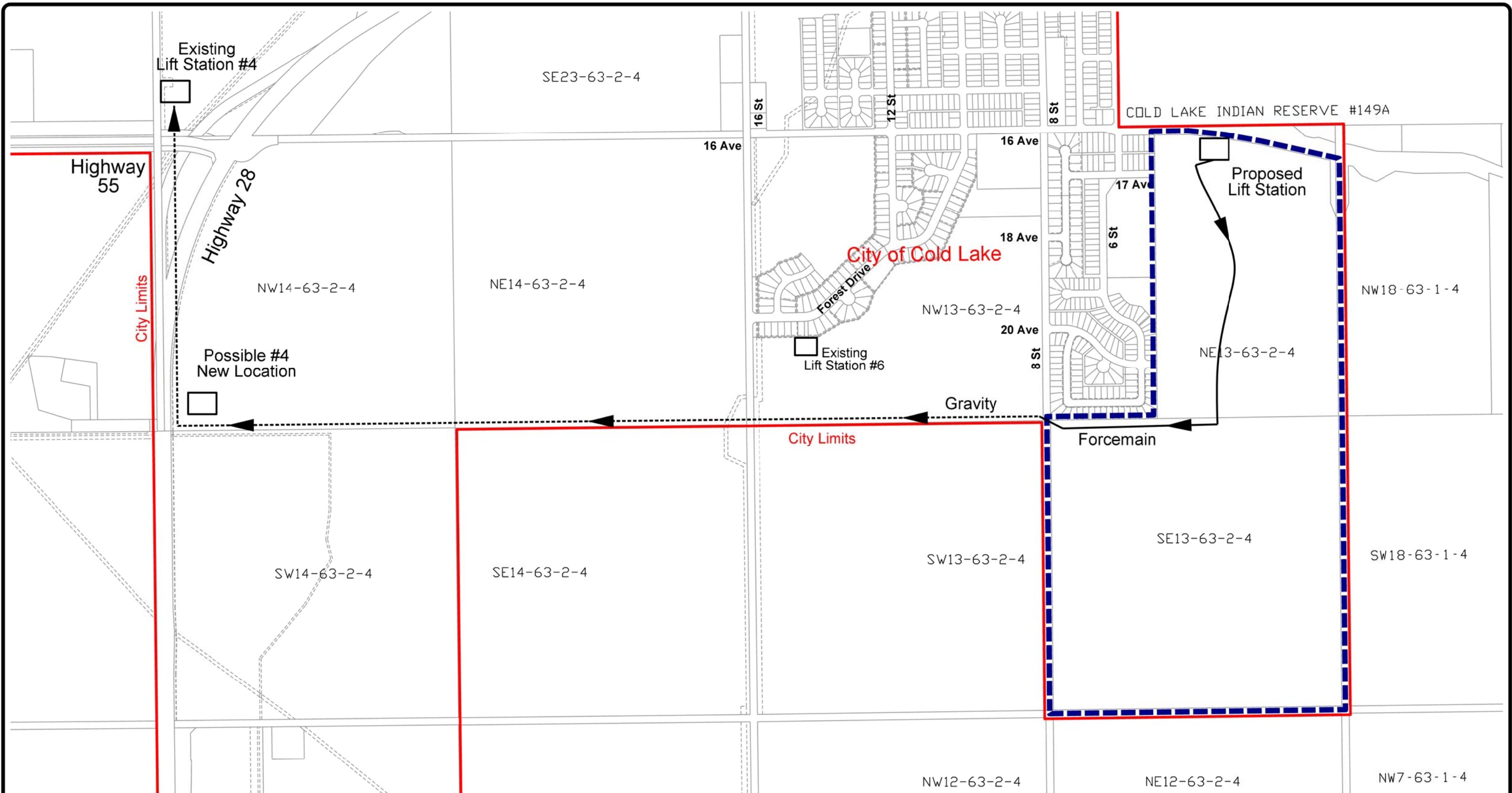
**FIGURE 8**  
**STORMWATER MANAGEMENT**  
**THE UPLANDS**  
**AREA STRUCTURE PLAN**

NE & SE 13-63-2-4  
 CITY OF COLD LAKE

Scale 1:10000  
 July, 2009  
 6200100 ASP b0.dgn







- ASP Boundary
- Municipal Boundary
- Forcemain
- Gravity Line

**FIGURE 9**  
**SANITARY SERVICING**  
 THE UPLANDS  
 AREA STRUCTURE PLAN

NE & SE 13-63-2-4  
 CITY OF COLD LAKE

Scale 1:10000

July, 2009

6200100 ASP b0.dgn



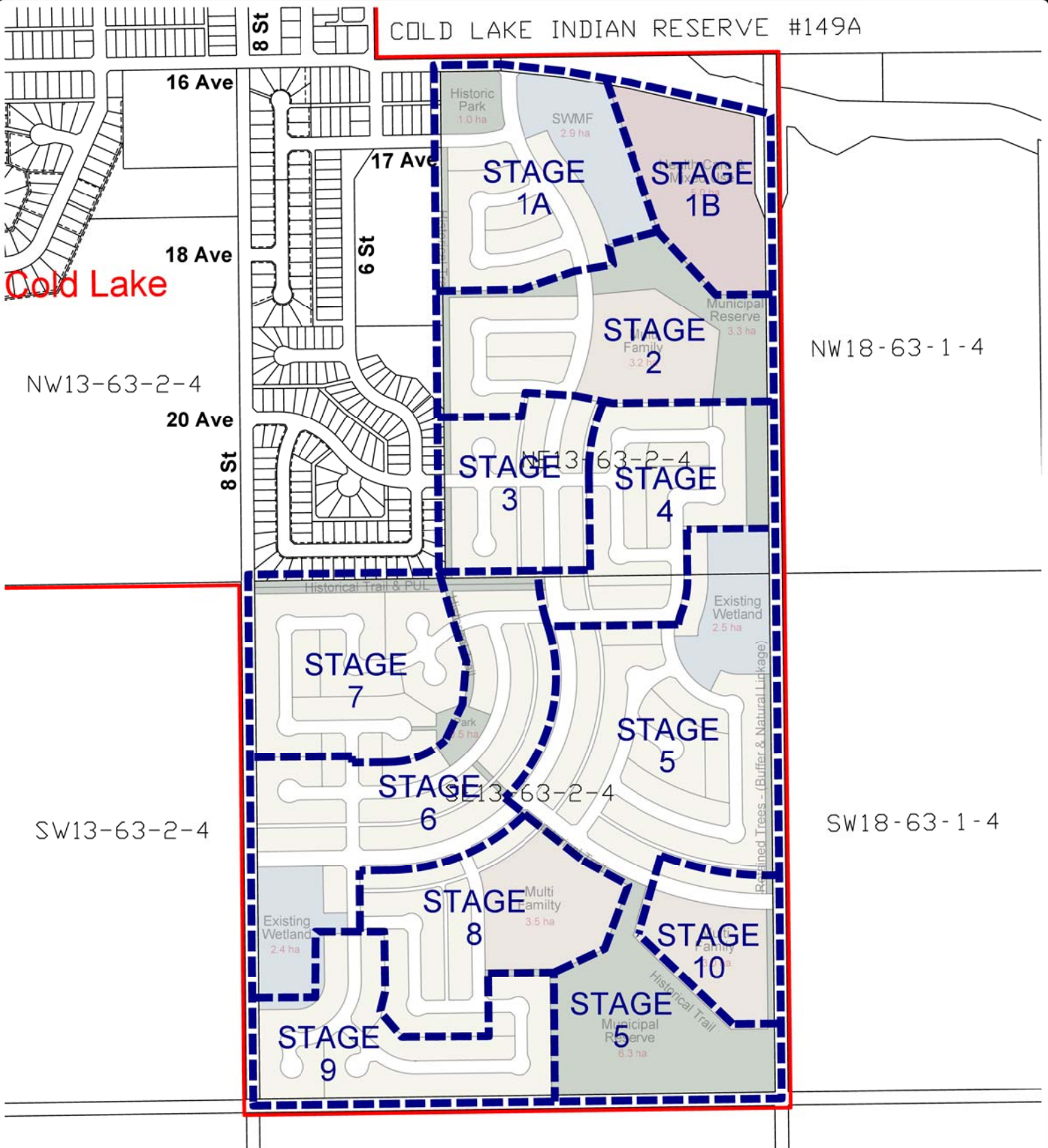


FIGURE 10  
DEVELOPMENT SEQUENCE  
THE UPLANDS  
AREA STRUCTURE PLAN

NOTE: Staging Boundaries and Sequence are subject to revision based on market conditions at time of subdivision

NE & SE 13-63-2-4  
CITY OF COLD LAKE