

# Girdwood Cemetery Schematic Report

**DRAFT**  
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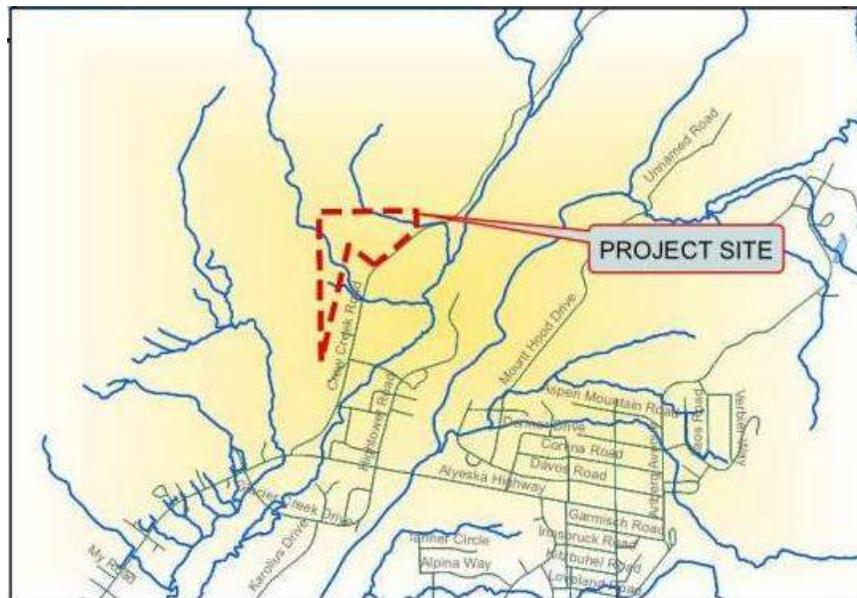
- Appendix A: Schematic Drawings – Parking Areas and Central Activity Area
- Appendix B: Cost Estimate
- Appendix C: Public Involvement
- Appendix D: Environmental Permit Requirements

## 1. Introduction

The town of Girdwood originally included a cemetery available for local residents. This cemetery was located near the current Forest Service Visitor building and is located on what is now federal land. Following the earthquake in 1969, the cemetery closed and many of the burials were relocated to cemeteries in Sunrise and Hope. A core group of residents in Girdwood have been advocating for development of a new cemetery in Girdwood. With the Anchorage Memorial Park Cemetery reaching capacity within the next ten years, the need for an additional cemetery open to residents of the area is further realized.

Tract D of the Girdwood Elementary School Subdivision (Figure 1) was selected as the new cemetery site following a review of multiple potential locations in the area. The Girdwood Cemetery will provide the community with a location for memorialization and remembrance. The vision of the cemetery is to maintain natural features of the existing land to every extent practical with unpaved walking paths capable of conversion to cross country ski trails in the winter months, and a trail connection from the cemetery site to the Beaver Pond Trail. Additional desires of the community include utilizing GPS to identify burial sites rather than formal headstones, establishment of a Veteran's memorial and incorporating a theme representing the history of Girdwood and surrounding area.

*Figure 1– Project Location Map – Girdwood, Alaska*



## 2. Existing Conditions

A summary of existing site conditions is shown on Figure 2.

### A. Site

#### 1. General

Tract D, Girdwood Elementary Subdivision encompasses approximately 22 acres of gently sloping terrain. The lot is an irregular triangle shaped parcel. Neighboring properties include Raven Glacier Lodge to the west of the proposed site and Chugach State Park to the north and east. California Creek runs north/south bisecting the site into two distinct areas. The Beaver Pond Trail maintained by the MOA parallels California Creek on the southwest side. Crow Creek Road delineates the property to the southeast. The cemetery site consists of a mixture of evergreen forests and alder meadows.

The Crow Creek area has played an important part in Girdwood history, and a key role in the area's early resource development. The cultural resources likely to exist in the area include materials left from Crow Creek's days as a mining hub. Additionally, a number of historic mining and tie hacking trails run through the area. Evidence of previous mining operations were observed on site. These included evidence of pit exploration and iron mining rails.



*Photo 1 - Existing Vegetation with Forested Areas and Alder Meadows in Background*

#### 2. Zoning and Required Setbacks

Tract D, Girdwood Elementary Subdivision is zoned GR5. Under GR5 zoning, a cemetery is an allowed use, but only under a Conditional Use Permit. The Conditional Use Permit requires site plan approval from the MOA Planning and Zoning Commission. As part of the site plan approval, the developer must provide public notice and solicit input from the community. Lot setbacks established under zoning GR5 include a 25' front setback, 15' side setback, and a 20' rear setback. No development including parking is allowed in the setback area. A 25' stream setback from the ordinary high water mark (OHW) of an identified stream (Title 21.07.02 Natural Resource Protection) is also required. This setback should overlap with the creek maintenance easement on California Creek. Additionally, a 10' setback is required from the edge of each side of above-ground drainage ways and ephemeral channels. No disturbance in the stream or drainage setbacks are allowed except for trails, utilities and roadways that are perpendicular to the drainage way or stream and do not impact the natural flow characteristic of the stream.

A Wildlife Management Corridor is also required along California Creek in accordance with Title 21.07.02. The Wildlife Management Corridor is a 200' setback from each side of the OHW of California Creek. In this area, all trash receptacles shall be bear resistant. Additionally, trails, driveways and drainage ways shall be designed to accommodate wildlife. Final trail locations will require coordination with the Alaska Department of Fish and Game.

### 3. Topography

Slopes on the site average 5% to 10% based upon LIDAR imagery, posing few challenges to development. The project area increases in slope as it moves from east to west and south to north into the Chugach Mountains, with slopes of up to 20% at the property edge. The property slopes towards Crow Creek Road and drainage is conveyed overland southwest across the site to California Creek and to the road ditch system on Crow Creek Road. California Creek cuts a valley between the north and south portions of the site making crossing impossible without a bridge.

### 4. Drainage

In addition to California Creek, multiple regulated and unregulated streams bisect the site. These streams collect runoff and convey it toward Crow Creek Road. Most of the north portion of the site is well draining. However, there have been reports of isolated flooding in the area. A pond was observed on the north portion of the site during numerous site visits. This pond is a relic of the mining operations in the area as it was likely dug by prospectors in the past. The south portion of the site is characterized by complex drainage patterns with seasonal stream flows. Evidence of flooding can be seen on the site.

Runoff from the site collects in a shallow ditch along Crow Creek Road. This ditch conveys water to California Creek. There is no existing storm drain on the project site or along Crow Creek Road.

The most significant flood plain within the project area is located along the west bank of California Creek, on the southernmost extent of the subject property. Although much of the existing Girdwood commercial district is contained in a similar flood zone, new development including burials should be excluded from known and probable flood prone areas. Burials will not be permitted within the 100-year flood plain, which is located across California Creek from the primary proposed access. Burials conducted outside the 100-year flood event zone are not considered to pose a risk of dislodgement. The FIRM and HDR maps are included in the Environmental Feasibility Study.

### 5. Site Access – Crow Creek Road

The north portion of the site has direct access from Crow Creek Road and is located approximately 1 mile east of the Alyeska Highway intersection. Crow Creek Road has a posted speed of 30 mph. The road is classified as a minor collector in the MOA Official Streets and Highways Plan. The road is paved for a portion of the project site and is unpaved north of the project site. Vehicular access to the south side of the site will be difficult due to access restrictions and topography.



*Photo 2 - Crow Creek Road at California Creek*

### 6. Utilities

Anchorage Water and Wastewater Utility provides water and sewer service to Girdwood. The project site is within the AWWU service area; however, water and sewer utilities are not currently

located near the site. As a result, a permanent source of drinking water will not be provided for the cemetery. Septic facilities will be limited to pit toilets and portable facilities.

Chugach Electric Association (CEA) provides electrical service to the Girdwood community and has overhead electrical facilities on the northwest side of Crow Creek Road. The line ends just south of the project site. Connection of electrical facilities for the cemetery will require extension of this line. Telephone and natural gas service is not anticipated to be needed for cemetery development or operations.

## **B. Geotechnical Investigation**

A geotechnical investigation was performed by Shannon & Wilson in November of 2016. Four bore holes were analyzed as part of the report. In general, the borings encountered a surficial layer of organic material (approximately 2' thick) overlying granular soils and over consolidated glacial till. Fines content in the granular soils ranged from 6% to 14%.

Based on the existing subsurface conditions, conventional shallow, heated foundations would be appropriate for building construction. New roads and pathways will require an improved structural section due to the fine contents. The structural section would vary from 2 feet to 5 feet on pathways, driveways, and parking lots. Structural fill will need to be clean, granular soil free of organic material and non-frost susceptible. Structural fill should meet the MOA requirements for Type II material. Due to the depth of groundwater, dewatering for construction of foundations and utilities is anticipated. For the purpose of schematic design, a structural section of 3 feet was assumed for the driveways, concrete sidewalks, and unheated foundations. A 2-foot structural section of clean, granular fill was assumed under gravel pathways. Further geotechnical investigations should occur as design progresses in the location of the proposed parking area and at the shelters to more accurately define specific soils in those locations.

The geotechnical borings encountered groundwater between 5 and 20 feet below ground surface. Those areas with shallow groundwater are not considered eligible for buriable space. Only one boring advanced demonstrated groundwater at 5 feet below ground surface. Selection of burial sites would require temporary installation of groundwater piezometers to document the fluctuation of groundwater across seasons, and selection of those areas where groundwater is not shown to rise above 6 feet below ground surface. Additional groundwater monitoring is recommended to determine what equipment may be required for burial excavations.

## **C. Environmental**

An Environmental Investigation and Preliminary Determination of Wetlands and Waters was completed by Restoration Science & Engineering, LLC in November of 2016.

California Creek is an anadromous stream that supports chum, coho, chinook, pink, and sockeye salmon. Fish tend to avoid spawning in glacially fed, braided streams because those channels are unpredictable and frequently shift. The most significant fish spawning in the Girdwood Valley occurs in California Creek. There is a significant fish milling area at the confluence of California Creek and Glacier Creek. (MOA 2010). The extent of salmon use in the segment of the creek that flows through the property is unknown.

Under the National Wild and Scenic Rivers Act (1968), selected rivers in the United States are preserved for possessing outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Rivers, or sections of rivers, so designated are preserved in their free-flowing condition and are not dammed or otherwise impeded. California Creek is not listed as a Wild and Scenic River.



*Photo 3 - California Creek*

Potential jurisdictional waters were identified on the property include California Creek, four small streams, and a pond occupied by a small excavation. Several drainage ways were identified on the property that are believed to be intermittent streams since they lack a discernible bed and bank. Based on evaluation of existing soils, vegetation, and hydrology, wetlands were not found within the project site.

#### **D. Demographics**

The Municipality of Anchorage has one public and one private cemetery that allow for full body burials. The Anchorage Memorial Park Cemetery is owned by the Municipality of Anchorage and is operated and maintained by the Department of Health and Human Services.

The Anchorage Memorial Park Cemetery estimates the cremation rate to be approximately 75% in Anchorage with the majority of cremated remains being scattered. The cemetery sees approximately 200 burials a year with 60% being a traditional, full body burial and 40% cremation. The cemetery is divided into multiple areas based on religion and community groups. The cemetery does not charge a plot fee but does charge for grounds maintenance and preparation of burial sites. The cemetery also offers a columbarium with individual, companion, and family niches.

The Anchorage Memorial Park Cemetery has outlined burial requirements and fees through Municipal Code 25.60 including requirements for monumentation and personal decoration. The Cemetery prepares 80 grave sites in advance to allow for burial in the winter. This is to accommodate religious groups that require burials to occur within 48 hours of demise. To prepare for winter burials, the cemetery cuts the sod for the grave site, places approximately 12-inches of dry leaves and 4-inches of insulation on top of the grave and then covers the grave with plastic. This prevents the ground from freezing allowing for digging in the winter. If needed, the cemetery also has a grave thawing device.

Girdwood is anticipated to see approximately 25-50 burials a year with the majority of these burials being cremation burials.



**Girdwood Cemetery**

Girdwood, Alaska

Uniform and gently sloping topography in the north portion of the site makes this land usable for cemetery development without grading for burial areas. The heavy, native tree cover, however, should be protected and preserved by using the site predominantly for in-ground cremation burial and limiting full body burial to selected and dispersed locations within the woodlands.

The existing, historic miners' pond should be preserved and used as a feature within the cemetery, and as part of a cemetery trail system.

This deep, California Creek valley divides the north and south portions of the site making pedestrian crossing impractical or impossible without a structural crossing.

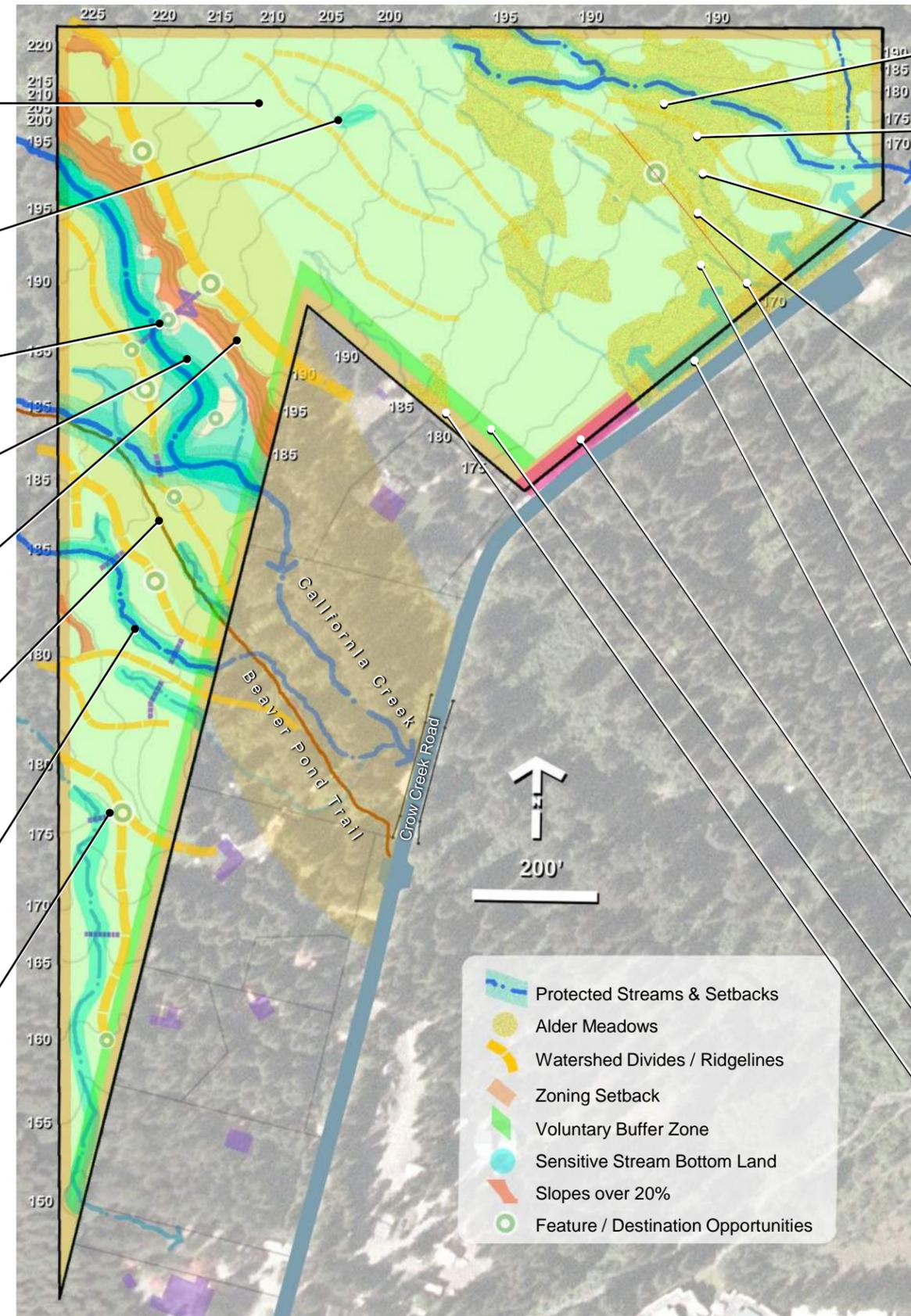
The high banks of this creek corridor offer dramatic views into the valley with opportunities for meditation overlooks from within the cemetery.

These sensitive slopes and regulated stream corridors need to be protected with setbacks for burial and trails at the top of slopes.

Beaver Pond Trail is an important part of the regional trail system. A connection to the proposed cemetery would have mutual benefit to the users of both the Beaver Pond Trail and the cemetery. Cemetery development could add unique historic, natural and cultural features, and meditative open space to the overall trail system.

Complex drainage patterns with seasonal stream flows in the point of land south of California Creek create difficult and wet topography that makes the use of this heavily wooded land impractical for full body burial development.

Well placed trails on ridgelines with drainage crossings would allow for in-ground cremation burial in this difficult topography. Key points located along these ridges offer opportunities for rest and meditation areas, interpretive displays, and special memorial features.



The gently sloping topography of the existing alder meadows is suitable for full body burial without significant grading or tree removal.

This regulated stream requires protective setbacks for burial development.

The existing alder meadows make access on foot impractical or impossible. Removal of the alder growth and restoration of these areas with native meadow grasses offers the opportunity to create naturalistically designed burial areas suitable for full body burial. Their organic, natural configuration should be maintained as much as is practical to create interesting and intimate spaces within the woodlands.

The gently sloping, east-facing land would in this area would be visible from Crow Creek Road with the removal of the alder growth. This is the best opportunity for creating a public face and identity for the cemetery. These alder meadow areas also have good view orientation to the mountain vistas to the east. These site characteristics should be used to advantage in the placement, orientation, and design of the cemetery's structural facilities.

This existing drainage way and low area provides natural location for drainage collection and storm water management.

The east facing slopes and treeless areas of the alder growth create small scaled spaces that can be used to advantage for creating intimacy and privacy in the cemetery design.

These areas of higher ground are good locations for vehicular access to the site.

The bend in Crow Creek Road creates inadequate site distance to the south from the site and prohibits site entrance in this area.

A voluntary 25' buffer zone, in addition to the required setback, would provide additional privacy for neighbors.

A 25' setback is required for structural development.



### 3. Master Plan

In addition to burial locations, the master plan for the cemetery includes parking areas, access aisles, a central area with shelters, memorials, and columbariums, meditation areas, a public restroom, and a facility storage area.

#### A. Burial Plan

The Girdwood cemetery will allow for traditional burials, cremation burials, and green burials as well as columbariums for cremation ashes. In addition to required MOA code and environmental setbacks, development of the cemetery will include a 50-foot setback from the privately-owned properties to the south. It is the desire of the community to minimize impacts to the natural vegetation and to preserve the character of the existing land. Natural building materials should be incorporated wherever possible to help achieve this goal.



*Photo 4 - Natural Building Materials Utilized in this Cemetery Pathway*

The cemetery will be developed around existing alder stands located near the east end of the cemetery. These alders can be cleared without disrupting the character of the site and transformed into meadows. The meadows should be planted with native grasses and wildflowers to ensure sustainability and ease of maintenance. The meadow areas will serve as traditional burial locations allowing for full body burials. These areas will be easily accessed from the parking and shelter areas allowing access for people with limited mobility. As you progress from the central areas, the site becomes more forested and less suitable for full body burial without disturbing the existing vegetation. Furthermore, walking routes increase as the distance from vehicle access increases making them less suitable for traditional burials. These areas can be



*Photo 5 - Existing Shelter at a Cemetery*

used primarily for cremation burials, with the occasional full body burial accommodated in the dense woodlands. The full body burial sites will need to be hand selected and limited to prevent disturbing the existing trees. Burial sites southwest of California Creek will only be accessible by foot and should be limited to cremation burials. A decorative fence will be installed on the site where it fronts Crow Creek Road. A chain link fence will also be placed around site property lines where the property abuts private property.

## B. Amenities – Shelters and Restrooms Equipment Storage

The Central Activity area consists of three committal shelters and a central courtyard plaza area. The central plaza area will provide an area for committal services and community activities and will include opportunities for cultural and historic art displays and memorials. The three shelters will be 30 feet by 30 feet, timber frame and be open on one to two sides (Figure 3). Each shelter will have a pitched roof that slopes away from the courtyard area to prevent snow from collecting in the courtyard. The shelters will incorporate columbariums in the walls and provide an opportunity for a Veteran's memorial on the wall of the shelter that faces the courtyard. This memorial will be visible as you approach shelters. Additional elements can be included into the plaza area and the shelters to help



*Figure 3 - Conceptual Shelter Layout*

recognize Girdwood's historic past. These can include statue in the center and informational displays relating to the area's mining past. The courtyard will also accommodate columbarium niche walls and seating for meditation and gatherings. The central area will be connected to the parking lot by a 10-foot wide sidewalk. The shelters and the courtyard will be oriented to take advantage of the mountain vistas to the south east and north west. Lighting will be provided for both the shelters and the courtyard plaza area. The plaza will also include two flag poles for the American and Alaskan flag.

Public restrooms will be provided to the east of the central activity area. These will consist of two portable toilets and will be vehicle accessible for maintenance and removal. The portable toilets be housed in a screened, roofed shelter. Similar to the central area shelters, the roof will be pitched and sloped away from travel areas. A storage area will be provided to allow for equipment and materials. The storage area will consist of a cleared, fenced area and a gravel pad.

Overlooks and meditation areas should be provided at strategic locations across the site. The historic miners' pond can be a focal point for the cemetery allowing for interpretive displays teaching the mining history of Girdwood and the surrounding area. This area can be combined with a small "council ring" allowing for small scale activities and committal services.



*Photo 6 - Council Ring*

**C. Memorials/Enhancements**

It is the desire of the Girdwood community to not include memorials at each grave site. As an alternative, cenotaphs can be incorporated into multiple areas throughout the cemetery. A cenotaph is a monument to a person or groups of persons buried elsewhere. These can include stone monoliths or wooden markers that provide a memorial of persons buried in each area or a cenotaph wall incorporated in the shelter area. Additional memorials could include memorial benches added at meditation areas along the gravel pathways or living trees in the meadow areas.



*Photo 7 - Boulder Cenotaph*

Each burial site including cremation burials should include a marking steel pin. This pin would be buried above the remains and could be identified with a metal detector. GPS coordinates can be logged with each grave. However, satellite reception may be difficult in areas with thick tree canopies making exact identification difficult.



*Photo 8 - Memorial Bench*



*Photo 9 - Example of a Miner's Memorial*

### D. Pedestrian Access

Pedestrian access to the site will be provided from the parking area and Beaver Pond Trail. Additional trails will be present throughout the site to provide access to burial sites and the meditation areas. Raised footbridges will be included at the small stream crossings. A 125-foot



pedestrian bridge should be constructed to connect the north and south portions of the cemetery. The bridge should be designed to carry occasional maintenance vehicles.

Pedestrian trails (Figure 4) will be 8-feet wide, unlit gravel trails with shoulders to allow for occasional equipment to dig graves and maintain the site. In order to minimize tree loss. It is recommended that an arborist be consulted prior to pedestrian trail placement to ensure loss of forest is minimized and a natural setting is maintained in the cemetery.

**Figure 4 - Conceptual Gravel Pathway**

### E. Access and Parking

Access to the north portion of the site will be provided by two, 24-foot driveways with a 200 foot separation. A 24-foot access aisle (Figure 5) will connect these driveways and provide access to parking, restroom facilities, the central activity area, and the storage facility. A total of 22 parking spaces, including 1 accessible parking space will be included in the parking area. Access gates should be provided on both driveways to limit access when the cemetery is closed. The driveways, parking, and access aisles will include electrical lighting in accordance with MOA code. Storm runoff from the parking areas will drain to a basin in the center that will allow for both detention and infiltration of the stormwater.

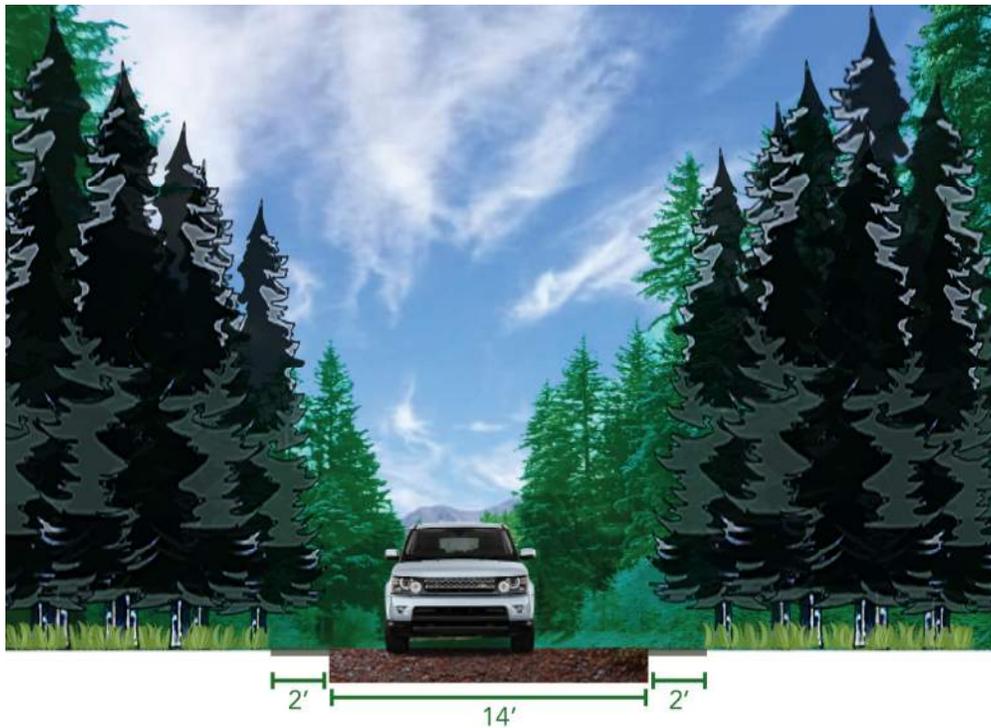


**Photo 10 - Cenotaph Wall with Memorials on Rock Faces**

A 14-foot wide gravel roadway (Figure 6) with turnaround will provide access further into the site allowing for hearse access and private vehicles when needed for graveside ceremonies. At the option of the cemetery, this roadway could be made available during the summer only or plowed as needed.



**Figure 5 – Front Entry and Vehicle Access**



**Figure 6 – Gravel Roadway**

**Girdwood Cemetery**  
Girdwood, Alaska

**Long Range Master Plan**  
Recommendations for Cemetery Development



Cremation burials and selected full body burial sites are available throughout the dense woodlands. Memorialization can be personalized, but should be limited to natural and locally available stone and wood materials. Stone memorials should be in the form of natural boulders.

The historic miners' pond is the central feature for a meditation area that can also accommodate committal services or gatherings. This includes a "council ring" for small scale activities and performances. The facilities can include interpretive displays of natural features and cultural history.

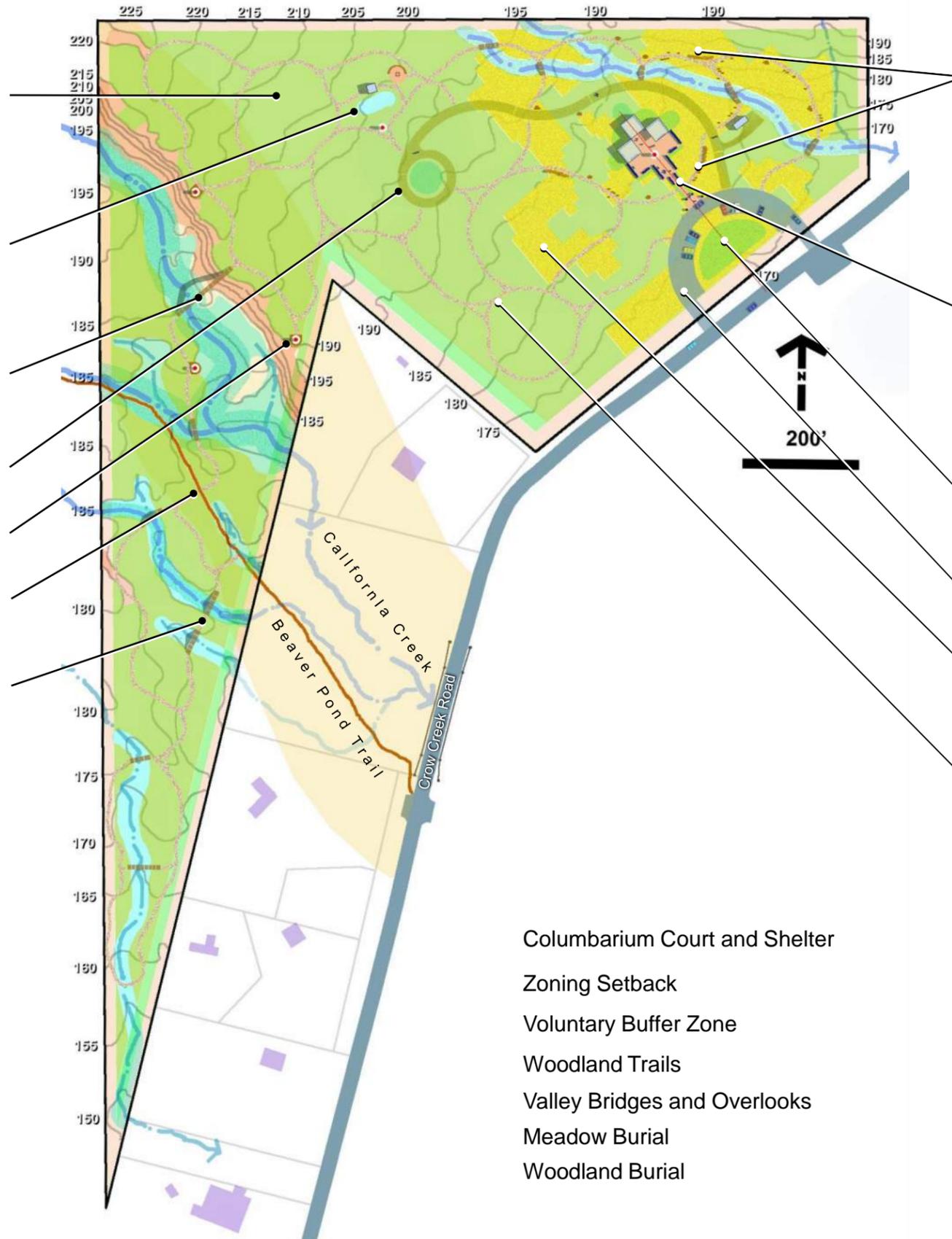
The California Creek bridge creates the important link between the Beaver Pond Trail and Girdwood Cemetery and connects the north and south halves of the cemetery.

A stabilized but unpaved road provides access to the western parts of the cemetery.

Valley overlooks with seating for meditation are placed at key vista points along the trails.

The cemetery trails link the Beaver Pond Trail with the cemetery

Foot bridges provide year-round access across the seasonal streams on the trails through the cremation woodlands in the south "Point" of the cemetery.



Open meadows of native grasses and wildflowers accommodate full body burials. Mowed pathways provide access through the meadows. Burial options include "visitation" graves along the paths and "non-visitation" graves within the meadows. Native boulders are used for personal memorials along the pathways and boulder monoliths are used for cenotaph memorialization of burials in the non-visitation meadows.

The central activity area provides shelters and an events plaza for committal services and community activities. These facilities include columbarium niche walls and seating for meditation and gatherings. The central plaza includes the opportunity for historic and cultural art displays and memorials. This includes the opportunity to create a Veterans' memorial.

Storm water detention and snow storage is captured in the natural basin at Crow Creek Road.

Paved access road and parking.

Naturally configured, existing alder stands are converted to meadows within the open areas of the dense woodlands.

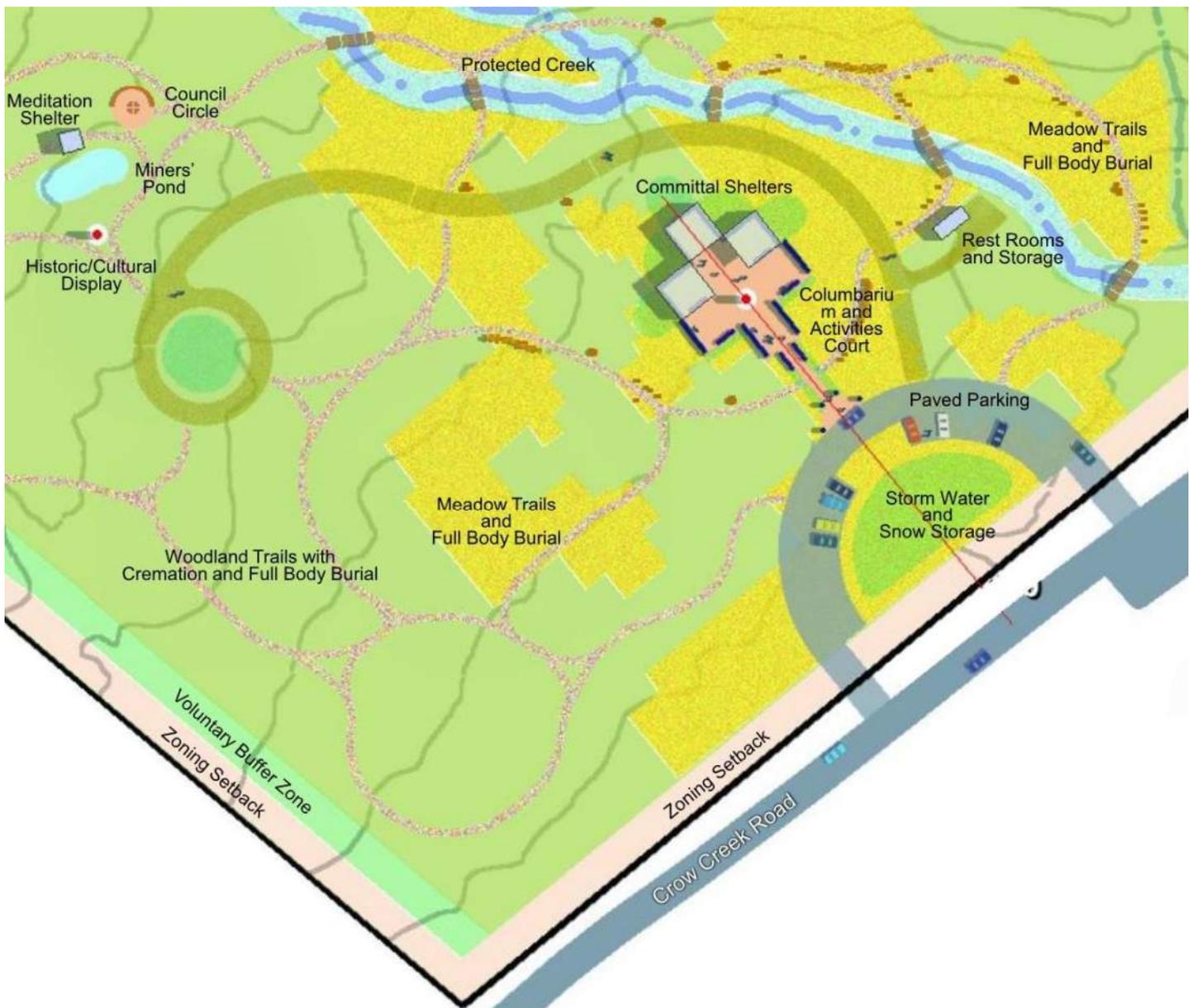
Woodland trails provide access to the woodland cremation burials and selected full body burial sites as well as recreational hiking trails which connect to the Beaver Pond Trail.

- Columbarium Court and Shelter
- Zoning Setback
- Voluntary Buffer Zone
- Woodland Trails
- Valley Bridges and Overlooks
- Meadow Burial
- Woodland Burial



Jack Goodnoe  
Cemetery Planning and Design

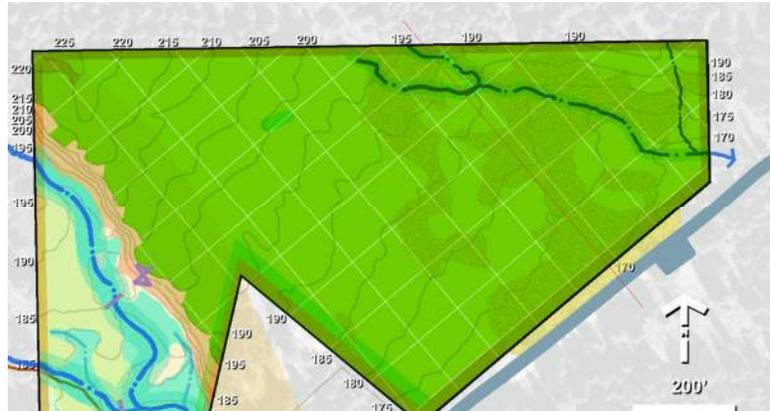
Figure 8 – Girdwood Cemetery Master Plan – Central Area and Parking



## 4. Operations and Maintenance

### A. Operations

The MOA Department of Health and Human Services will manage the cemetery for Girdwood. To assist them and help guide development, an operational and planning manual should be developed. This manual will require placement of burials in a manner that minimizes earth disturbing activities and allows for revegetation of burial areas such as full body burials should occur sequentially. A grid pattern should be established for the cemetery site that designates areas set aside for protection and identifies acceptable burial locations for full body and cremation. The MOA will require documentation for each grave site and the grid pattern can start as a basis for this requirement. The cemetery should be prepared for winter burials in a manner similar to the Anchorage Memorial cemetery.



*Figure 9 – Potential Grid Pattern for Cemetery*

While it is the desire of community to offer the land for the burial spots at no charge, costs for services such as excavating and columbarium niches will need to be established and outlined in the operations and planning manuals.

### B. Maintenance

The MOA will be responsible for maintenance on the cemetery site. The MOA intends to plow snow from the parking and plaza areas during the winter. Snow storage is provided in the center area of the parking lot. Additional snow storage can be accommodated north and south of the driveways. The gravel pathways and gravel roadway that run through the cemetery site will not be plowed in the winter and instead will be maintained as ski trails. The portable restrooms will only be available in the summer and will be removed during winter. Upon request, the restrooms can be reinstalled for specific winter activities.

Selection of new landscaping should incorporate native, local species that require low to no maintenance.

## 5. Public Involvement

### A. Girdwood Cemetery Committee

The Girdwood Cemetery Committee was created by the Girdwood Board of Supervisors to oversee planning and development of the cemetery. Prior to this report, the committee has met with the public and organized walk throughs with the site. The project team has been coordinating with the committee for review and approval of the schematic design. The following table summarizes the meetings with the committee.

*Table 1 – Girdwood Cemetery Committee Meetings*

| <b>Date</b>                     | <b>Meeting Type</b>  | <b>Remarks</b>  |
|---------------------------------|----------------------|---|
| October 20, 2018                | In Person            | Met with the Committee and walked the site                        |
| November 2, 2018                | In Person            | Reviewed preliminary findings and potential cemetery development  |
| December 18, 2018               | Telephone Conference | Reviewed preliminary cemetery layout and preliminary phasing plan |
| January 15 <sup>th</sup> , 2019 | Telephone Conference | Reviewed cemetery master plan and revised phasing plan            |
| February 7 <sup>th</sup> , 2019 | In Person            | Reviewed cost estimate and Open House Agenda                      |

### B. Open House

*To be completed following February 28<sup>th</sup> public open house.*

### C. Summary of Public Comments Received

*To be completed following public open house.*

## 6. Permitting

Cemetery Development is governed by the State of Alaska Statute 10.30 and Anchorage Municipal Code 21.50.140. State of Alaska Statute 10.30 outlines requirements for formation of a nonprofit cemetery including requirements for a cemetery plan and identifying cemetery lots. The Anchorage Municipal Code 21.50.140 outlines design requirements for cemeteries. The Code requires platting of burial plots and a maximum density of no more than 1,500 burial plots per gross acre. These requirements were written with the intention of full body burials. If needed, the cemetery should request a variance for a greater density of burials with cremation. The Code also requires the maximum height of principal and accessory structures not exceed 35 feet.

Crow Creek Road is owned and maintained by the State of Alaska. As such, any driveway connecting the site to Crow Creek Road will require a State of Alaska driveway permit. Municipality of Anchorage Building Permit.

RSE reviewed required environmental permits required for the project. A summary of their review is included in Appendix D. The following environmental permits will be required for work at the cemetery site:

- Alaska Pollution Discharge Elimination System Construction General Permit Stormwater Pollution Prevention Plan for disturbances greater than 1 acre.
- Alaska Department Fish and Game Habitat Permit will be required for construction of the crossing over California Creek
- Flood Hazard Permit will be required if development occurs within the floodplain of California Creek.
- California Creek and surround streams and tributaries are considered Waters of the U.S. and will require an evaluation for a Nationwide Permit if development or fill encroaches into these waters.

The wetlands survey completed by RSE did not identify jurisdictional wetlands on the property. However, the survey did not get submitted to the US Army Corp of Engineers for review and concurrence. As such, it is possible additional areas could be considered jurisdictional wetlands by the Corp of Engineers.

If federal funding is used for development of the project, a Section 106 Cultural Resource consultation is required. At a minimum, the State Historic Preservation office should be contacted to preserve artifacts and features onsite.

## 7. Phasing

Cemetery development will occur in four phases. See Figure 9 for phasing layout. The first phase will encompass the majority of infrastructure including the parking areas, central activity area, storage yard, meditation facilities, restroom facilities, and pedestrian connection to Beaver Pond Trail. The remaining phases will open additional areas for burials. Since maintenance of pedestrian trails relies partially on foot traffic, it is recommended that the trails be furthered phased, with the exception being the main trail to access the Beaver Pond Trail system.

*Table 2 - Cemetery Phasing Summary*

| Phase   | Construction Year | Development  |
|---------|-------------------|--|
| Phase 1 | 2021              | 5 acres total to be developed. Includes parking areas, shelters with columbarium walls, pathways including connection to Beaver Pond Trail. Allows for full body burials, cremation burials, and ashes interred in columbarium                   |
| Phase 2 | 2040              | 3 acres to be developed. Includes gravel roadway to northwest portion of site and additional pedestrian pathways. Columbariums can be constructed as needed along pathways. Allows for additional full body burials and cremation burials.       |
| Phase 3 | 2080              | 8.5 acres to be developed. Includes development of remote southern portion of the cemetery site. Allows for cremation and select full body burials   |
| Phase 4 | 2100+             | 3.5 acres to be developed. Includes further development of the site including additional meadows for full body burials. Columbariums can be constructed as needed along pathways. Allows for additional full body burials and cremation burials. |

Figure 10 – Girdwood Cemetery Phasing Plan

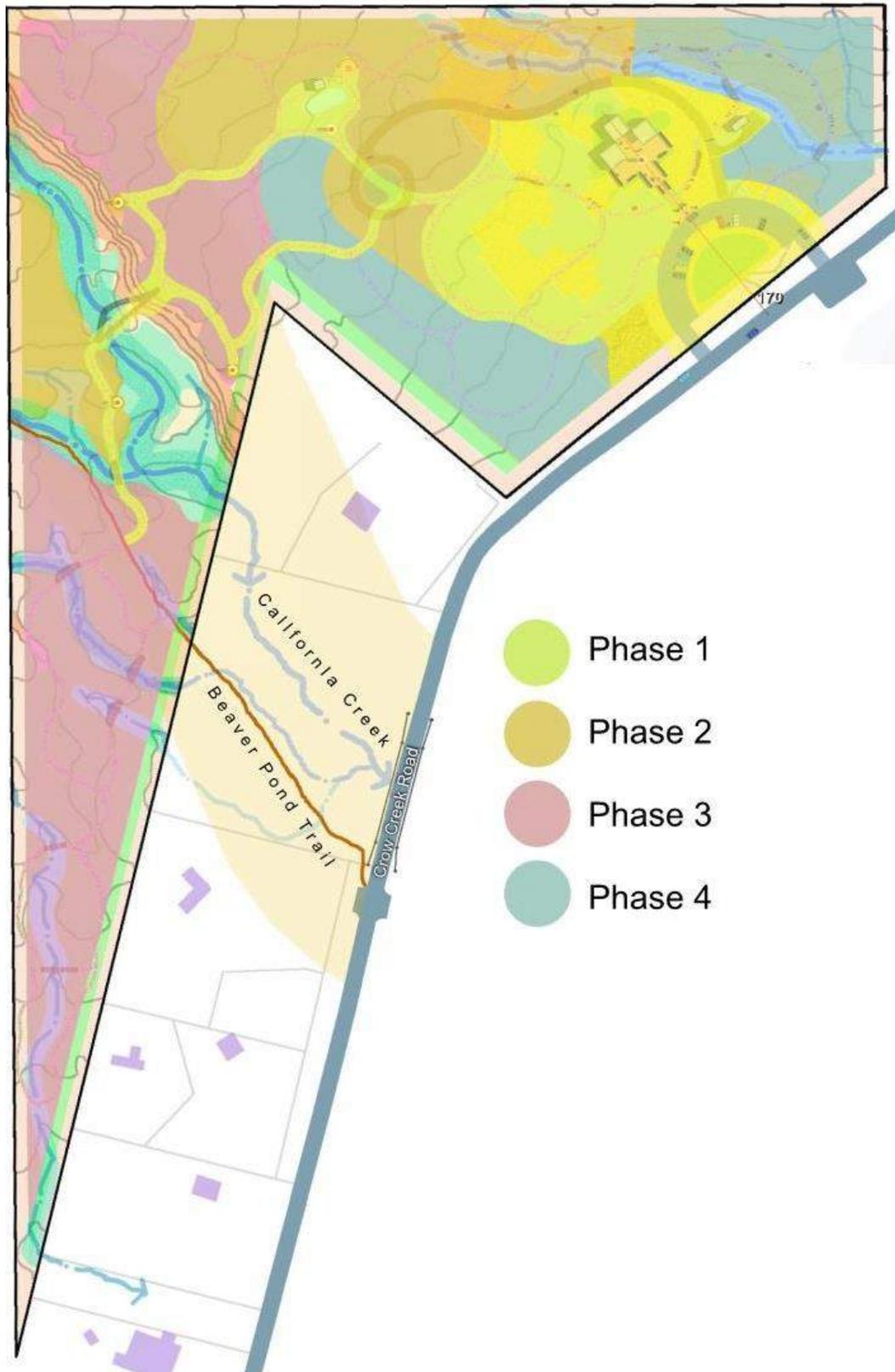
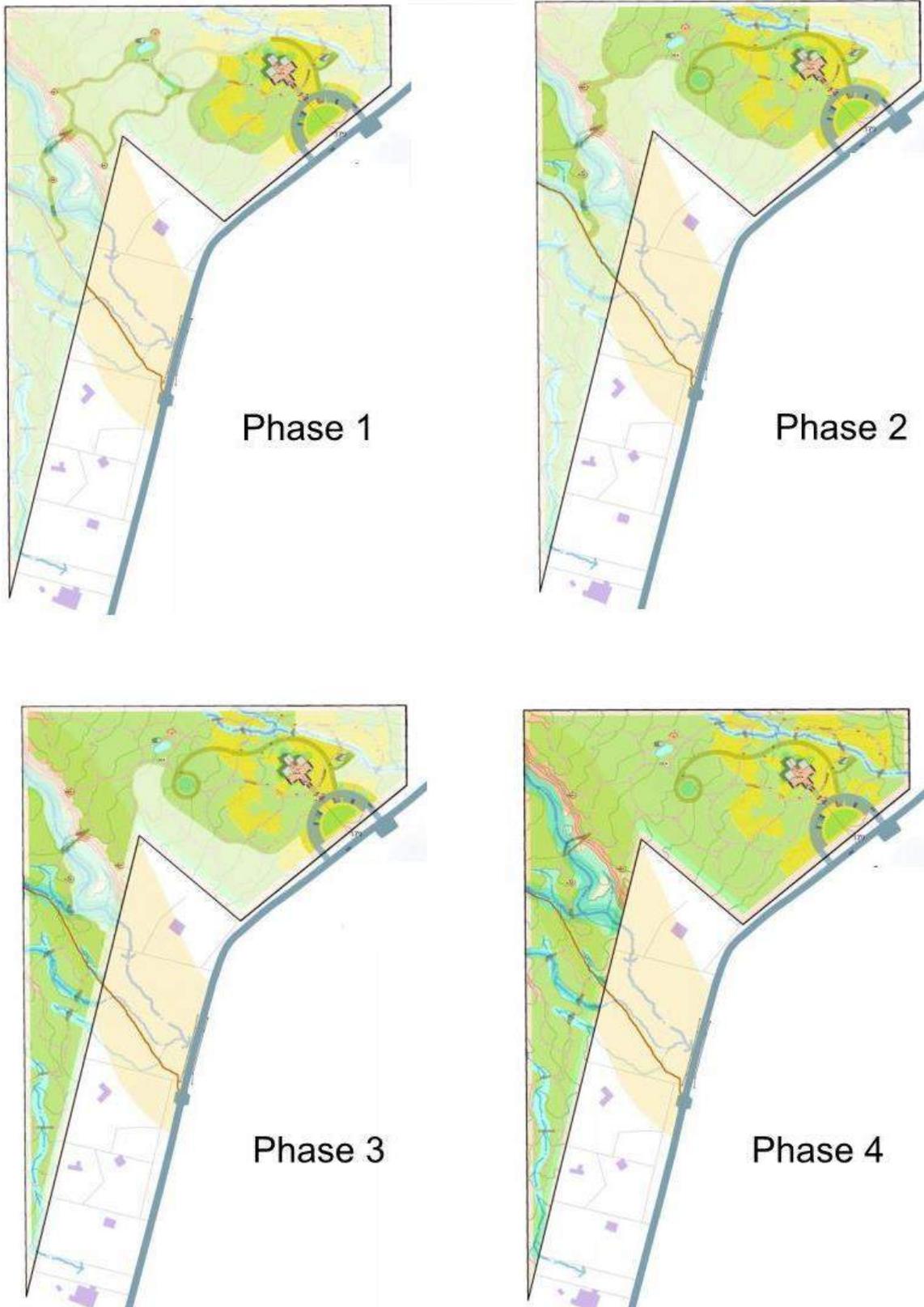


Figure 11 – Phasing Plan – Breakdown per Phase



## 8. Cost Estimate

The following table summarizes project costs per phase. Detailed cost estimates are included in Appendix B.

**Table 3 - Summary of Estimated Project Costs**

| Description                                   | Estimate           |
|---|--------------------|
| <b>Phase 1</b>                                |                    |
| Parking Area and Vehicle Access               | \$500,000          |
| Central Activity Area                         | \$660,000          |
| Storage Yard                                  | \$15,000           |
| Pedestrian Walkways and Fencing               | \$405,000          |
| Meditation Areas                              | \$40,000           |
| California Creek Bridge                       | \$250,000          |
| Columbariums/Cenotaphs                        | \$500,000          |
| <b>Subtotal:</b>                              | <b>\$2,370,000</b> |
| Construction Contingency (25%)                | \$595,000          |
| Engineering and Construction Management (35%) | \$830,000          |
| Permitting                                    | \$200,000          |
| <b>Total for Phase 1</b>                      | <b>\$3,995,000</b> |
| <b>Phase 2</b>                                |                    |
| Gravel Roadway                                | \$50,000           |
| Pedestrian Walkways                           | \$115,000          |
| <b>Subtotal:</b>                              | <b>\$165,000</b>   |
| Construction Contingency (25%)                | \$41,000           |
| Engineering and Construction Management (35%) | \$58,000           |
| <b>Total for Phase 2</b>                      | <b>\$264,000</b>   |
| <b>Phase 3</b>                                |                    |
| Pedestrian Walkways                           | \$355,000          |
| <b>Subtotal:</b>                              | <b>\$355,000</b>   |
| Construction Contingency (25%)                | \$89,000           |
| Engineering and Construction Management (35%) | \$124,000          |
| <b>Total for Phase 3</b>                      | <b>\$568,000</b>   |
| <b>Phase 4</b>                                |                    |
| Pedestrian Walkways                           | \$200,000          |
| <b>Subtotal:</b>                              | <b>\$200,000</b>   |
| Construction Contingency (25%)                | \$50,000           |
| Engineering and Construction Management (35%) | \$70,000           |
| <b>Total for Phase 4</b>                      | <b>\$320,000</b>   |
| <b>Grand Total:</b>                           | <b>\$5,147,000</b> |

End Report