RANCHO CORRAL DE TIERRA EQUESTRIAN FACILITIES MANAGEMENT STUDY

Prepared for National Park Service
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Introduction

The broad purpose of this study is to explore various management objectives and strategies to consider how they guide the development, protection, management, and use of the equestrian facilities managed by the Golden Gate National Recreation Area— Ocean View Farm, Redtail Ranch, Ember Ridge Equestrian Center, and Moss Beach Ranch. It is not intended as a decision-making document and will not be subject to NEPA. This study is a critical element needed to begin a comprehensive site planning process for Rancho Corral de Tierra.

GGNRA Context Map

Existing Site Conditions

Below is a brief overview of the existing conditions of the equestrian facilities A more thorough summary is found within the September 2020 Rancho Corral de Tierra Equestrian Facilities Site Visit Report.

Ocean View Farms

Ocean View Farms leases approximately 30 acres from NPS and houses 40 horses, with most being boarders. The ranch is in the Martini Creek watershed just east of farmland managed by the Peninsula Open Space Trust (POST). The ranch has views of the Pacific Ocean and Pedro Mountain. There is access to the North Peak Access Trail by way of a bridge to California State Parks lands. Because the ranch is bisected by the Pedro Mountain Road Trail, there are significant user conflict and safety concerns between horses, mountain bikers, and hikers, particularly those with dogs.

- The access to the ranch is right off Highway 1 and is easily accessibly by car or bus.
- Current site programs include a small summer camp and boarding for private horse owners.
- Ocean View Farms is quiet and is well managed. With limited level land and water to irrigate, there is limited pasture forage, so hauled in forage is required. Horses have pens and shelters, and some dry lot turnout.
- Several horse shelters and a residence are located near the creek under large eucalyptus trees. The main barn was not built originally as a horse barn and has inadequate access for horse use. It is used mainly for storage and educational space. There is a large arena in back, with good footing and fence.
- A portion of the back (east) acreage has been identified as wetland areas. Portions of this area have been and continue to be is used for periodic pasture and has been developed with shelters.
- Manure generated on site seems to be conscientiously managed by the operator.

Redtail Ranch

Uniquely, Redtail Ranch is comprised of 30 acres of NPS lands that are accessed via privately owned land. Currently there are 19 horses. The lease for equestrian operations will expire in 2030, at which time the equestrian operations will cease and the NPS land will be restored.

The ranch is a quiet, private place located in a residential neighborhood above Montara and Moss Beach. Adjacent equestrian facilities access the GGNRA trail systems through the ranch property. It is situated on a slope above a creek drainage with a large arena at the entrance on the only relatively level land within the site. Access to the ranch is from a paved local road by a private drive that is relatively steep in slope, which limits sight distances and complicates access particularly for vehicles pulling horse trailers.

Ocean View Farms

Redtail Ranch

Existing Site Conditions (cont.)

Moss Beach Ranch

Moss Beach Ranch leases approximately 50 acres of property from the NPS and currently houses 77 horses on the property. About two thirds of these horses are private boarders. According to the operator, horses have been on the property since the 1940s.

- The ranch is a horse boarding facility incorporating periodic riding schools.
- The access road to the facility is attractive but is relatively narrow to support vehicular, hikers, bicyclists, and equestrian uses. The same access road affords access for Ember Ridge Equestrian Center that is located above it.
- The programs offered include summer camps and riding lessons that seem organized and supported with healthy and appropriately trained horses. Horses are sustained by hauled in forage and feed, as there is limited pasture forage due to overgrazing and the type of pen management utilized. Walk-in riding or trail riding rental opportunities are not currently offered at this location.
- The valley provides some level ground that accommodates a few horse pens and dry lots, six riding arenas of varying size, three round pens, and support structures for tack and feed storage. There is some pasture turnout on the valley sides, but they are located on relatively steep side slopes that can only support a limited number of animals.
- Overall, the presentation is utilitarian and clean, but is in need of basic upgrades of fencing, improved drainage controls, and horse sheds for protection.
- Employee housing is accommodated on site.

Ember Ridge Equestrian Center

The Ember Ridge Equestrian Center leases approximately 35-40 acres of property from the NPS. The current operator boards 76-77 horses on the site. About three quarters of these horses are privately owned; the remainder are owned by the operator.

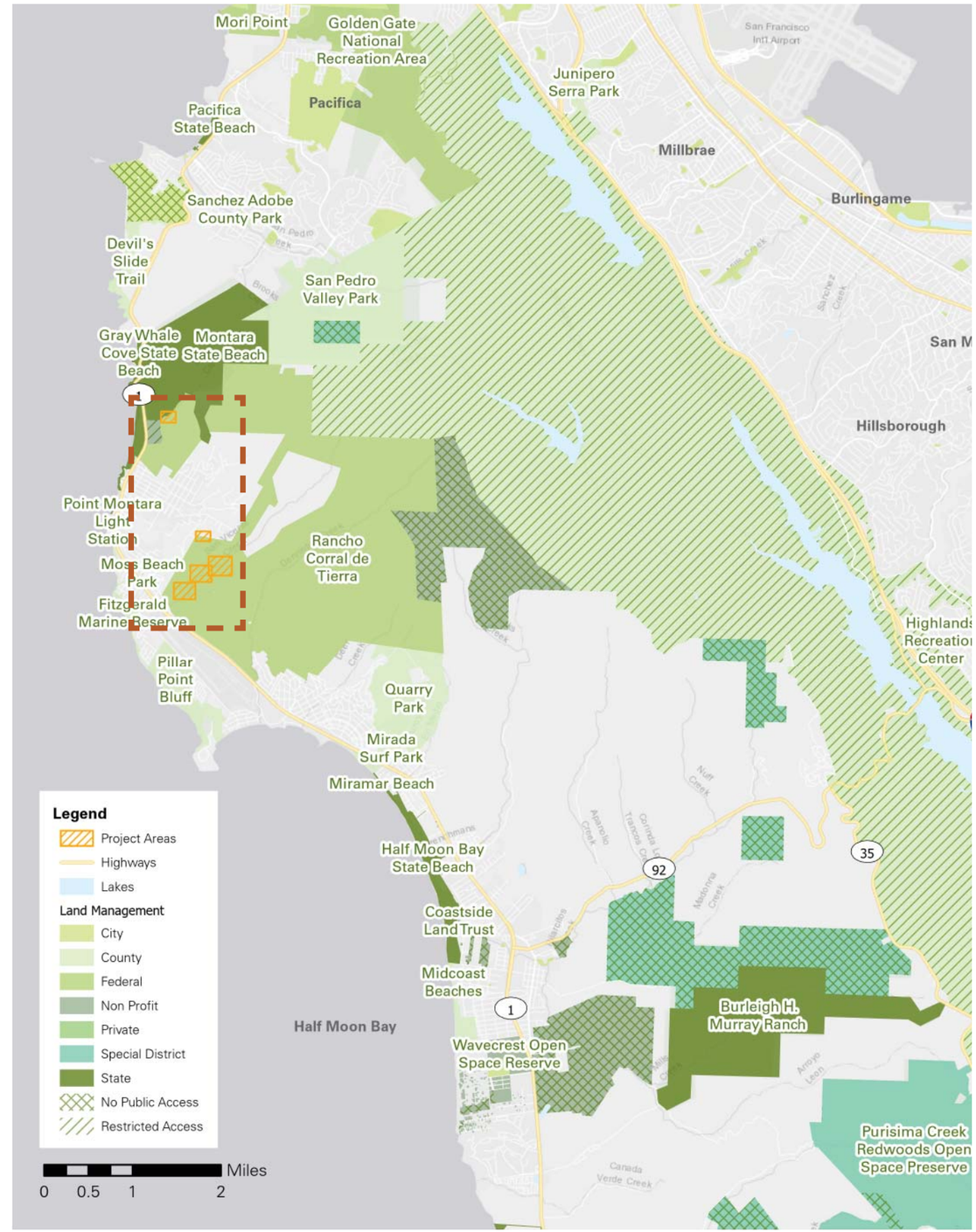
Ember Ridge seems to be a lower key operation than Moss Beach Ranch. The ranch is in the San Vicente Creek valley above Moss Beach Ranch and shares the same access road. Because it is set higher in the valley, it enjoys the protection of large trees and vegetation near the creek that splits the ranch property. The entry parking lot has ample parking and space to store horse trailers for the private boarders.

The Spine Ridge Trail traverses through the facility which results in frequent user conflicts between equestrian activities at the ranch, hikers, and mountain bikers on the trails. Equestrian camps and programs for all ages are offered, as well as private boarding and use of trails. No rental or walk in opportunities are provided, but people walking or biking through the ranch are afforded a great view of a historic old farmstead with large barns.

Moss Beach Ranch

Ember Ridge Equestrian Center

Project Site Location Map



Management Approaches

Based on the review of existing information, site observations, and conversations with National Park Service (NPS or Park Service) staff and ranch operators, the design team prepared the September 2020 Rancho Corral de Tierra Equestrian Facilities Site Visit Report. This provided the background and framework to develop management approach alternatives for each of the ranch facilities based on findings and understanding of the NPS's long-term management objectives for these properties.

Management Objectives

The purpose of this study is to document a variety of management approaches for each of the ranch facilities—Ocean View Farms, Redtail Ranch, Moss Beach, and Ember Ridge. While each approach varies, there are aspects that are consistent among all the alternatives, as described below.

Environmental Stewardship

Addressing the environmental impacts that have resulted from years of facility operations is critical to the long-term environmental quality of the properties. Elements such as impacts on the land due to horse operations and manure management and impacts to water quality and flooding are included within all management strategies.

Land Use and Lease Boundaries

Each of the alternatives consider the current land uses and how they impact the environment; explore sustainable public equestrian uses and necessary support facilities; and explore a range of day use activities and facilities. The opportunity to adjust existing lease boundaries would be considered where appropriate to achieve the best visitor experience within a sustainable context. NPS best management practices for equestrian uses have been reviewed and would be applied in all approaches. The goal is to scale all user activities to what can be sustained over time and to NPS standards.

User Experience

Because the facilities are within the Golden Gate National Recreation Area (GGNRA), opportunities for a diverse user experience are important. The Park Service's mission includes the importance of visitors and visitor experience that ultimately meet NPS standards. Each of the alternatives would include improvements to the public user experience at different levels.

Infrastructure

The infrastructure needs greatly vary depending on the selected management approach and are discussed in detail within the three Management Approaches considered later in this document. Specific infrastructure requirements is dependent on the final site layout for each approach—some, or all existing structures removed; water and septic system upgrades; new or upgraded electrical and telecommunication lines may also be needed. The direct effects of the proposed infrastructure improvements on the already impaired stream reaches and the potential floodplain impacts have been considered and recommendations provided.

Trail Network

Each alternative identifies the user conflicts with the current trail system as they relate to the interface within each of the ranch facilities, with the intent to improve the experiences of all public users. Future planning efforts will develop a broader understanding of systemwide trail improvements and user opportunities.

Planning Criteria

When considering management approaches, understanding the appropriate types of facilities for the setting and location is important. The following pages provide imagery of the various facilities that are considered in each management approach. They fall under five categories:

- **Day Use Facilities**
- **Visitor Information Kiosk & Maintenance Facilities**
- **Equestrian Facilities**
- **Overnight Accommodations**
- **Infrastructure**

Day Use Facilities

Day Use Area

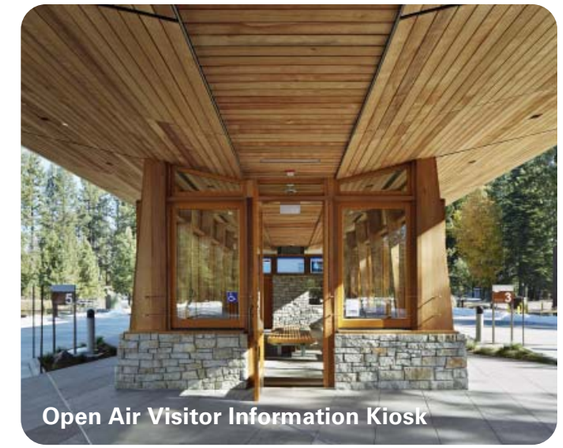
Equestrian Trailhead

Rural Parking & Trailhead

Developed Parking & Trailhead

Visitor Information Kiosk & Maintenance Facilities

GGNRA Visitor Information Center


Open Air Visitor Information Kiosk

Interpretive Displays

Rural Visitor Information Center

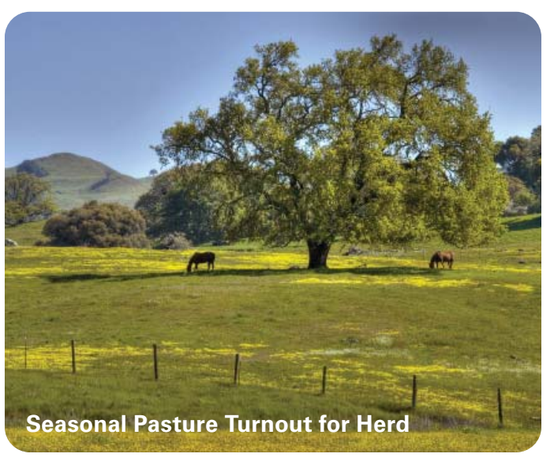
Equestrian Facilities

Stalls with Shelters

Arena

Open Corrals with Shelters

Wash Station & Tack Up Area


Seasonal Pasture Turnout for Herd

Group Picnic Area

Overnight Accommodations

Low Impact Campsites

Group Campsites

Tent and Small RV Campsites

Equestrian Campsites

Infrastructure

Water for Culinary & Stock Uses

BMPs & Water Quality Improvements

Restrooms & Sewage Treatment

Electricity & Telecommunications

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Management Approach 1

Overview

Management Approach 1 aims to create a high-quality equestrian experience for both non-horse owners and horse owners alike and is focused on the visitor experience at the equestrian operations.

The goal is to provide an NPS trail riding experience that is accessible to the public. Facilities would support seasonal public trail riding experience as well as private boarding opportunities. Certain trails would be managed for an equestrian focus with a separate trailhead and parking area for other day users.

To improve the resource management of these ranches, Moss Beach and Ember Ridge would be combined into one managed ranch. Areas of Lower and Upper Moss Beach would be reclaimed and returned to seasonal pastures, in order to eliminate or minimize floodplain impacts and to improve water quality. This would require removing all structures/fences and reseeding and recovering all areas including arenas.

Day user parking would be supported in Lower Moss Beach. Upper Moss Beach would be redesigned with corral space to support a seasonal string of rental trail horses that would be turned out in the pastures on the reclaimed areas of Upper Moss Beach, with support buildings for visitors. Ember Ridge would be upgraded to support reduced private boarding and increased public educational programs, and riding opportunities in the adjacent flower field area. These site improvements would be carefully laid out to maintain the ranch character and provide a historical narrative of the ranch experience.

Trails & Trailheads

There would be no equestrian use at Redtail or Ocean View. Ocean View would become a hiking/bicycling destination that connects to the existing McNee Ranch State Park trail system. Trails should be rerouted around the ranch to eliminate hiking/bicycling conflicts with equestrian ranch use.

Day Use Facilities

This approach includes a defined day use parking area and trailhead that is modest in size and accommodates a limited amount of parking and support facilities. Access and user conflicts would be addressed.

Infrastructure

This approach requires that existing water supply infrastructure at Moss Beach be converted for exclusive use to support stock watering needs and new sewage disposal systems to support planned comfort stations near the new trailheads and the horse rental areas. Existing sewage disposal systems within Moss Beach would be abandoned and existing sewage disposal systems at Ember Ridge would be retrofitted or re-constructed as necessary to meet San Mateo County requirements. The need for new sewage treatment and disposal facilities would be evaluated, should additional staff be required to manage the combined operations and visitors.

Ocean View Farms Key Management Objectives:

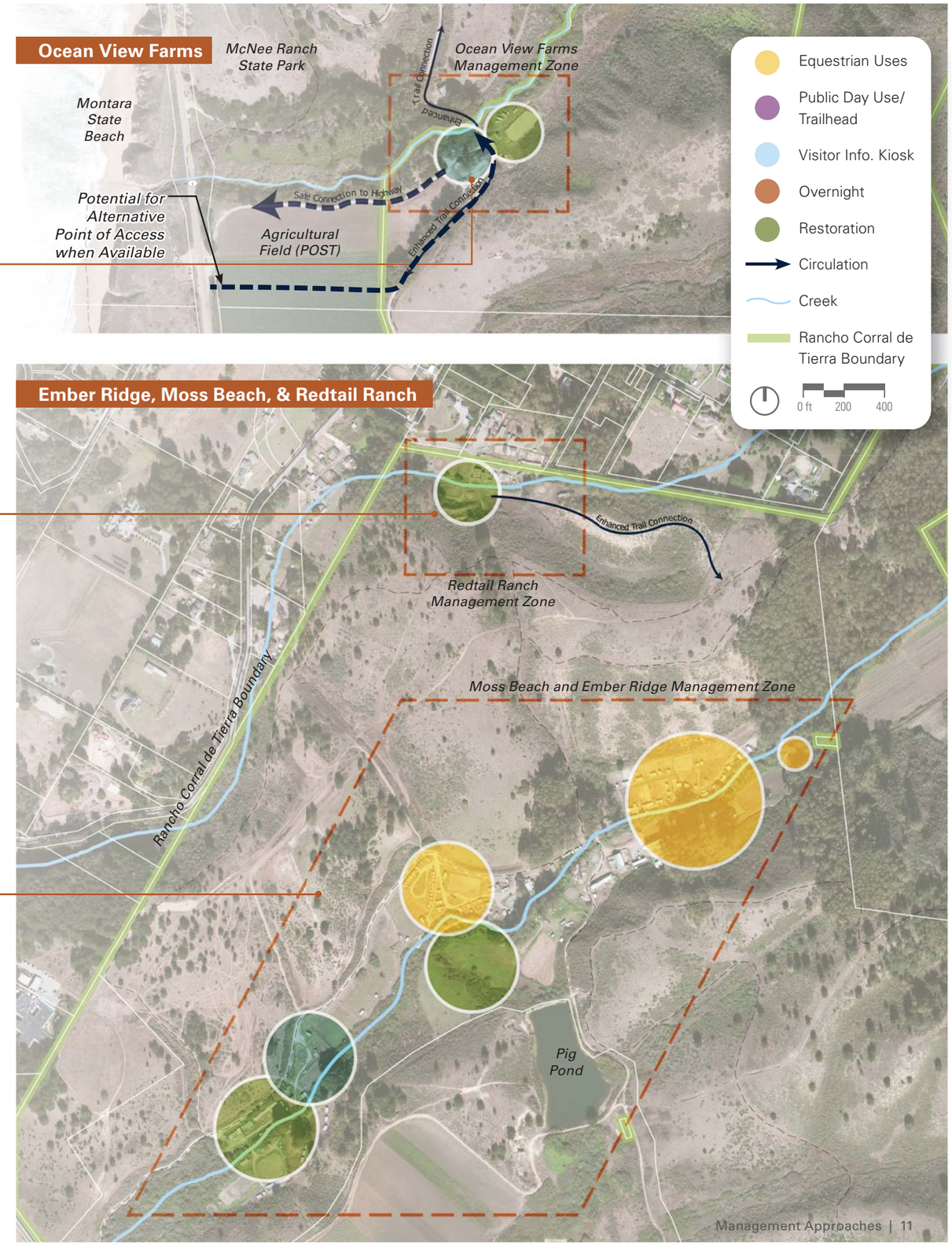
- Boarding and stables are removed
- Public trailhead for hiking and bicycling
- Enhanced trail connections to adjacent state park and NPS lands
- Equestrian facilities (barns, buildings) repurposed to day use and rentable spaces for public use
- Provide public restrooms, picnic areas, and interpretive elements
- Provide public parking and safe connection to Highway 1
- Restoration and environmental improvements

Redtail Ranch Key Management Objectives:

- Lease for equestrian ranch would not be renewed
- Public access point for local hiking, bicycling, and equestrian users
- No parking or facilities
- Entire site is restored and drainage BMPs installed

Moss Beach and Ember Ridge Key Management Objectives:

- Moss Beach and Ember Ridge would be combined into one ranch
- Reclaim and restore Upper and Lower Moss Beach for seasonal pastures
- Equestrian boarding in Ember Ridge; trail horse rentals at Upper Moss Beach
- Reduce and reorganize private horse boarding at Ember Ridge
- Expand public equestrian programs out of Ember Ridge
- Reorganize multi-use trails away from equestrian facilities
- Create equestrian focused trails
- Create public trailheads separate from equestrian facilities
- Provide public parking and restrooms
- Invest in water and sewage improvements



Management Approach 2

Overview

Management Approach 2 seeks to balance existing equestrian uses with additional public day uses such as hiking, bicycling, and picnicking. Due to their proximity to Hwy 1, Ocean View and Moss Beach Ranch would cater to day use, while Ember Ridge would support the lion's share of private boarding.

To minimize the conflicts between users day use for equestrians would be added at Ocean View and Moss Beach with separated parking and trailheads for equestrians and other trail users. The private boarding options would be reduced at all ranches with public programs added and expanded to be the main supporting program to better align with the NPS mission. The trail system that connects all areas would be designated per use.

Similar to Approach 1, Moss Beach would support a public rental trail horse consignment and day use for trailer-ins; Ember Ridge would expand public programs while reducing private boarding. The structures at Ember Ridge would be restored to support educational and interpretive public programs. Trail access would be rerouted around Ember Ridge to address trail user conflicts. The shed/pen areas for boarding at all ranches would be re-organized and replaced with a focus on sustainability, and arena/training/storage area needs would be reevaluated per use.

Day Use Facilities

This approach includes a greater level of day use requiring developed trailhead with designated paved parking and vault toilets with disposal facilities in accordance with San Mateo County standards. Modest picnic areas would be provided. Addition of a National Park Service visitor information kiosk could also be considered.

Overnight Accommodations

Overnight camping with designated sites could be added for all users at Ocean View and Moss Beach.

Infrastructure

Water supply and sewage disposal needs for the adjusted uses would be need to evaluated. Evaluation of water quality and recommendations for improvements to achieve a non-degradation standard to existing watersheds would be made. Finally, in consideration of floodplain related impacts, this approach contemplates removal of existing structures from the 100-year floodplain and restoring those areas as buffers to the natural stream zones.

Ocean View Farms Key Management Objectives:

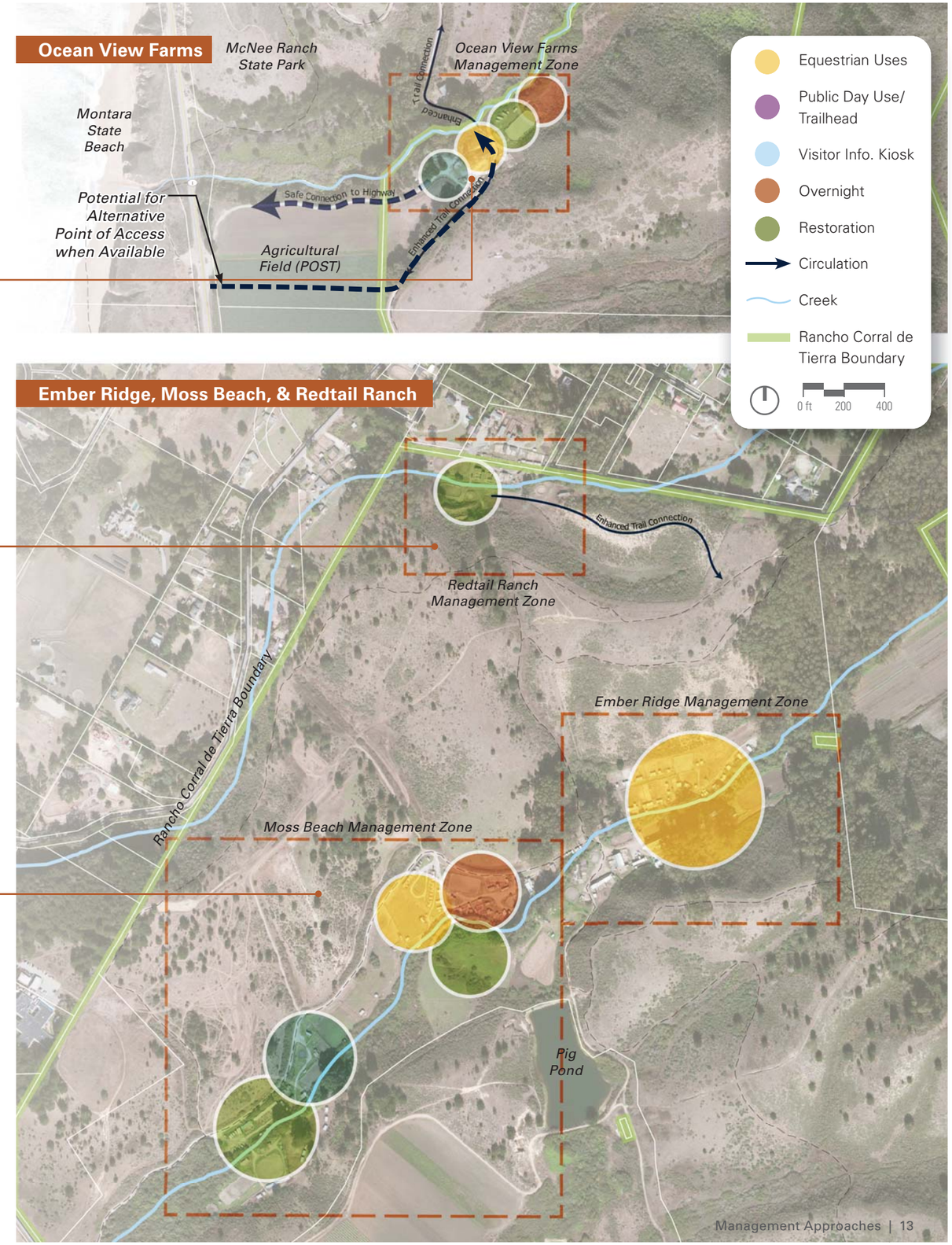
- Private stabling is reduced and reorganized
- Public trailhead for hiking, bicycling, and equestrian day users
- Enhanced trail connections to adjacent state park and NPS lands
- Equestrian facilities (barns, buildings) repurposed to day use and rentable spaces for public use
- Provide public restrooms, picnic areas, and interpretive elements
- Overnight camping introduced
- Provide public parking and safe connection to Highway 1
- Restoration and environmental/water quality improvements

Redtail Ranch Key Management Objectives:

- Lease for equestrian ranch would not be renewed
- Public access point for local hiking, bicycling, and equestrian users
- No parking or facilities
- Entire site is restored and environmental/water quality improvements

Moss Beach and Ember Ridge Key Management Objectives:

- Equestrian boarding in Ember Ridge; trail horse rentals available at Upper Moss Beach
- Reclaim Upper and Lower Moss Beach for seasonal pasture
- Reduce and reorganize private horse boarding at Ember Ridge
- Expand public equestrian programs out of Ember Ridge
- Overnight camping introduced
- Reorganize multi-use trails away from equestrian facilities
- Create equestrian only trails
- Create public trailheads separate from equestrian facilities
- Provide public parking and restrooms
- Invest in water and sewage improvements



Management Approach 3

Overview

Management Approach 3 emphasizes environment restoration and greatly minimizes private equestrian uses in favor of public day uses. This includes improving day use, enhancing public parking and trailheads, introducing overnight accommodations, building a visitor information kiosk, and enhancing public access to an improved trail system.

As in Approach 2, there would be additional equestrian day use at Ocean View and Moss Beach, while eliminating private boarding at all ranches. Ember Ridge would be restored to its previous condition as a working ranch and would showcase educational and historical exhibits and programs. All areas of former horse boarding would be restored to natural landscape and vegetation while implementing best management practices and water quality buffer areas near riparian and stream zones.

Trails & Trailheads

Enhanced trailhead features could include areas for picnicking and group rides.

Day Use Facilities

Designated paved parking, full comfort stations, small and large group day use areas with shade structures would be provided. There is also a potential option for a National Park Service visitor information kiosk at Ocean View.

Overnight Accommodations

This management plan includes overnight accommodations. Camping could be implemented at Ocean View and Moss Beach.

Infrastructure

Existing water supply facilities would be converted and used for culinary purposes to improve user experience. Similarly, appropriate sewage treatment and disposal facilities would be provided in accordance with San Mateo County requirements at each comfort station.

Ocean View Farms Key Management Objectives:

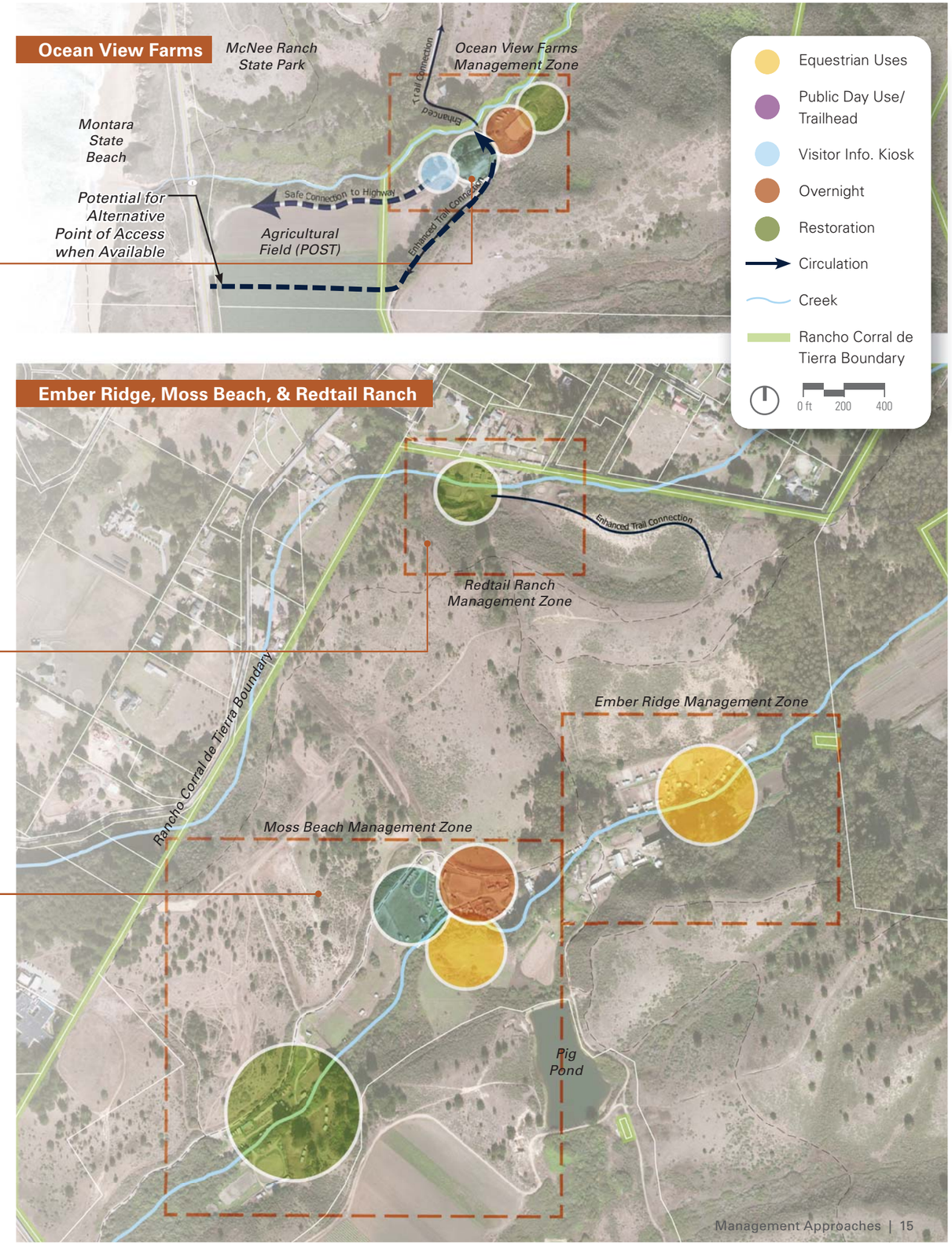
- Repurpose appropriate ranch buildings into visitor information kiosk
- Boarding and stables are removed from the site
- Public trailhead for hiking, bicycling, and equestrian users
- Enhanced trail connections to adjacent State Park and NPS lands
- Equestrian facilities (barns, buildings) repurposed to day use and rentable spaces for public use
- Provide public restrooms, picnic areas, and interpretive elements
- Opportunity for overnight camping on-site
- Provide public parking and safe connection to Highway 1
- Restoration and environmental improvements

Redtail Ranch Key Management Objectives:

- Lease for equestrian ranch would not be renewed
- Public access point for local hiking, bicycling, and equestrian users
- No parking or facilities
- Entire site is restored and environmental/ water quality improvements

Moss Beach and Ember Ridge Key Management Objectives:

- Equestrian boarding removed entirely from the site
- Seasonal equestrian facilities for day use located in Upper Moss Beach area only
- Overnight camping introduced
- Reorganize multi-use trails away from equestrian facilities
- Create equestrian only trails
- Create public trailheads separate from equestrian facilities
- Provide public parking and restrooms
- Invest in water and sewage improvements
- Restore Lower Moss Beach to natural landscape



Alternative Scenarios

The alternative scenarios depicted on the following pages show long-range management of the four (4) NPS-managed equestrian operations within Rancho Corral de Tierra— Ocean View Farms, Redtail Ranch, Ember Ridge Equestrian Center, and Moss Beach Ranch. The three scenarios correlate with the previous Management Approaches (e.g. Management Approach 1 is further developed in Alternative Scenario 1).

The scenarios would each result in the improved management of the water quality for the San Vicente and Martini Creek watersheds and comply with the San Vicente Creek Water Quality Improvement Plan (SVCWQIP) requirements; incorporate site specific sustainable horse-keeping BMPs; provide appropriate and expanded equestrian programming opportunities that aligns with the Park Service's mission.

Considerations Common to All Scenarios

Restoration

To meet the program objectives in each Alternative Scenario, the common elements for restoration of areas denuded of vegetation due to overgrazing or concentrated use (e.g., round pens and arenas) to be abandoned include the following:

Regrading

In areas with cut slopes that are denuded of vegetation, slopes should be lightly regraded and contoured as needed and appropriate, to achieve sustainable slopes.

Vegetative Buffers at Stream Zones

Vegetative buffers are expanded and/or maintained for a distance of 50-foot minimum adjacent to existing creek(s) and stream zones to trap sediment and pollutants.

Vegetative Cover

Re-seed restored areas with native grasses and plant mix to establish sustainable ground cover and reduce erosion potential. This includes implementation of bioengineering means to reduce erosion potential where drainage courses are unavoidably concentrated.

Vegetative Filter Strips

Utilizing native grasses and plants to establish vegetative strips (~20 feet in depth) adjacent to riparian areas to intercept and trap sediment prior to discharging it into stream zones.

Interceptor Ditches

Interceptor ditches are small, shallow vegetative swales with slight longitudinal slopes (<1%) and side slopes (<3:1) built to convey stormwater run-off toward vegetative buffers adjacent to riparian areas. They slow the stormwater's velocity to prevent erosion.

Manure Management

Existing manure stockpiles in current pasture areas of all ranches would be removed and hauled away or composted on-site for reuse while revegetating these areas.

Complete Restoration

Area to be restored to native vegetation for erosion control, water quality and maintenance for surrounding use. These areas may be surrounding sensitive creek or floodplain regions, or steep slopes and should not be considered for equine use.

Restoration for Seasonal Equestrian Use

Area to be revegetated to support equine grazing on a seasonal basis to lower stress on grassland area to a sustainable level. Grass species to be used will depend on native tolerant varieties, irrigation (if available), and proper size of grazing herd.

Restoration for Private Year-round Equestrian Use

Area to be revegetated to support equine grazing on a year round basis. To be sustainable, pasture must be fenced so as to divide areas for rotation during the year, particularly during wet and dry seasons. The number of horses to be grazing at one time will depend on the size of the area, slope and exposure, and monitored carefully for over use and over grazing. Grass species to be used will depend on native tolerant varieties, irrigation (if available), and proper size of grazing herd.

Water Quality

In accordance with stated objectives of GGNRA and the Regional Water Quality Control Board, each Alternative Scenario includes removal or relocation of all manured areas outside of areas subject to flood inundation during the 20-year return period (5% chance of recurrence) peak stream flows of both San Vicente Creek and Martin Creek. Implementation of this strategy would reduce concentrations of E. Coli, Enterococcus, Fecal Coliform and Nitrogen loading (as Nitrate, Total Nitrogen and Ammonia) in the runoff of both watersheds.

Additionally, all existing structures (barns, sheds, cross fencing, etc.) shall be removed from within the 2-year return period (50% chance of recurrence) peak storm floodplain. Newly planned building structures or structures to be repurposed under these management approaches are to be located outside (or flood-proofed above) the limits of 100-year return period (1% chance of recurrence) floodplain of both creeks.

New structures and parking areas and trail heads are to be constructed with BMPs inclusive of detention or retention facilities as necessary to minimize erosion and sediment transport potential.

Site Improvements

In all Alternative Scenarios, it is contemplated that existing or additional on-site wastewater treatment systems would be retrofitted or constructed in accordance with the regulations of San Mateo County Environmental Health Division.

Similarly, new or expanded potable drinking water systems needed to meet the demands of visitors to and users of each facility would be constructed in accordance with state standards. These strategies include provisions for fire protection improvements (storage tank(s), distribution piping and fire hydrants) for the protection of life and property.

Each approach further contemplates that parking areas and trails used or developed exclusively for existing and proposed equestrian facilities would be constructed without flexible paving (asphalt concrete). And, generally, trails for walking, hiking, bicycling, and overnight accommodations would be similarly constructed. Vehicular parking areas, other than for horse trailers, would be constructed utilizing pervious pavement where possible.

Redtail Ranch

Public access through Redtail Ranch is shown the same on all three scenarios recognizing the lease will not be renewed after it expires and the public ranch areas will be restored. Public access to the trails is shown in all scenarios as a simple trail access point without formal trailhead improvements (including parking, restrooms, and other associated facilities).

Next Steps

A recommended next step is to conduct market research to inform selection of a preferred alternative. After development of a preferred alternative there will be enough programming and site design detail to generate a more accurate cost estimate and to begin a financial analysis process. The order of magnitude cost estimates included in the addendum are to provide a general sense of cost and potential investment need.

Alternative Scenario 1 | Overview

This scenario reflects Management Approach 1 that focuses on prioritizing ideal/robust equestrian experience for non-horse owner and horse owner, and expands equestrian public programming.

Visitor Benefits

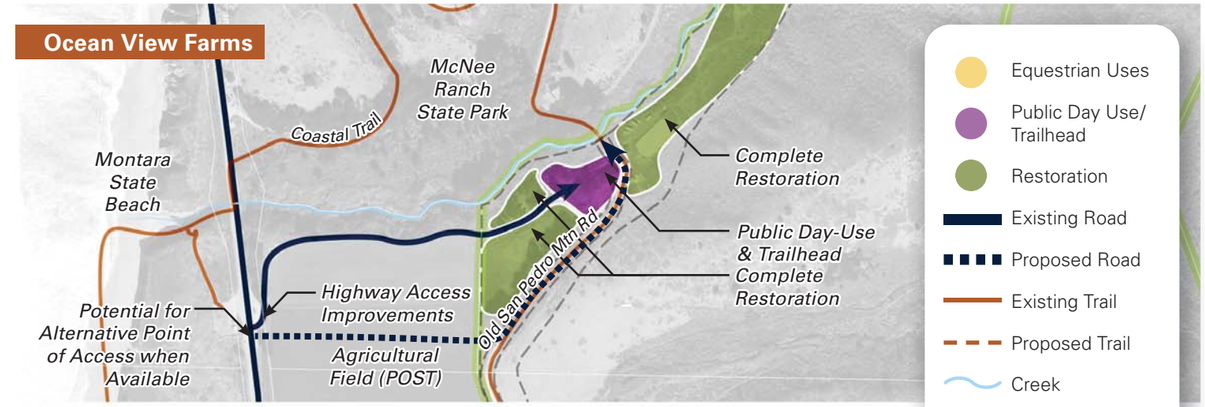
- Publicly accessible day-use area and a trailhead with parking, restrooms, picnicking, interpretation, and rentable public facilities at Ocean View Farms. Consistent with adjacent public uses on State Park lands.
- Public trail access point at Redtail Ranch with improved trail connections.
- Public trailhead and day use area at Lower Moss Beach with improved trail connection. Separation is provided from the equestrian uses at Upper Moss Beach and Ember Ridge.
- Enhanced equestrian programs and day use at Upper Moss Beach and Ember Ridge.

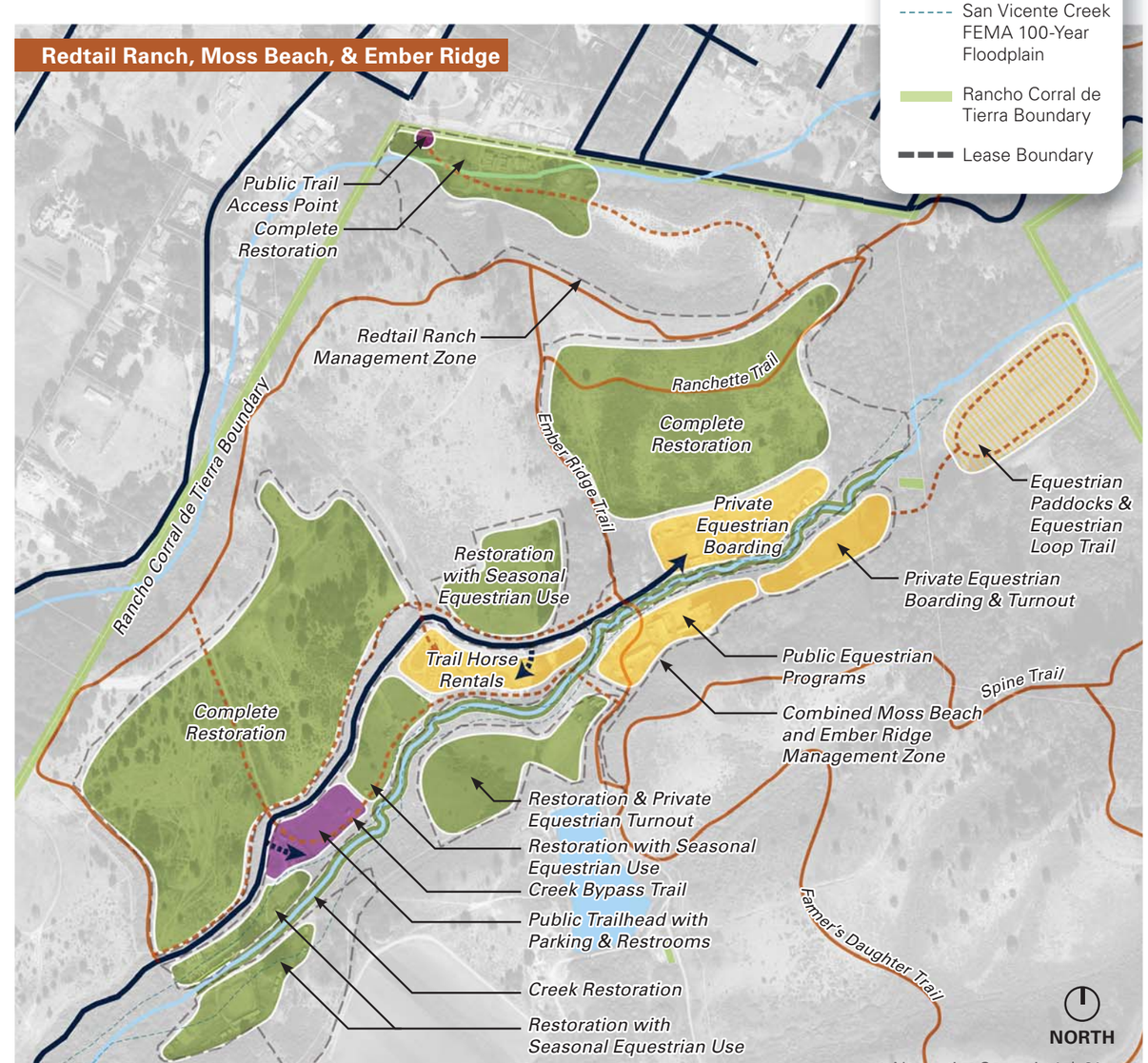
Environmental Benefits

- Removal of significant and excess nitrogen loading in site soils by reduction in animals and improved manure management.
- Restoration and revegetation of significant areas now denuded of vegetation resulting in restoration, in part, of natural hydrologic functions of each watershed.
- Establishment of on-site wastewater treatment systems compliant with San Mateo County adopted standards ensuring human waste is treated to acceptable levels.
- Reduction of sediment and nutrient loading to San Vicente Creek would contribute significantly to the Park's goal of helping to meet established water quality objectives of SVCWQIP.

Site Improvements

- Construction of the planned access improvements would significantly improve traffic and safety of visitors to Ocean View Farms and the Moss Beach/ Ember Ridge Management Area.
- Establishment of sustainable and safe electrical power service for visitor and user safety at Ocean View Farms
- Construction (or retrofitting, as appropriate) of on-site sewage disposal systems at Ocean View, Ember Ridge and Moss Beach in accordance with San Mateo County standards would function to establish sanitary conditions commensurate with the planned uses.
- Improvements to the existing water distribution systems for culinary purposes would ensure water quality standards are maintained and adequate water volumes are available to meet user demands, and that stock watering is achieved with good quality water for the health of the livestock.
- Construction of water storage and fire protection facilities would afford structure and livestock protection in the event of catastrophic fire in this portion of the park.





Alt. Scenario 1 | Ocean View Farms

Day Use Area

Ocean View Farms would feature a publicly accessible day-use area and a trailhead with parking, restrooms, picnicking, interpretation, and rentable public facilities. The day use area would be located around the existing ranch buildings and adjacent to the Old San Pedro Mountain Road/Trail to provide immediate trail access for visitors. There is potential for the ranch buildings to be repurposed for visitor use and as rentable spaces. Road access into the site would need to be improved to ensure safe ingress and egress from Highway 1.

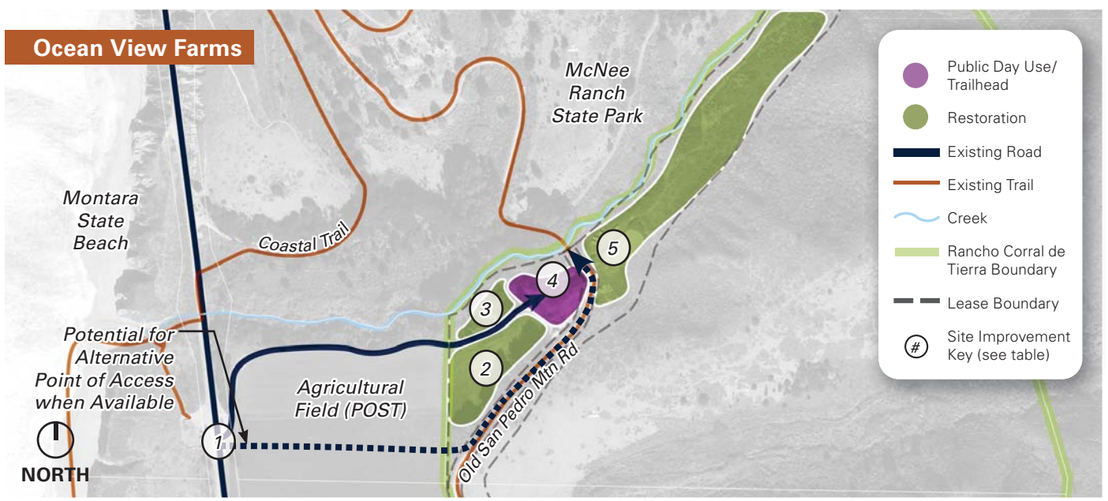
Site Improvements

- Access and traffic safety improvements at entrance from CA Highway 1.
- Construct sewage disposal improvements in accordance with San Mateo County requirements to serve new comfort station and repurposed barn.
- Water system improvements to provide culinary water for repurposed barn and comfort station.
- Construct at-grade water storage tank and hydrants for fire protection purposes.
- Extend improved power service for public safety and lighting of new comfort station and repurposed barn.

Water Quality Improvements

- Remove existing equestrian sheds, paddocks and arenas from areas to be restored.
- Regrade denuded paddock and shed areas to minimize slopes (<3:1) as necessary.
- As appropriate, deploy interceptor ditches to convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetated filter strips prior to entering riparian area of adjoining creek to intercept and trap sediment from overland flow.
- Revegetate site with native grasses and plants.

#	Land Use	Removal Recommendations	Recommended Improvements
1	Highway Access Improvements	• None	• Improved entrance (larger approach radii, acceleration/ deceleration tapers) in accordance with Caltrans standards
2	Complete Restoration	• Remove sheds, paddocks and arenas not to be re-used	• Regrade denuded areas, deploy interceptor ditches and vegetative strips, and re-seed to establish vegetative cover
3	Complete Restoration	• Remove all equestrian uses • Remove structures(5)	• Regrade denuded areas, deploy interceptor ditches and vegetative strips, and re-seed to establish vegetative cover
4	Public Day-Use & Trailhead	• Remove structures (9)	• Repurpose ranch building, parking area (pervious pavement), picnic area, comfort station, install trail signs, trail connection
5	Complete Restoration	• Remove all fencing • Remove structures (4) and sheds • Abandon roads and arenas	• Regrade denuded areas, deploy interceptor ditches and vegetative strips, and re-seed to establish vegetative cover



Alt. Scenario 1 | Redtail Ranch

Trail Access and Trails

Redtail Ranch would provide equestrian, hiker, and bicyclist trail access from the nearby neighborhoods. A proposed trail connecting Jordan Street to the San Vicente Trail would need to be sanctioned. This trail would likely follow the alignment of the existing unsanctioned trail through the site used by equestrian users.

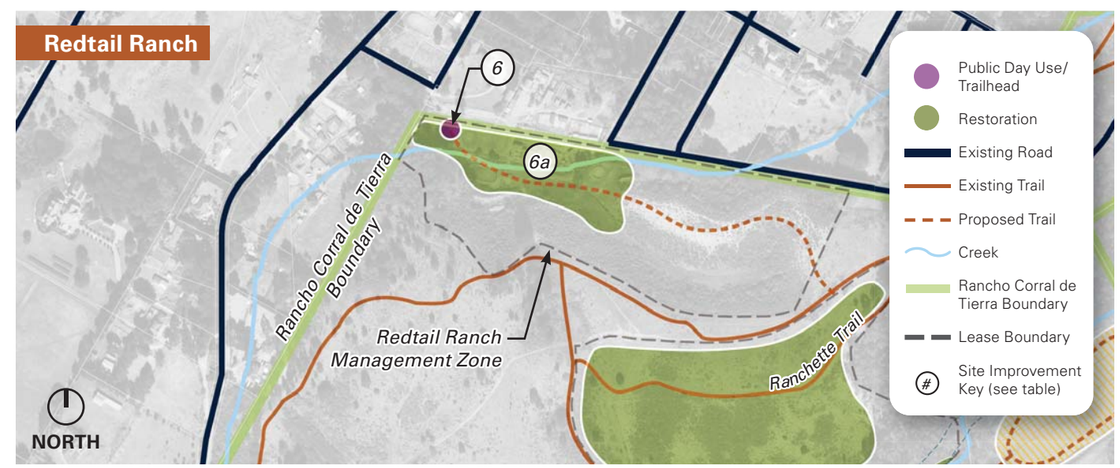
Site Improvements

- Wayfinding trail signage
- Trail connection enhancements and connections

Water Quality Improvements

- Remove existing equestrian sheds and paddocks.
- Regrade denuded paddock and shed areas to minimize slopes (<3:1) as necessary.
- As appropriate, deploy interceptor ditches to capture and convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetated filter strips prior to entering riparian area of adjoining creek.
- Revegetate site with native grasses and plants.

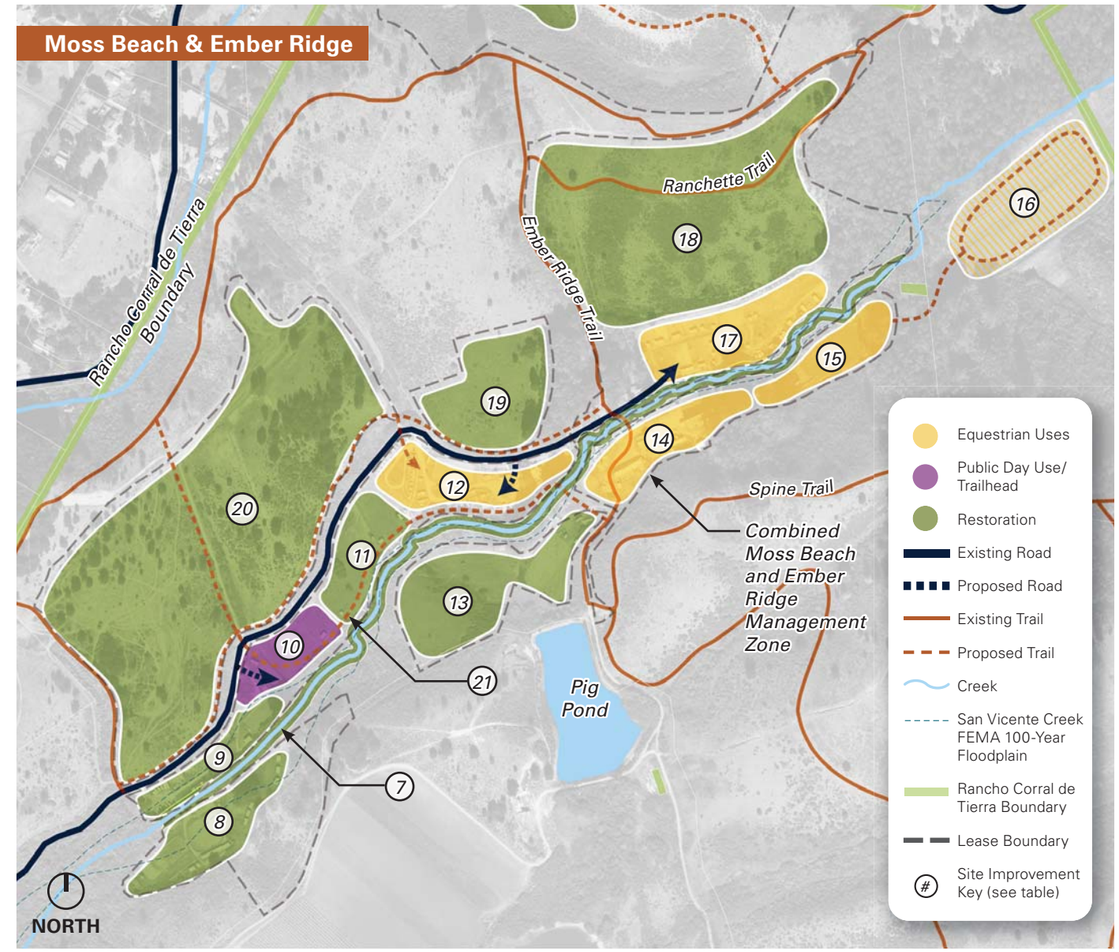
#	Land Use	Removal Recommendations	Recommended Improvements
6	Public Trail Access Point		• Install trail signs, trail connection enhancement
6a	Complete Restoration	• Remove structures (20)	• Regrade denuded areas, deploy interception ditches, vegetative strips, and reseed area for vegetative cover



Alt. Scenario 1 | Moss Beach & Ember Ridge

#	Land Use	Removal Recommendations	Recommended Improvements
7	Creek Restoration	• Remove all structures and fences within the 2-year floodplain	• Establish native vegetation • Interceptor ditches
8	Restoration with Seasonal Equestrian Use	• Remove all fencing • Remove structures (13)	• Re-fence and reseed pasture area for equestrian use • Implement vegetation filter strips
9	Restoration with Seasonal Equestrian Use	• Remove structures (18)	• Re-fence and reseed pasture area for equestrian use • Implement vegetation filter strips
10	Public Trailhead with Parking & Restrooms	• Remove structures (4)	• Parking area (pervious pavement), picnic area, comfort station, replace sewage disposal system, stock water distribution system
11	Restoration with Seasonal Equestrian Use	• Remove structures (4) • Remove fence	• Re-fence and reseed pasture area for equestrian use • Implement vegetation filter strips
12	Trail Horse Rentals	• Remove structures (1)	• Upgrade ranch buildings for tack and feed storage, add tie rail areas, corral with shade cover and water, and wash rack • Update manure roll off area and access • Trail signs, comfort station, sewage disposal modifications • Implement vegetation filter strips
13	Restoration & Private Equestrian Turnout	• None	• Re-fence and reseed pasture area for equestrian use • Manure management • Implement vegetation filter strips
14	Public Equestrian Programs	• Remove structures (3)	• Comfort station, barn renovation (4) • Manure management combined with ranch management • Implement vegetation filter strips
15	Private Equestrian Boarding & Turnout	• Remove structures (1)	• Appropriate shed/runs for desired number of boarders • Maintain existing arena for both private areas • Upgrade ranch buildings for feed and tack storage • Additional wash racks • Manure management combined with ranch management • Implement vegetation filter strips
16	Equestrian Loop Trail	• None	• Equestrian specific trails • Implement vegetation filter strips
17	Private Equestrian Boarding	• Remove structures (33) • Remove fencing	• Appropriate shed/runs for desired number of boarders • Manure management combined with ranch management • Implement vegetation filter strips
18	Complete Restoration	• Remove fencing	• Evaluate site for equestrian trail usage • Regrade denuded areas, deploy interception ditches, and reseed area for vegetative cover
19	Restoration with Seasonal Equestrian Use	• None	• Re-fence and reseed pasture area for equestrian use • Vegetative cover
20	Complete Restoration	• Remove structures (2) • Abandon roads and arenas	• Multi-use trails, trail signs • Vegetative cover
21	Creek Bypass Trail	• None	• Construct new culvert at San Vicente creek crossing

Alt. Scenario 1 | Moss Beach & Ember Ridge (cont.)



Alt. Scenario 1 | Moss Beach & Ember Ridge (cont.)

Day Use Area

The public day use area would be situated in Lower Moss Beach to ensure separation between hikers and mountain bikers and the site's equestrian uses. The upper part of the valley would be reserved for equestrians, with public equestrian uses closer to the mouth of the valley and private equestrian uses further tucked away. A trail from the day use area to the Farmer's Daughter Trail would create a bypass so that hikers and bicyclists don't need to travel through the site's equestrian zone.

Public Equestrian Uses

The trail horse rental area would be updated to provide corrals and support areas for office, restrooms, tacking up, and mounting. Adjacent pasture areas would be used for seasonal herd turnout. The management area would be shared with private boarding for hay/feed storage and manure management.

Public equestrian programs would be supported in conjunction with the private equestrian uses. Public classes and clinics in horse care and management, training, and other related topics could be offered in the lower end of Ember Ridge, separate from trail horse rental and private use.

Private Equestrian Uses

The private boarding area would include the demolition of the shed/paddock areas on the north side of the creek and upgrading the existing barn structures for stalls and tack/support area. Pasture and turnout would be provided on adjacent areas to the north of San Vicente Creek and south above the creek year round. The Ember Ridge Trail crossing would be rerouted to be moved to the south near the public trail access to prevent other trail users from entering the stable areas.

Site Improvements

- Construct widened access road for improved traffic circulation for the safety of day users and equestrian users.
- Elevate or protect any new structures to be flood proof in the 100-year flood event.
- Construct sewage disposal improvements in accordance with San Mateo County requirements for new comfort stations needed to serve Public Trailhead, Public Equestrian area and Private Boarding area.
- Improve existing water system at Moss Beach to provide culinary water for comfort station/restroom at the public trailhead.
- Improve existing water system at Ember Ridge to provide stockwater for equestrian needs, and culinary water for comfort station/restroom serving both the Public Equestrian area and the Private Boarding area.
- Construct at-grade water storage tank at upper side of Ember Ridge and extend water line with hydrants for fire protection purposes.
- Alternatively, consider and evaluate feasibility of working with the local water utility that is planning to construct new water supply line through the ranches to provide fire hydrants along the pipeline alignment for fire protection purposes.
- The new manure management area at the combined ranch would be split into two support areas, one for the trail horse area, and one for the private boarding area. The trail horse area would be seasonal, so the existing area can be reduced and redone for easier access and functionality. The upper manure area would be updated for a ramped roll off or a composting bin area. With the number of horses reduced, the possibility of composting could be introduced.

Water Quality Improvements

- Remove all structures within area impacted by 20-year floodplain of San Vicente Creek.
- Remove existing equestrian sheds, paddocks and arenas from areas to be restored
- As appropriate, deploy interceptor ditches to convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetative filter strips prior to entering riparian area of San Vicente Creek.
- Revegetate restored areas with native grasses and plants.

Alternative Scenario 2 | Overview

This scenario illustrates Management Approach 2 that begins to introduce additional day uses, while still providing strong equestrian experience.

Visitor Benefits

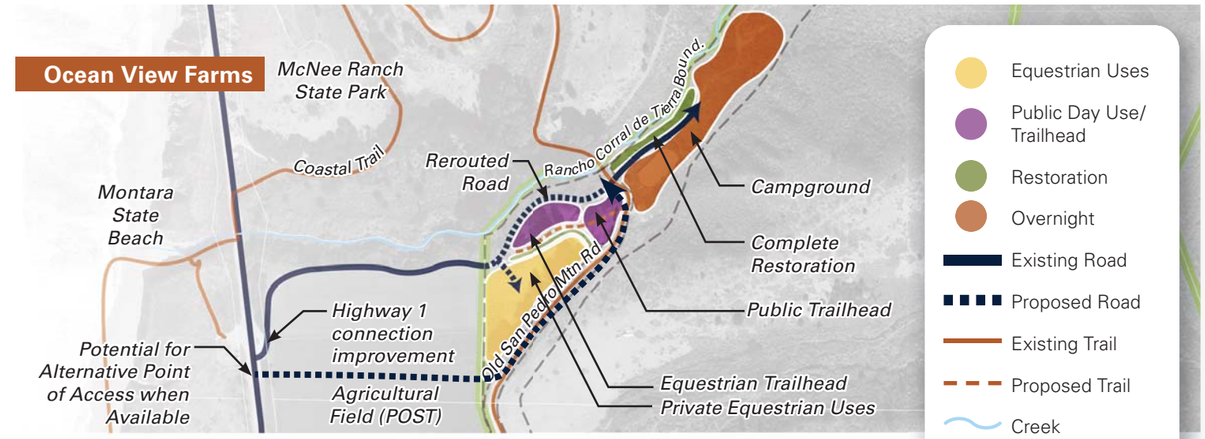
- Publicly accessible day-use area and a trailhead at Ocean View Farms - equestrian use would be retained and reconfigured separated from other day uses.
- Camping is introduced at Ocean View Farms and Moss Beach.
- Public trail access point at Redtail Ranch with improved trail connections.
- Two public trailheads at Lower Moss Beach with improved trail connections. Separation is provided from the programed equestrian uses at Upper Moss Beach and Ember Ridge.
- Enhanced equestrian programs, rentals, and boarding, at Upper Moss Beach and Ember Ridge.

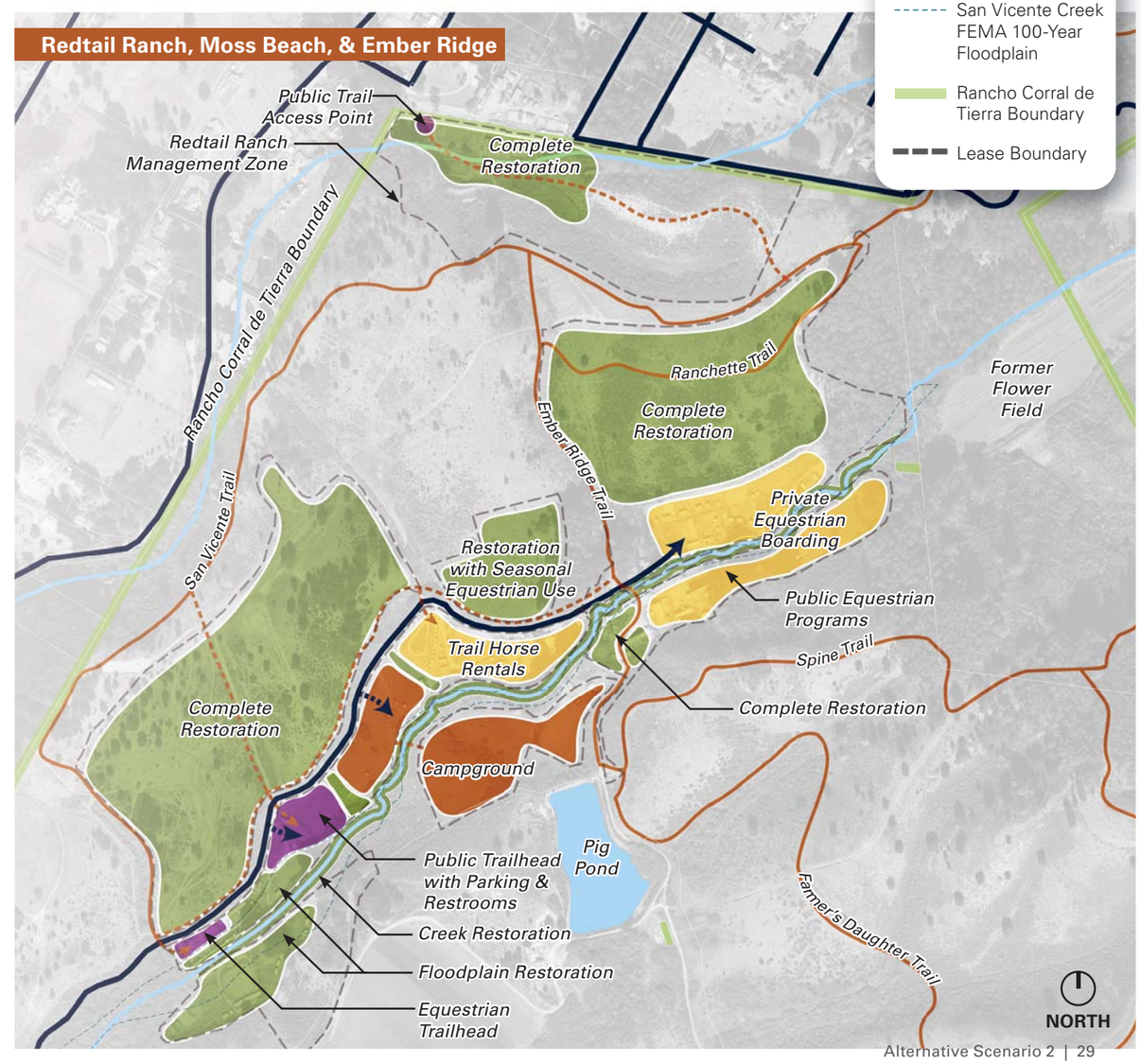
Environmental Benefits

- Removal of significant and excess nitrogen loading in site soils by reduction in animals and improved manure management.
- Restoration and revegetation of significant areas now denuded of vegetation resulting in restoration, in part, of natural hydrologic functions of each watershed.
- Establishment of on-site wastewater treatment systems compliant with San Mateo County adopted standards ensuring human waste is treated to acceptable levels.
- Reduction of sediment and nutrient loading to San Vicente Creek would contribute significantly to the Park's goal of helping to meet established water quality objectives of SVCWQIP.

Site Improvements

- Construction of the planned access improvements would significantly improve traffic and safety of visitors to Ocean View Farms and the Moss Beach/ Ember Ridge Management Area.
- Establishment of sustainable and safe electrical power service for lighting of new comfort stations, rentable public facilities and campground at Ocean View Farms would improve visitor and user safety
- Construction (or retrofitting, as appropriate) of on-site sewage disposal systems to serve planned facilities at Ocean View Farm, Ember Ridge and Moss Beach Management Area in accordance with San Mateo County standards would function to establish sanitary conditions commensurate with the planned uses.
- Improvements to the existing water distribution systems for culinary purposes would ensure water quality standards are maintained and adequate water volumes are available to meet user demands, and that stock watering is achieved with good quality water for the health of the livestock.
- Construction of water storage and fire protection facilities would afford structure and livestock protection in the event of catastrophic fire in this portion of the park.





Alt. Scenario 2 | Ocean View Farms

Day Use Area

Alternative Scenario 2 would feature a public day use area with parking, restrooms, picnicking, interpretation, and rentable public facilities. The day use area would be north of the site entry road and in the vicinity of the existing ranch building, which could be repurposed to visitor uses. This location would provide close access to the Old San Pedro Mountain Road/Trail. The site entry road would be rerouted to the north to create a more centralized day use area; the old road could be converted to a trail to provide separation between the private equestrian uses and public uses.

Private Equestrian Uses

Private equestrian uses would be located at the southern portion of the site in the large corral area adjacent to Ocean View Farms. Private equestrian use would be minimized to the south per allowable shed/paddock space. Access would be separated from public access.

Overnight Accommodations

A linear campground would be situated along the northeastern portion of the site, along the creek in areas sloping less than 10 percent. The campground could potentially fit 16 campsites of 60- and 90-foot diameters.

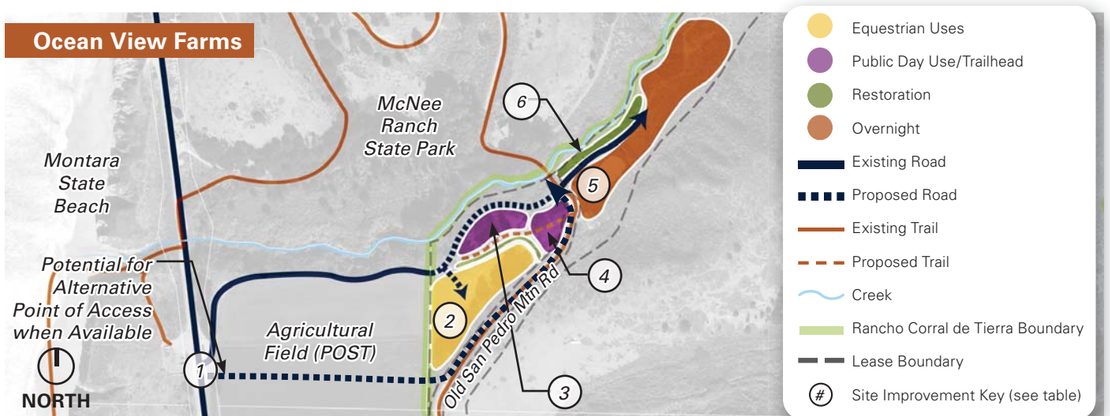
Site Improvements

- Access and traffic safety improvements at entrance from CA Highway 1.
- Re-route portion of site entry road to facilitate improved day use area.
- Extend improved power service for public safety and lighting of new comfort stations, rentable public facilities and campground as needed and appropriate.
- Construct sewage disposal improvements in accordance with San Mateo County requirements to serve new comfort station(s), rentable public facilities and campground.
- Water system improvements to provide culinary water for comfort station(s), rentable public facilities and campground as needed.
- Construct at-grade water storage tank and hydrants for fire protection purposes.

Water Quality Improvements

- Remove existing equestrian sheds, paddocks and arenas from areas to be restored.
- Regrade denuded paddock and shed areas to minimize slopes (<3:1) as necessary.
- Deploy interceptor ditches to convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetated filter strips prior to entering riparian area of adjoining creek to intercept and trap sediment from overland flow.
- Revegetate portions of site with native grasses and plants.

	Land Use	Removal Rec.	Recommended Improvements
1	Highway 1 Access Improvements	• None	• Improved entrance (larger approach radii, acceleration/deceleration tapers) in accordance with Caltrans standards
2	Private Equestrian Uses	• None	• Appropriate sheds/runs for desired number of boarders, private access, interceptor ditches, manure management, and reseed to establish vegetative cover
3	Equestrian Trailhead	• Remove structures (5) • Remove fencing	• Realign road, picnic area, interceptor ditches, and re-seed to establish vegetative cover.
4	Public Trailhead	• Remove structures (9)	• Repurpose ranch building, paved parking, picnic area, comfort station, install trail signs, trail connection enhancement, pervious pavement, interceptor ditches
5	Campground	• Remove all fencing • Remove structures (4) • Abandon roads and arenas	• Campsites (16), comfort station, vegetation filter strip and reseed to establish vegetative cover
6	Complete Restoration	• None	• Regrade denuded areas, deploy interceptor ditches and vegetative strips, and re-seed to establish vegetative cover



Alt. Scenario 2 | Redtail Ranch

Trail Access and Trails

Redtail Ranch would provide equestrian, hiker, and bicyclist trail access from the nearby neighborhoods. A proposed trail connecting Jordan Street to the San Vicente Trail would need to be sanctioned. This trail would likely follow the alignment of the existing unsanctioned trail through the site used by equestrian users.

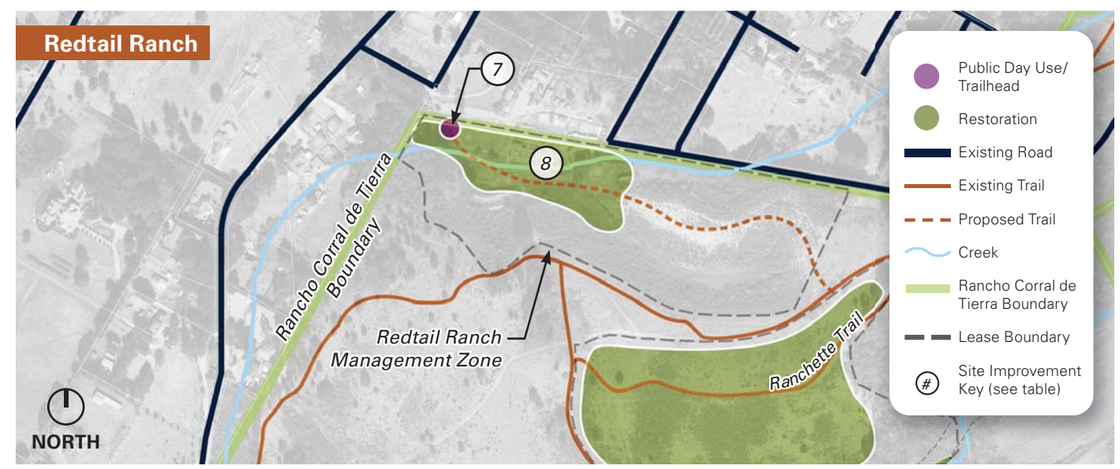
Site Improvements

- Wayfinding trail signage
- Trail connection enhancements and connections

Water Quality Improvements

- Remove existing equestrian sheds and paddocks.
- Regrade denuded paddock and shed areas to minimize slopes (<3:1) as necessary.
- As appropriate, deploy interceptor ditches to capture and convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetated filter strips prior to entering riparian area of adjoining creek.
- Revegetate site with native grasses and plants.

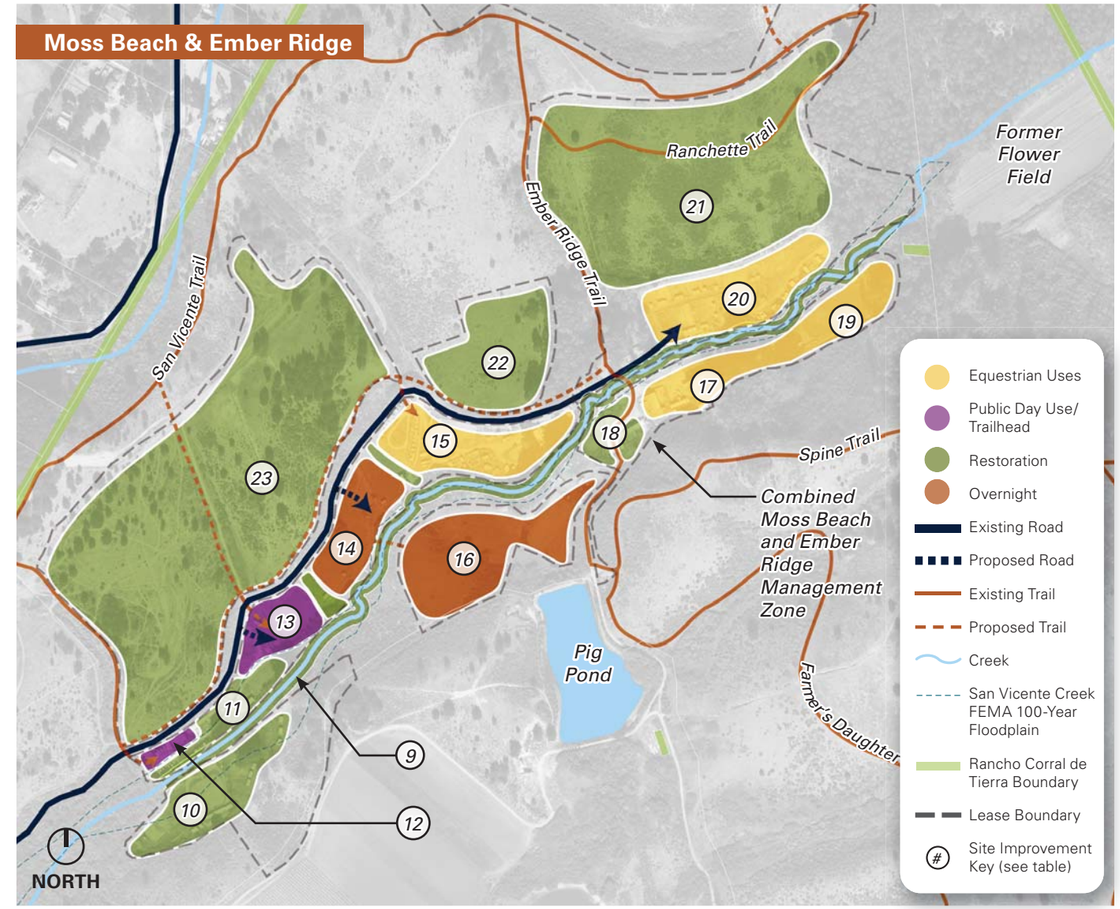
	Land Use	Removal Recommendations	Recommended Improvements
7	Public Trail Access Point	• None	• Install trail signs • Trail connection enhancement
8	Complete Restoration	• Remove structures (20)	• Regrade denuded areas • Deploy interception ditches • Vegetative strips • Reseed area for vegetative cover



Alt. Scenario 2 | Moss Beach & Ember Ridge

	Land Use	Removal Recommendations	Recommended Improvements
9	Creek Restoration	• Remove all structures and fences within the 2-year floodplain	• Construct vegetative filter strips adjoining riparian areas
10	Floodplain Restoration	• Remove all fencing • Remove structures (13)	• Regrade as appropriate, install interception ditches, vegetative filter strips, and reseed to establish vegetative cover
11	Floodplain Restoration	• Remove structures (7)	• Picnic area, install interception ditches, vegetative filter strips and reseed to establish vegetative cover
12	Equestrian Trailhead	• Remove structures (12)	• Unpaved horse trailer parking, comfort station, vegetation filter strips
13	Public Trailhead with Parking & Restrooms	• Remove structures (4)	• Paved parking, picnic area, comfort station, modify sewage disposal system, stock water distribution system, pervious pavement, interception ditches
14	Campground	• Remove structures (5) • Remove fence	• Campsites (20), comfort station, footbridge, install vegetation filter strips
15	Trail Horse Rentals	• Remove structures (1)	• Update structure for trail horse support, trail signs, comfort station, vegetative filter strips, manure management, interceptor ditches
16	Campground	• Remove fence	• Campsites (30), comfort station, vegetation filter strips
17	Public Equestrian Programs	• Remove structures (3)	• Comfort station, upgrade barns (2) for private boarding, manure management, interceptor ditch • Maintain existing arena • Drainage and fencing (2)
18	Complete Restoration	• Remove structures (2) • Remove fencing	• Vegetative filter strips, manure management, and interceptor ditches
19	Private Equestrian Boarding	• Remove structures (1)	• Appropriate sheds/runs for desired number of boarders, vegetative filter strips, manure management and interceptor ditches • Maintain existing arena
20	Private Equestrian Boarding	• None	• Manure management, vegetation filter strips, interceptor ditches • Appropriate sheds/runs for desired number of boarders
21	Complete Restoration	• Remove fencing	• Manure management, interceptor ditches, reseed to establish vegetative cover
22	Restoration with Seasonal Equestrian Use	• None	• Re-fence usable pasture area, manure management, interceptor ditches, and re-seed to establish vegetative cover
23	Complete Restoration	• Remove structures (2) • Abandon roads	• Multi-use trails, trail signs, regrade and re-seed denuded areas to establish vegetative cover

Alt. Scenario 2 | Moss Beach & Ember Ridge (cont.)



Alt. Scenario 2 | Moss Beach & Ember Ridge (cont.)

Day Use Area
The concept would create separate trailheads—an equestrian trailhead to the west and a hiker/bicyclist trailhead further east up the road. The hiker/bicyclist trailhead would provide parking and restrooms. The equestrian trailhead would feature parking spaces to accommodate horse trailers with a turnaround, unpaved surfacing, and restroom.

Overnight Accommodations
There would be a campground along the site entry road with walk-in sites to the south across San Vicente Creek. The breakdown of campsite types (tent camping, equestrian camping, walk-in campsites, etc.) would be determined at a later stage. Access into this campground area would be rerouted away from the Farmer's Daughter Trail and would require the construction of a new bridge.

Public Equestrian Uses
The trail horse rental area would be updated to provide corrals and support areas for office, restrooms, tacking up, and mounting. Adjacent pasture areas would be used for seasonal herd turnout. The management area would be shared with private boarding for hay/feed storage and manure management.

Private Equestrian Uses
Private boarding would encompass the upgraded existing barns and new shedrow pens with covered paddock areas. The quantity would depend on the number of horses that could be sustainably boarded on the site. There would be an additional turnout to the west in the flower fields.

Site Improvements
- Construct widened access road for improved traffic circulation for the safety of day users and equestrian users.
- Construct separate trailheads – equestrian and hiker/bicyclist.
- Construct comfort station both trailheads – equestrian and hiker/bicyclist.
- Construct access improvements and comfort station for campground users.
- Elevate or protect any new structures to be flood-proof in the 100-year flood event.
- Extend improved power service for public safety and lighting of new comfort stations, trailheads and campground as needed.
- Construct sewage disposal improvements in accordance with San Mateo County requirements to serve new comfort stations.
- Water system improvements to existing water system at Moss Beach to provide culinary water for comfort station/restroom at the hiker/bicyclist trailhead and to serve camping area.
- Water system upgrades to existing water system at Ember Ridge to provide stockwater for equestrian needs, and culinary water for comfort stations/restrooms at both the Public Equestrian area, the Private Boarding area, and the barn upgrades.
- Construct at-grade water storage tank at upper side of Ember Ridge and extend water line with hydrants for fire protection purposes.
- Alternatively, consider and evaluate feasibility of working with the local water utility that is planning to construct new water supply line through the ranches to provide fire hydrants along the pipeline alignment for fire protection purposes.

Alt. Scenario 2 | Moss Beach & Ember Ridge (cont.)

Water Quality Improvements
- Remove existing horse sheds and paddocks not to be reused or retained.
- Remove all structures within area impacted by 20-year floodplain of San Vicente Creek.
- Remove existing equestrian sheds, paddocks and arenas from areas to be restored.
- As appropriate, deploy interceptor ditches to convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetative filter strips prior to entering riparian area of San Vicente Creek.
- Revegetate restored areas with vegetative cover.

Alternative Scenario 3 | Overview

This scenario illustrates Management Approach 3 that focuses on restoration and day use, and prioritizes public equestrian programming over private boarding.

Visitor Benefits

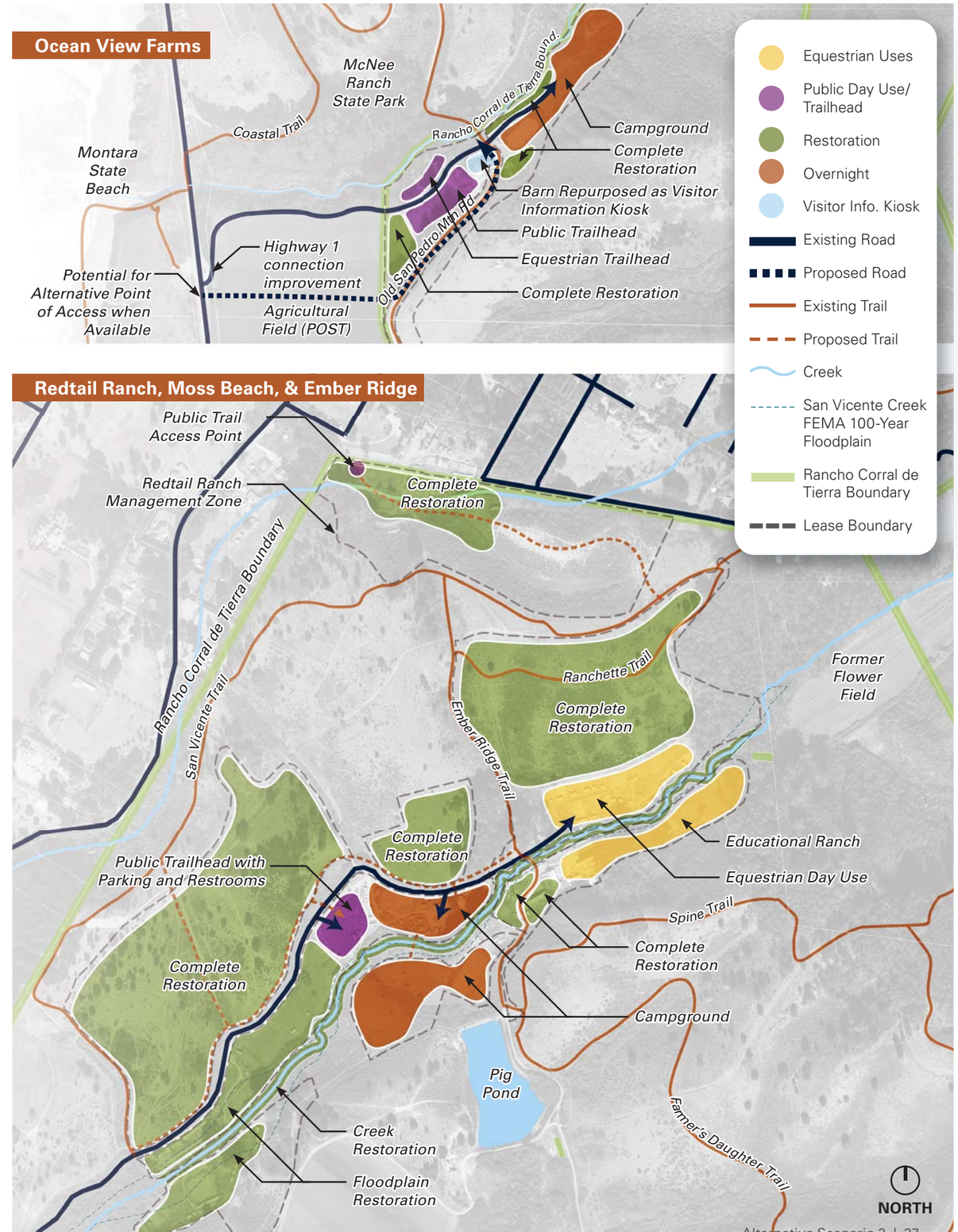
- Publicly accessible day-use area and trailheads (separate equestrian) at Ocean View Farms with a visitor information kiosk in the repurposed barn.
- Camping is introduced at Ocean View Farms and Moss Beach.
- Public trail access point at Redtail Ranch with improved trail connections.
- Public trailhead at Moss Beach with improved trail connections, adjacent to the campground.
- Equestrian day use and educational ranch for visitors is included at Ember Ridge.

Environmental Benefits

- Removal of significant and excess nitrogen loading in site soils by reduction in animals and improved manure management.
- Restoration and revegetation of significant areas now denuded of vegetation resulting in restoration, in part, of natural hydrologic functions of each watershed.
- Establishment of on-site wastewater treatment systems compliant with San Mateo County adopted standards ensuring human waste is treated to acceptable levels.
- Reduction of sediment and nutrient loading to San Vicente Creek would contribute significantly to the Park's goal of helping to meet established water quality objectives of SVCWQIP.

Site Improvements

- Construction of the planned access improvements would significantly improve traffic and safety of visitors to Ocean View Farms and the Moss Beach/ Ember Ridge Management Area.
- Establishment of sustainable and safe electrical power service for lighting of new comfort stations, new visitor information kiosk and campground at Ocean View Farms would improve visitor and user safety.
- Construction (or retrofitting, as appropriate) of on-site sewage disposal systems to serve planned facilities at Ocean View Farm, Ember Ridge and Moss Beach Management Area in accordance with San Mateo County standards would function to establish sanitary conditions commensurate with the planned uses.
- Improvements to the existing water distribution systems for culinary purposes would ensure water quality standards are maintained and adequate water volumes are available to meet user demands, and that stock watering is achieved with good quality water for the health of the livestock.
- Construction of water storage and fire protection facilities would afford structure and livestock protection in the event of catastrophic fire in this portion of the park.



Alt. Scenario 3 | Ocean View Farms

Day Use Area
The day use area would feature separate trailheads for equestrian users and all other trail users, separated by the site entry road. The main day use area would feature restrooms, picnicking, interpretation, and rentable public facilities, as well as a direct connection to the visitor information kiosk described below. The equestrian day use area would feature parking spaces to accommodate horse trailers with a turnaround, unpaved surfacing, restroom, picnic area, and horse corrals. All remnant equestrian uses such as sheds and fencing would be removed.

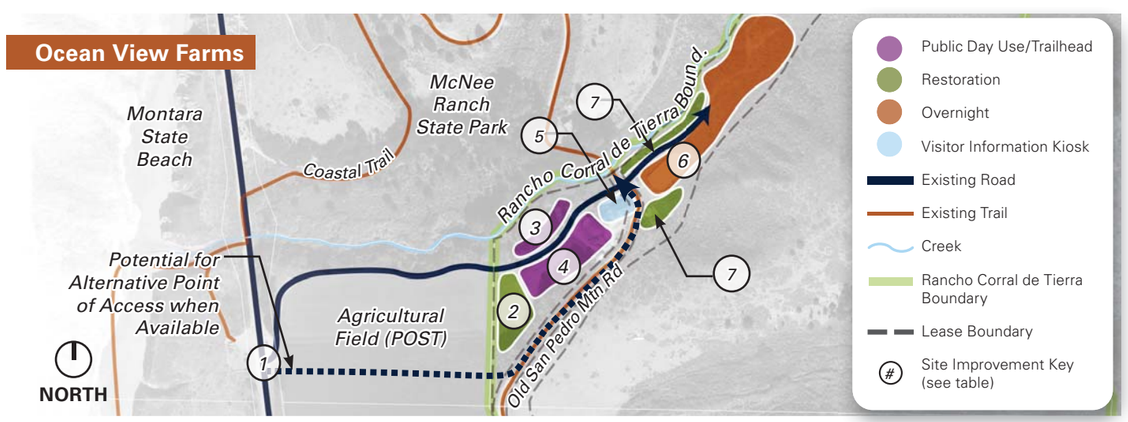
Visitor Information Kiosk
The site could accommodate a visitor information kiosk for visitors to receive information about Rancho Corral de Tierra and the greater Golden Gate National Recreation Area. The site has the opportunity to be the "southern gateway" into the GGNRA.

Overnight Accommodations
A linear campground would be situated along the northeastern portion of the site, along the creek in areas sloping less than 10 percent. The campground could potentially fit 16 campsites of 60- and 90-foot diameters.

Site Improvements
- Access and traffic safety improvements at entrance from CA Highway 1.
- Extend improved power service for public safety and lighting of new visitor information kiosk, comfort stations, rentable public facilities and campground as needed and appropriate.
- Construct sewage disposal improvements in accordance with San Mateo County requirements to serve new visitor information kiosk, comfort station(s), rentable public facilities and campground.
- Water system improvements to provide culinary water for comfort station(s), rentable public facilities and campground as needed.
- Construct at-grade water storage tank and hydrants for fire protection purposes.

Water Quality Improvements
- Remove existing equestrian sheds, paddocks and arenas from areas to be restored.
- Regrade denuded paddock and shed areas to minimize slopes (<3:1) as necessary.
- As appropriate, deploy interceptor ditches to convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetated filter strips prior to entering riparian area of adjoining creek to intercept and trap sediment from overland flow.
- Revegetate restored portions of site with native grasses and plants.

	Land Use	Removal Rec.	Recommended Improvements
1	Highway 1 Access Improve.	None	Improved entrance (larger approach radii, acceleration/deceleration tapers) in accordance with caltrans standards
2	Complete Restoration	None	Manure management, interceptor ditches and re-seed to establish vegetative cover
3	Equestrian Trailhead	Remove structures (6), remove fencing	Picnic area, shade structure, unpaved parking, corral, vegetative cover, interceptor ditch
4	Public Trailhead	Remove structures (7)	Repurpose ranch building, paved parking, picnic area, shade structures, visitor information kiosk, install trail signs, trail connection enhancement, pervious pavement, re-seed to establish vegetative cover
5	Visitor Information Kiosk	None	Paved parking, comfort station, pervious pavement
6	Campground	Remove all fencing, remove structures (4), abandon roads and arenas	Campsites (16), comfort station, implement vegetative filter strips
7	Complete Restoration	Remove all fencing, remove structures (1), abandon roads and arenas	Manure management and re-seed to establish vegetative cover



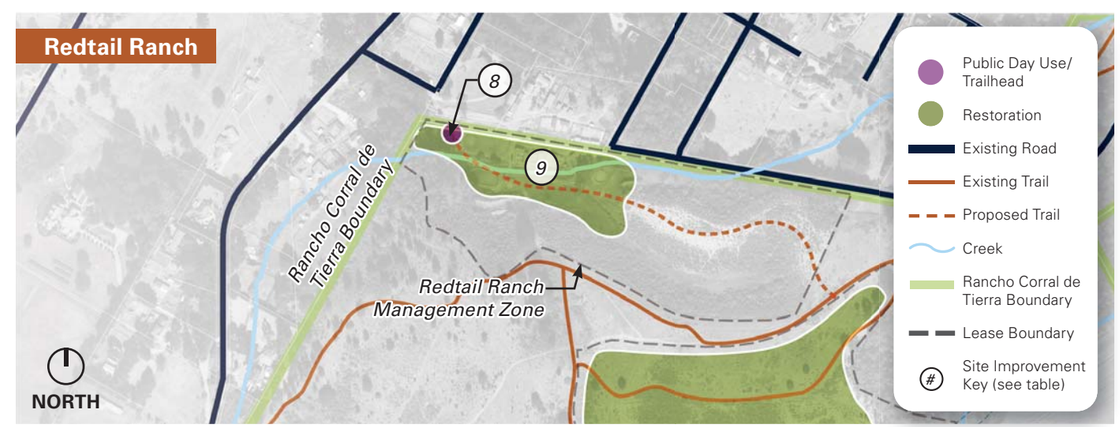
Alt. Scenario 3 | Redtail Ranch

Trail Access and Trails
Redtail Ranch would provide equestrian, hiker, and bicyclist trail access from the nearby neighborhoods. A proposed trail connecting Jordan Street to the San Vicente Trail would need to be sanctioned. This trail would likely follow the alignment of the existing unsanctioned trail through the site used by equestrian users.

Site Improvements
- Wayfinding trail signage
- Trail connection enhancements and connections

Water Quality Improvements
- Remove existing equestrian sheds and paddocks.
- Regrade denuded paddock and shed areas to minimize slopes (<3:1) as necessary.
- As appropriate, deploy interceptor ditches to capture and convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetated filter strips prior to entering riparian area of adjoining creek.
- Revegetate site with native grasses and plants.

	Land Use	Removal Recommendation	Recommended Improvements
8	Public Trail Access Point	• None	• Install trail signs, trail connection enhancement
9	Complete Restoration	• Remove structures (20)	• Regrade denuded areas, deploy interception ditches, vegetative strips, and reseed area for vegetative cover

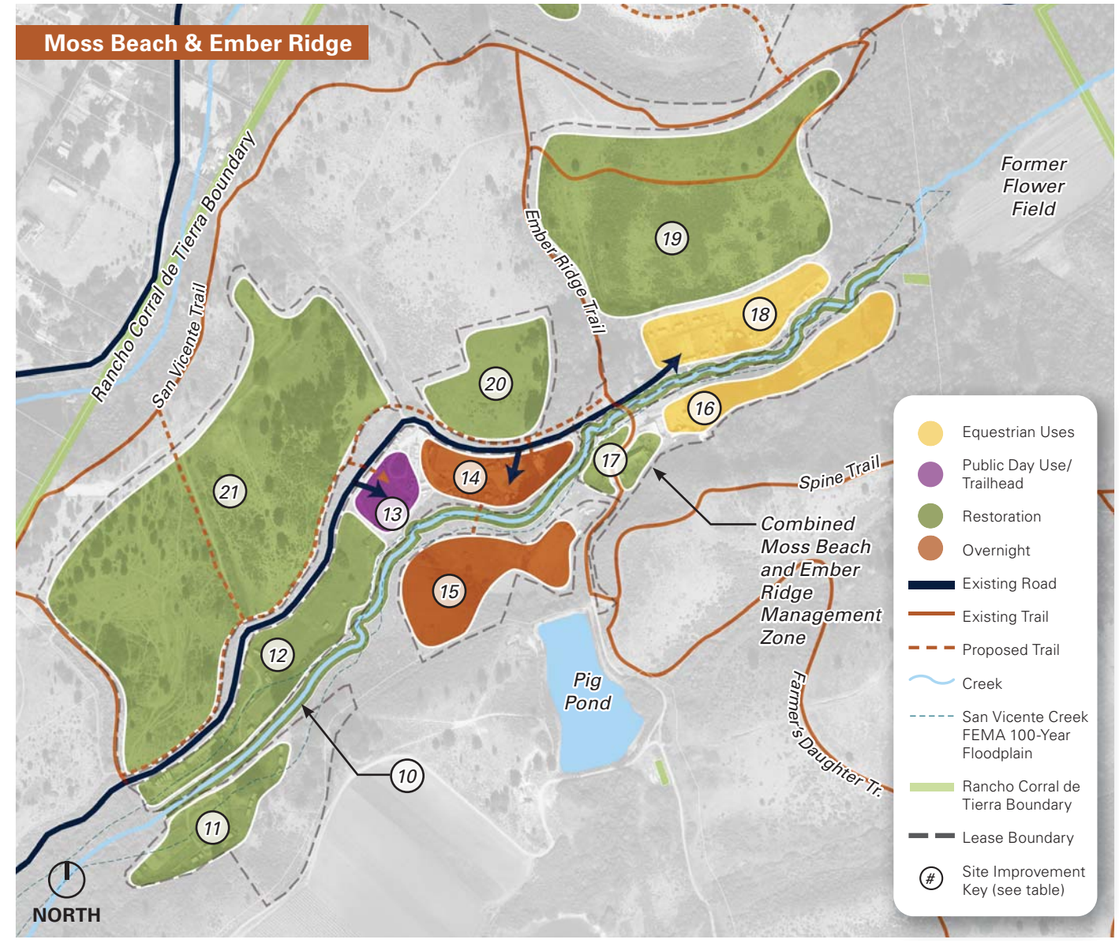


Alt. Scenario 3 | Moss Beach & Ember Ridge

	Land Use	Removal Recommendation	Recommended Improvements
10	Creek Restoration	• Remove all structures and fences within the 2-year floodplain	• Construct vegetative filter strips adjoining riparian areas; remove structures within 2-year floodplain
11	Floodplain Restoration	• Remove structures (13)	• Regrade as appropriate, install interception ditches, vegetative filter strips, and reseed to establish vegetative cover
12	Floodplain Restoration	• Remove structures (25) • Remove fencing • Abandon roads and arenas	• Install interception ditches, vegetative filter strips and reseed to establish vegetative cover
13	Public Trailhead with Parking and Restrooms	• Remove structures (13)	• Paved parking, picnic area, comfort station, modify sewage disposal system, stock water distribution system, pervious pavement, and interception ditches
14	Campground	• Remove structures (23) • Remove fence	• Campsites (20), full comfort station, footbridge, vegetation filter strips
15	Campground	• Remove structures (3)	• Campsites (30), "full" comfort station, vegetation filter strips
16	Educational Ranch	• Remove structures (6)* • Remove fencing* • Abandon roads and arenas*	• Full comfort station, septic system modifications, culinary water system • Upgrade barns (2) for programs, vegetation filter strips, interceptor ditch
17	Complete Restoration	• Remove structures (2) • Remove fencing • Abandon roads and arenas	• Vegetation filter strips, interceptor ditches and reseed to establish vegetative cover
18	Equestrian Day Use	• None	• Manure management, vegetative filter strips, interceptor ditches and reseed to establish vegetative cover
19	Complete Restoration	• Abandon roads and arenas	• Interceptor ditches, reseed to establish vegetative cover, fencing around day-use area
20	Complete Restoration	• None	• Re-fence pasture area, vegetative cover
21	Complete Restoration	• Remove structures (2) • Abandon roads and arenas	• Multi-use trails, trail signs, regrade and re-seed denuded areas to establish vegetative cover

* Recommendation is dependent on the type of educational programming and is subject to further evaluation.

Alt. Scenario 3 | Moss Beach & Ember Ridge (cont.)



Alt. Scenario 3 | Moss Beach & Ember Ridge (cont.)

Day Use Area

Next to the campground would be a hiker/bicyclist trailhead. Trail access from the trailhead area would be across the site access road to a proposed trail to the north.

Overnight Accommodations

There would be a campground along the site entry road with additional campsites across the San Vicente Creek. There is potential for the campground area south of San Vicente Creek to be either walk-in campsites with a footbridge connection or there could be vehicular access across the creek to the southern area. The breakdown of campsite types (tent camping, equestrian camping, walk-in campsites, etc.) would be determined at a later stage. Separate camping areas for equestrian and general public uses could be developed depending on demand and access constraints.

Public Equestrian Uses

Ember Ridge features a day use area north of San Vicente Creek that would include trailer parking and a picnic area, along with restrooms and potable water for horses. The existing ranch buildings south of the creek would be repurposed for educational activities.

Site Improvements

- Construct widened access road for improved traffic circulation for the safety of day users and equestrian users.
- Construct separate trailheads – equestrian and hiker/bicyclist.
- Construct comfort station at both trailheads – equestrian and hiker/bicyclist.
- Construct access improvements and comfort station for campground users.
- Extend improved power service for public safety and lighting of new comfort stations, trailheads, campground and repurposed buildings for education activities, as needed.
- Construct sewage disposal improvements in accordance with San Mateo County requirements to serve new comfort stations and re-purposed ranch buildings at Ember Ridge.
- Water system improvements to existing water system at Moss Beach to provide culinary water for comfort station/restroom at the hiker/bicyclist trailhead and to serve camping areas.
- Water system upgrades to existing water system at Ember Ridge to provide stockwater for equestrian needs, and culinary water for comfort stations/

Alt. Scenario 3 | Moss Beach & Ember Ridge (cont.)

restrooms at the public equestrian area and the repurposed ranch buildings.

- Construct at-grade water storage tank at upper side of Ember Ridge and extend water line with hydrants for fire protection purposes.
- Alternatively, consider and evaluate feasibility of working with the local water utility that is planning to construct new water supply line through the ranches to provide fire hydrants along the pipeline alignment for fire protection purposes.
- Water system improvements to existing water system at Moss Beach to provide culinary water for comfort station/restroom at the public trailhead and to serve camping area.
- Water system upgrades to existing water system at Ember Ridge to provide stockwater for equestrian needs, and culinary water for comfort stations/ restrooms at both the Public Equestrian area and the Private Boarding area, and the barn upgrades.
- Construct at-grade water storage tank at upper side of Ember Ridge and extend water line with hydrants for fire protection purposes.
- Consider working with the local water utility that is planning to construct new water supply line through the ranches to provide fire hydrants along the pipeline alignment for fire protection purposes.

Water Quality Improvements

- Remove existing horse sheds, paddocks and barns not to be reused or retained.
- Remove all structures within area impacted by 20-year floodplain of San Vicente Creek.
- Remove existing equestrian sheds, paddocks and arenas from areas to be restored.
- As appropriate, deploy interceptor ditches to convey site drainage.
- Where appropriate and feasible, route and ultimately disperse stormwater runoff through vegetative filter strips prior to entering riparian area of San Vicente Creek.
- Revegetate restored areas with vegetative cover.

Addendum

Order of Magnitude Cost Estimate | Alt. Scenario 1

7	Revegetate and Refence Pasture for Seasonal Use	11.0	AC	$	10,000	$ 110,000
8	Reclaim for Private Boarding	5.3	AC	$	10,000	$ 53,000

C. Infrastructure and Site Improvements **Subtotal $ 4,605,000**

NO.	ITEM	QUANTITY		PRICE	TOTAL
9	Public Trailhead Parking Grading, Paving, and BMPs	52,000	SF	$ 15.00	$ 780,000
10	Comfort Station	3	EA	$ 200,000	$ 600,000
11	Lighting and Electrical Extension	1	LS	$ 125,000	$ 125,000
12	Fencing	9,500	LF	$ 18.00	$ 171,000
13	Domestic Water System	1	LS	$ 750,000	$ 750,000
14	Moss Beach Stock Water System	1	LS	$ 75,000	$ 75,000
15	Moss Beach Sewage Disposal System	1	LS	$ 80,000	$ 80,000
16	Ember Ridge Sewage Disposal Modifications	1	LS	$ 75,000	$ 75,000
17	Upgrade Ex Private Barn	4	EA	$ 250,000	$ 1,000,000
18	Reorganize Private Horse Boarding	30	EA	$ 200.00	$ 6,000
19	Picnic Areas & Shade Structures/Pavilions	10,000	SF	$ 25.00	$ 250,000
20	Proposed Trails	4,400	LF	$ 115.00	$ 506,000
21	Equestrian Focused Trails	2,200	LF	$ 85.00	$ 187,000

Title 1 + Title 2 Fee Estimate - Allowance (20%)	**$ 1,896,000**
Interpretive Design Elements - Allowance (5%)	**$ 474,000**
CEQA and Coastal Commission Permitting - Allowance (20%)	**$ 1,896,000**
Contingency (25%)	**$ 2,370,000**
ALTERNATIVE SCENARIO 1 TOTAL COST	**$ 16,114,000**

Order of Magnitude Cost Estimate | Alt. Scenario 2

B. Reclamation and Environmental Remediation **Subtotal $ 500,000**

NO.	ITEM	QUANTITY		PRICE	TOTAL
4	Reclaim and Reveg Pasture/Disturbed Areas	39	AC	$ 8,000	$ 315,000
5	Reveg and Refence Pasture for Seasonal Use	4.8	AC	$ 10,000	$ 48,000
6	Floodplain Restoration	8.1	AC	$ 10,000	$ 81,000
7	Reclaim for Private Bording	5.6	AC	$ 10,000	$ 56,000

C. Infrastructure and Site Improvements **Subtotal $ 4,339,000**

NO.	ITEM	QUANTITY		PRICE	TOTAL
8	Public Trailhead/parking Grading, Paving, and BMPs	52,000	SF	$ 15.00	$ 780,000
9	Equestrian Trailhead/parking Grading and BMPs	31,000	SF	$ 8.00	$ 248,000
10	Comfort Station	3	EA	$ 200,000	$ 600,000
11	Lighting and Electrical Extension	1	LS	$ 125,000	$ 125,000
12	Fencing	7,000	LF	$ 18.00	$ 126,000
13	Domestic Water System	1	LS	$ 750,000	$ 750,000
14	Sewage Disposal System	1	LS	$ 80,000	$ 80,000
15	Upgrade Ex Private Barn	2	EA	$ 250,000	$ 500,000
16	Reorganize Private Horse Boarding	15	EA	$ 500.00	$ 7,500
17	Picnic Areas & Shade Structures/Pavilions	10,000	EA	$ 25.00	$ 250,000
18	Overnight Camping Area (51 campsites 90ft dia)	51	EA	$ 7,500	$ 382,500
19	Campground Access Bridge	1	EA	$ 25,000	$ 25,000
20	Campsite Grading	7	AC	$ 20,000	$ 149,000
21	Proposed Trails	2,750	LF	$ 115.00	$ 316,000

Title 1 + Title 2 Fee Estimate - Allowance (20%)	**$ 1,979,000**
Interpretive Design Elements - Allowance (5%)	**$ 495,000**
CEQA and Coastal Commission Permitting - Allowance (20%)	**$ 1,979,000**
Contingency (25%)	**$ 2,474,000**
ALTERNATIVE SCENARIO 2 TOTAL COST	**$ 16,824,000**

Order of Magnitude Cost Estimate | Alt. Scenario 3

NO.	ITEM	QUANTITY		PRICE	TOTAL
4	Reclaim and Reveg Pasture/Disturbed Areas	44.5	AC	$ 8,000	$ 356,000
5	Floodplain Restoration	13.5	LS	$ 10,000	$ 135,000

C. Infrastructure and Site Improvements **Subtotal $ 3,932,000**

NO.	ITEM	QUANTITY		PRICE	TOTAL
6	Public Trailhead/parking Grading and BMPs	31,000	SF	$ 15.00	$ 465,000
7	Comfort Station	4	EA	$ 200,000	$ 800,000
8	Shade Structures	1	EA	$ 10,000	$ 10,000
9	Lighting and Electrical Extension	1	LS	$ 125,000	$ 125,000
10	Fencing	1,500	LF	$ 18.00	$ 27,000
11	Domestic Water System	1	LS	$ 750,000	$ 750,000
12	Sewage Disposal System	1	LS	$ 80,000	$ 80,000
13	Repurpose Ex Ranch Buildings	2	EA	$ 250,000	$ 500,000
14	Picnic Areas & Shade Structures/Pavilions	10,000	EA	$ 25.00	$ 250,000
15	Overnight Camping Area	56	EA	$ 7,500.00	$ 420,000
16	Campground Footbridge	1	EA	$ 25,000	$ 25,000
17	Campsite Grading	8	AC	$ 20,000.00	$ 164,000
18	Proposed Trails	2,750	LF	$ 115.00	$ 316,000

Title 1 + Title 2 Fee Estimate - Allowance (20%)	**$ 2,194,000**
Interpretive Design Elements - Allowance (5%)	**$ 548,000**
CEQA and Coastal Commission Permitting - Allowance (20%)	**$ 2,194,000**
Contingency (25%)	**$ 2,742,000**
ALTERNATIVE SCENARIO 3 TOTAL COST	**$ 18,647,000**

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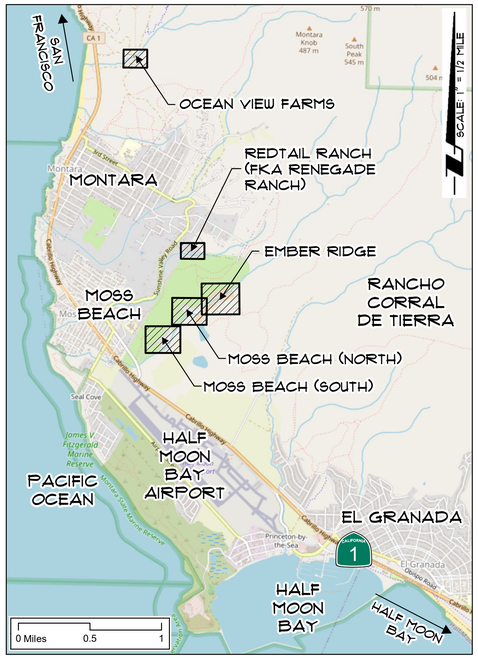
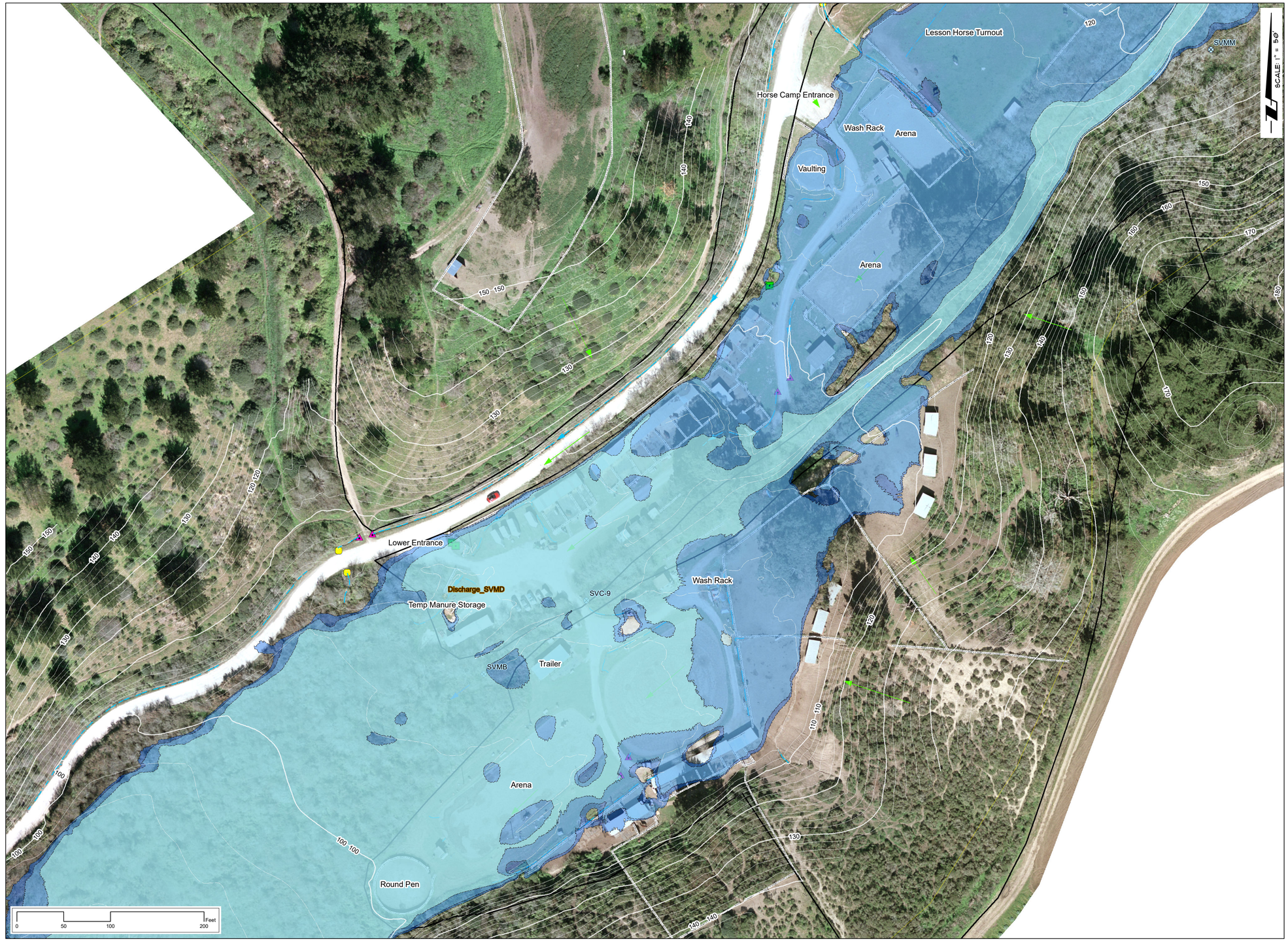


LOCATION MAP

SCALE: 1" = 1/2 MILE



SITE PLAN

SCALE: 1" = 50'

FLOOD MODEL INUNDATION LEGEND

- 21 CFS (2-YEAR RETURN PERIOD)
- 438 CFS (20-YEAR RETURN PERIOD)
- 660 CFS (100-YEAR RETURN

NO.	DATE	REVISION	BY

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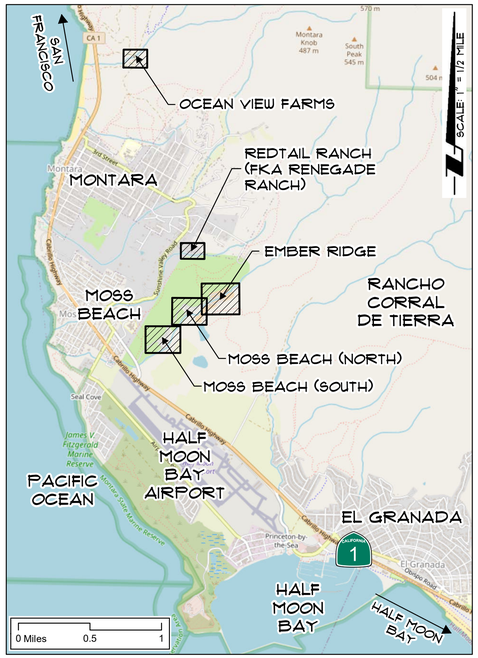
GOLDEN GATE NATIONAL RECREATIONAL AREA
RANCHO CORRAL DE TIERRA EQUESTRIAN FACILITIES
CONTRACT NO. 140P8519D0006 - TASK ORDER NO. 140P8620F0026
NATIONAL PARK SERVICE

MOSS BEACH (SOUTH) FLOOD INUNDATION MAP

GIS TECH: ETH	JOB: 2862-005
ENGINEER: ROA	GIS MAP: FLOOD_OVERLAY
SCALE: AS NOTED	SHEET: 1
DATE: 04/02/21	OF: 3 SHEETS

PUBLICATION DATE: 4/7/2021 - MAP DOCUMENT: Y:\CLIENT FILES\2862\2862-005\GIS\FLOOD_OVERLAY_STANDALONE_EXHIBITS.MXD - GIS WORK BY: ERIC HERRON



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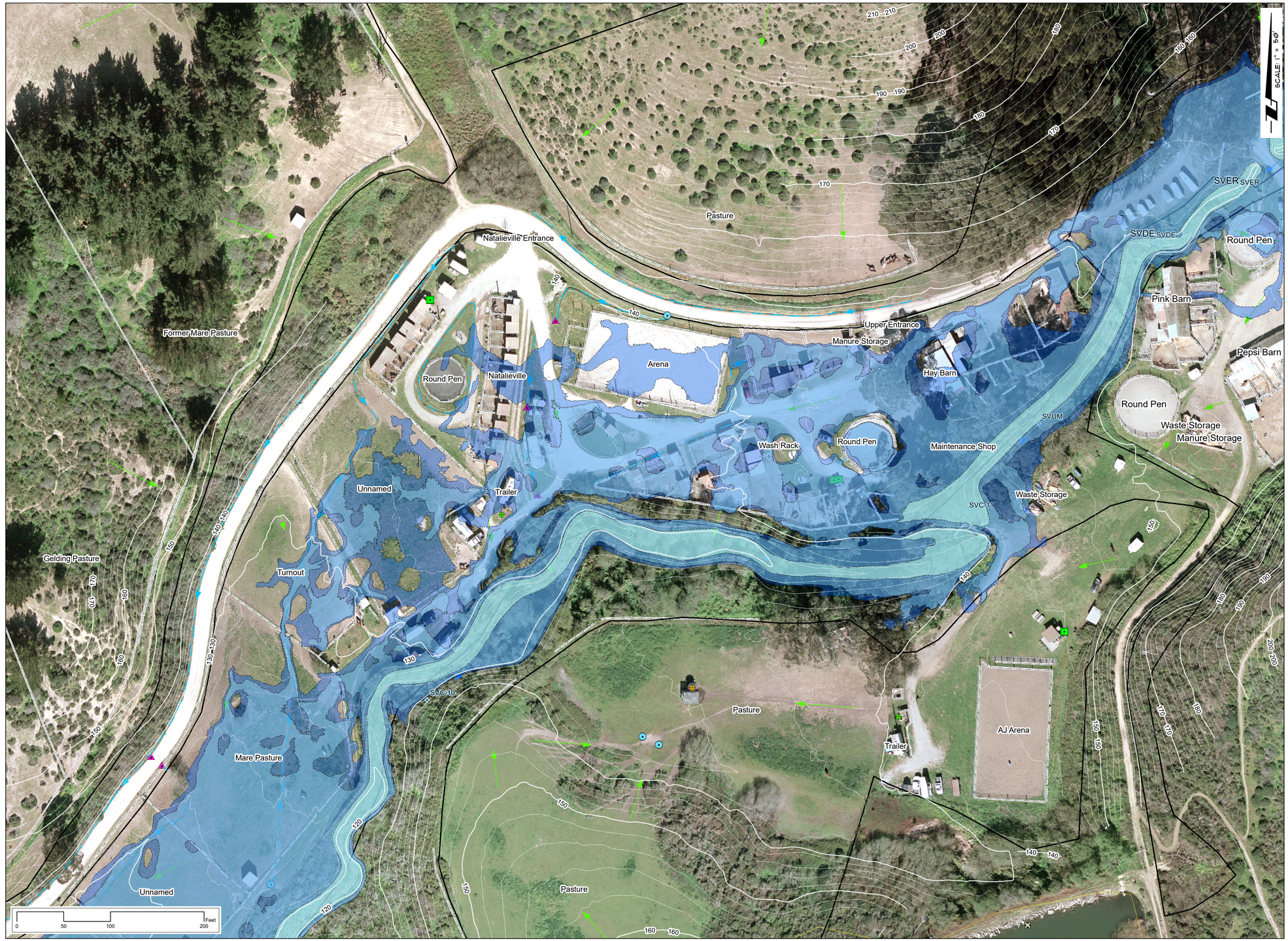

SITE PLAN

SCALE: 1" = 50'

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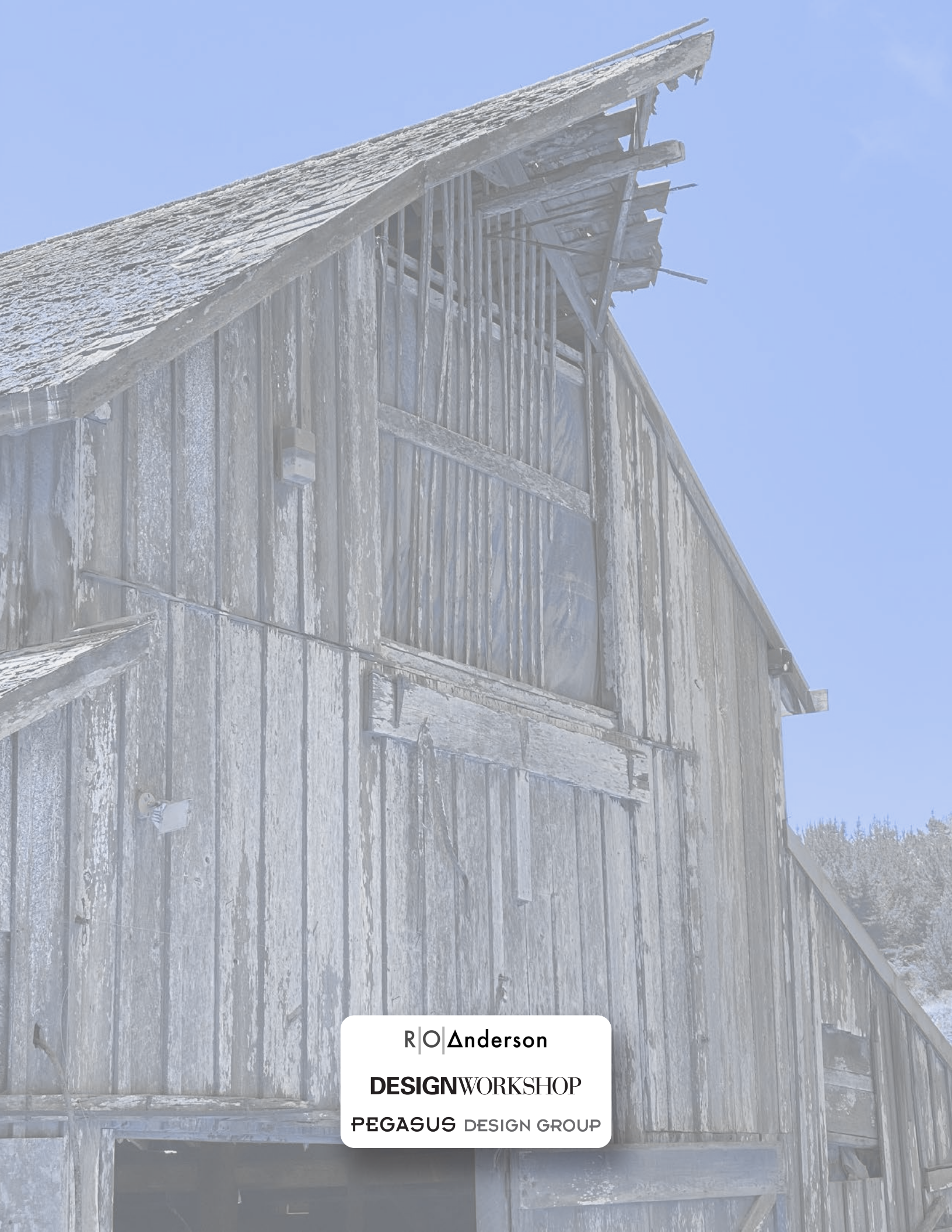
CONTRACT NO. 140P8519D0006 - TASK ORDER NO. 140P8620F0026

NATIONAL PARK SERVICE

MOSS BEACH (NORTH) FLOOD INUNDATION MAP

GIS TECH: ETH	JOB: 2862-005
ENGINEER: ROA	GIS MAP: FLOOD_OVERLAY
SCALE: AS NOTED	SHEET: 2
DATE: 04/02/21	OF: 3 SHEETS

PUBLICATION DATE: 4/2/2021 - MAP DOCUMENT: V:\CLIENT FILES\2862-2869\005 GGN FLOOD OVERLAY STANDALONE EXHIBITS.MXD - GIS WORK BY: ERIC HERRON



R|O|Anderson

DESIGNWORKSHOP

PEGASUS DESIGN GROUP