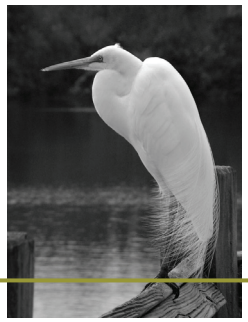

RECREATION AND RESTORATION DEMONSTRATION PROJECT

EXPANDED INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

Prepared for:

CITY OF ONTARIO

303 East "B" Street

Ontario, CA 91764

December 2008

Prepared by:

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MILL CREEK WETLANDS RECREATION AND RESTORATION DEMONSTRATION PROJECT

Chino, California

EXPANDED INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Prepared for:

CITY OF ONTARIO
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DECEMBER 2008

Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use. (Gov. Code 7550, 40 CFR 31.20)

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1.0 INTRODUCTION

Located in the upper end of the Lower Santa Ana River Canyon in Riverside County, the Prado Dam primarily provides flood control for the County of Orange. Completed in 1941 by the US Army Corps of Engineers (USACE), Prado Dam collects runoff from an approximate 2,255 square-mile Santa Ana River Watershed.

Prado Basin, located upstream of the dam, provides several other benefits, both locally and regionally, including water conservation benefits through the recharge of the groundwater water aquifer and preservation of native habitat for endangered species. Through joint planning with local and regional agencies, recreational and community opportunities have grown and continue to be planned. One notable success is the development of the Prado Regional Park by San Bernardino County Parks and Recreation Department which continues to explore opportunities with local, regional, state and federal partnerships to open the Prado Basin for recreational, community, habitat restoration, and educational opportunities.

The USACE recently initiated a Feasibility Study to evaluate habitat enhancement and recreation opportunities, as well as improvements to water quality, over a 300-acre area within Prado Basin. Detailed elements include identification of potential locations for habitat restoration along Mill Creek and Chino Creek, expansion of the recreational components of the Prado Regional Park, expansion of the regional trail system within the local communities as well as the Coast to Crest inter-county trail system, and opportunities to create natural water quality treatment systems.

In an effort to evaluate more detailed design concepts for the Feasibility Study, the City of Ontario, as project sponsor, has taken the lead in conjunction with the USACE to develop and implement a demonstration project that is the subject of this environmental analysis, titled the Mill Creek Wetlands Recreation and Restoration Demonstration Project ("Demonstration Project"). In addition to the City of Ontario, the City of Chino, the County of San Bernardino, the Inland Empire Utilities Agencies (IEUA), the Orange County Water District (OCWD), and the USACE all support the Demonstration Project.

The Demonstration Project also provides a model for the Feasibility Study for a public – private partnership. The Demonstration Project is located on both public land owned by the USACE and private land. Funding for the Demonstration Project includes a Proposition 40 grant of $5 Million, issued by the State Water Resources Control Board, with matching funds from the City of Ontario through Development Impact Fees.

The City of Ontario, as the Lead Agency, commissioned this Expanded Initial Study to determine the potential environmental impacts associated with the Demonstration Project. The Demonstration Project is located within the area covered by the 2003 City of Chino Preserve Specific Plan Environmental Impact Report (Preserve 2003 EIR and State Clearinghouse No. 2000121036). Therefore, where applicable, portions of The Chino

Preserve 2003 EIR are incorporated into this analysis. Appendix A includes a copy of The Chino Preserve 2003 Final EIR.

In accordance with CEQA and the State CEQA Guidelines, the following Expanded Initial Study has been prepared to document potential environmental impacts associated with the Demonstration Project and support a Mitigated Negative Declaration finding.

2.0 PROJECT DESCRIPTION

2.1 PROJECT NAME

The project is titled "The Mill Creek Wetlands Recreation and Restoration Demonstration Project", also referred to in this document as Demonstration Project.

2.2 PROJECT LOCATION

The Demonstration Project, located in the City of Chino, San Bernardino County, is situated within the Prado Basin, as shown on Figure 2.2-1. Bisected by Chino Corona Road, the Demonstration Project is located within the 566-foot contour of the Prado Basin flood inundation area, west of Cucamonga Creek outfall at Hellman Avenue and east of Comet Avenue.

Cucamonga Creek collects storm runoff and nuisance flow from an approximate 77 square mile watershed that incorporates the Cities of Ontario, Chino, Rancho Cucamonga, and Upland. In addition, Cucamonga Creek accepts treated waste water discharge from the Inland Empire Utility Agency's Reclamation Plant #1 (RP1). At the outfall of the riprap lined improved Cucamonga Creek Channel, the name of the natural stream changes to Mill Creek. Mill Creek continues in a southwesterly direction along the Demonstration Project's eastern boundary and confluences with the Santa Ana River within the Prado Basin.

The Demonstration Project's diversion structure, conveyance pipe, and de-silting basin (forebay) are located north of Chino Corona Road. The remainder of the Demonstration Project is located to the south of Chino Corona Road. The Project site has a combination of natural undeveloped land and former agricultural / dairy properties. Both the eastern and western surroundings are currently active agricultural / dairy properties. A limited number of residential dwellings on these properties remain in close proximity to the Demonstration Project.

Figure 2.2-2 is an aerial photograph of the project site illustrating the surrounding land uses.

Figure 2.2-1
Project Regional Location

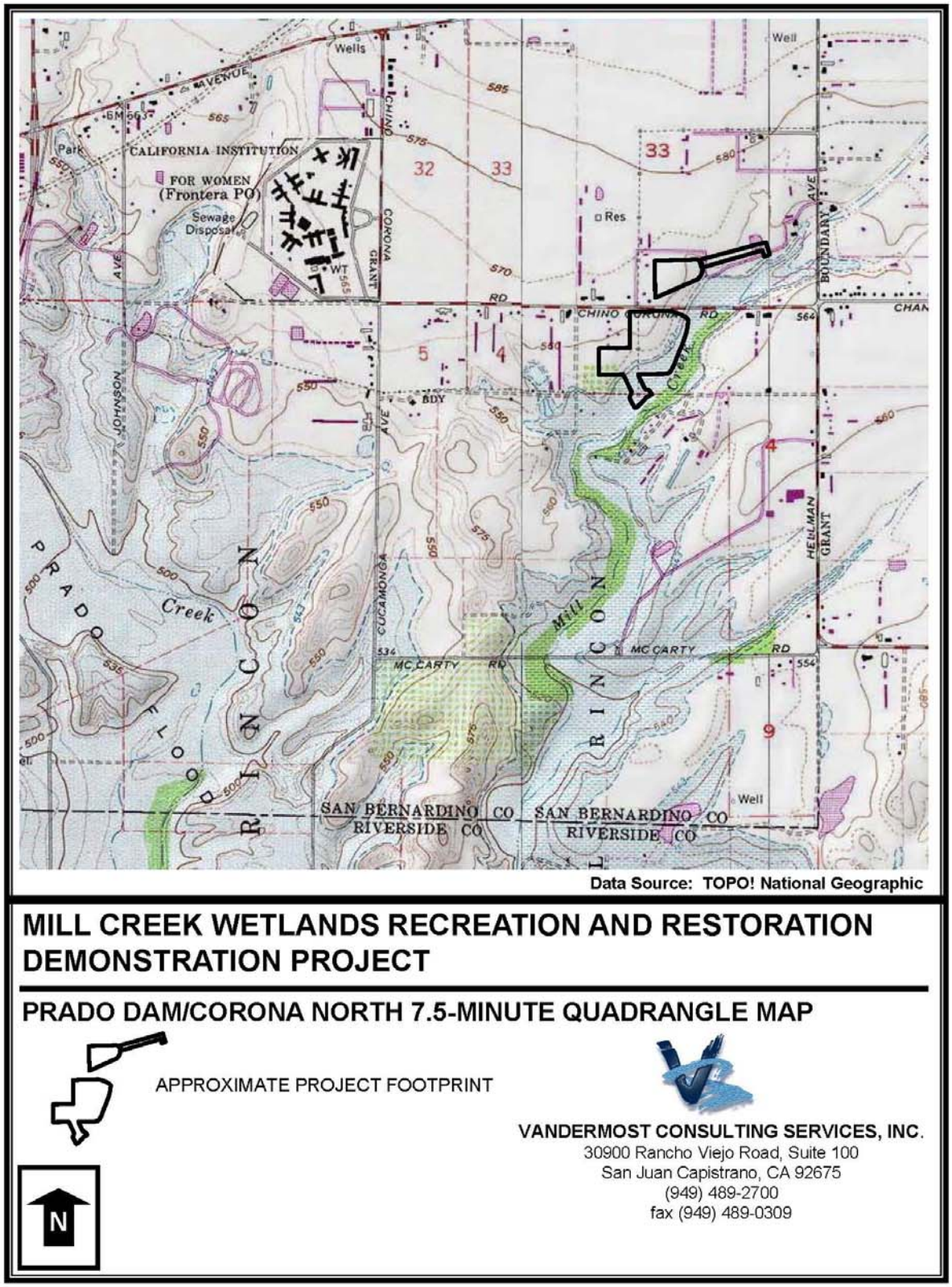
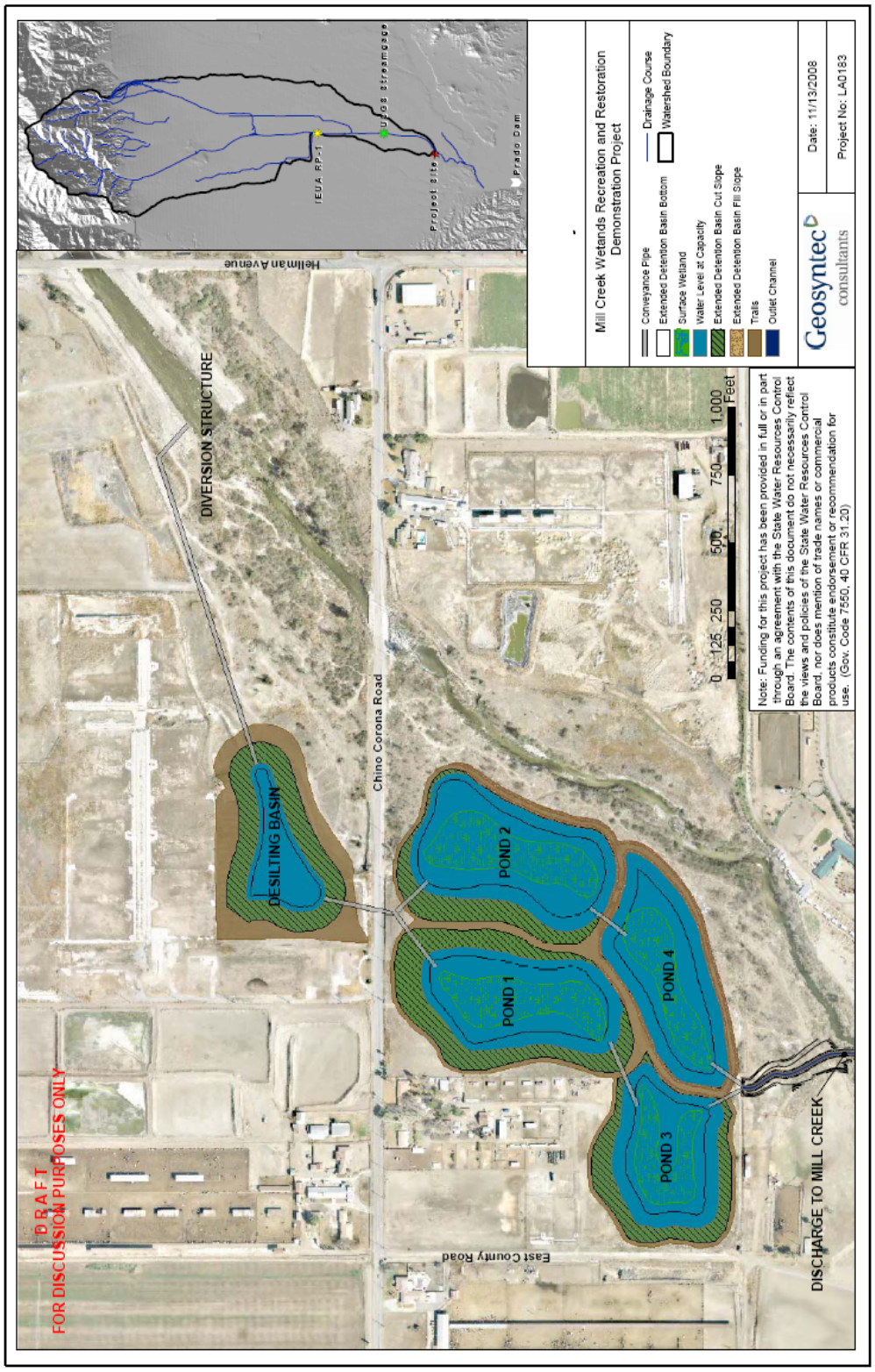


Figure 2.2-2
Project Aerial Photograph



2.3 EXISTING CONDITIONS

The project site is currently vacant undeveloped land and the area's history as farmland is still evident today. The northern portion of the project site has evidence of a former dairy farm, including concrete wash/feed pads, manure spreading grounds, and fencing. The southern portion of the project site also includes fencing, unimproved roads/trails and scattered debris piles.

The project vicinity is generally slightly sloped with undulating topography. The overall topography tends to be higher in the north and western portions of the project site and slopes toward the south and east as it approaches Cucamonga / Mill Creek.

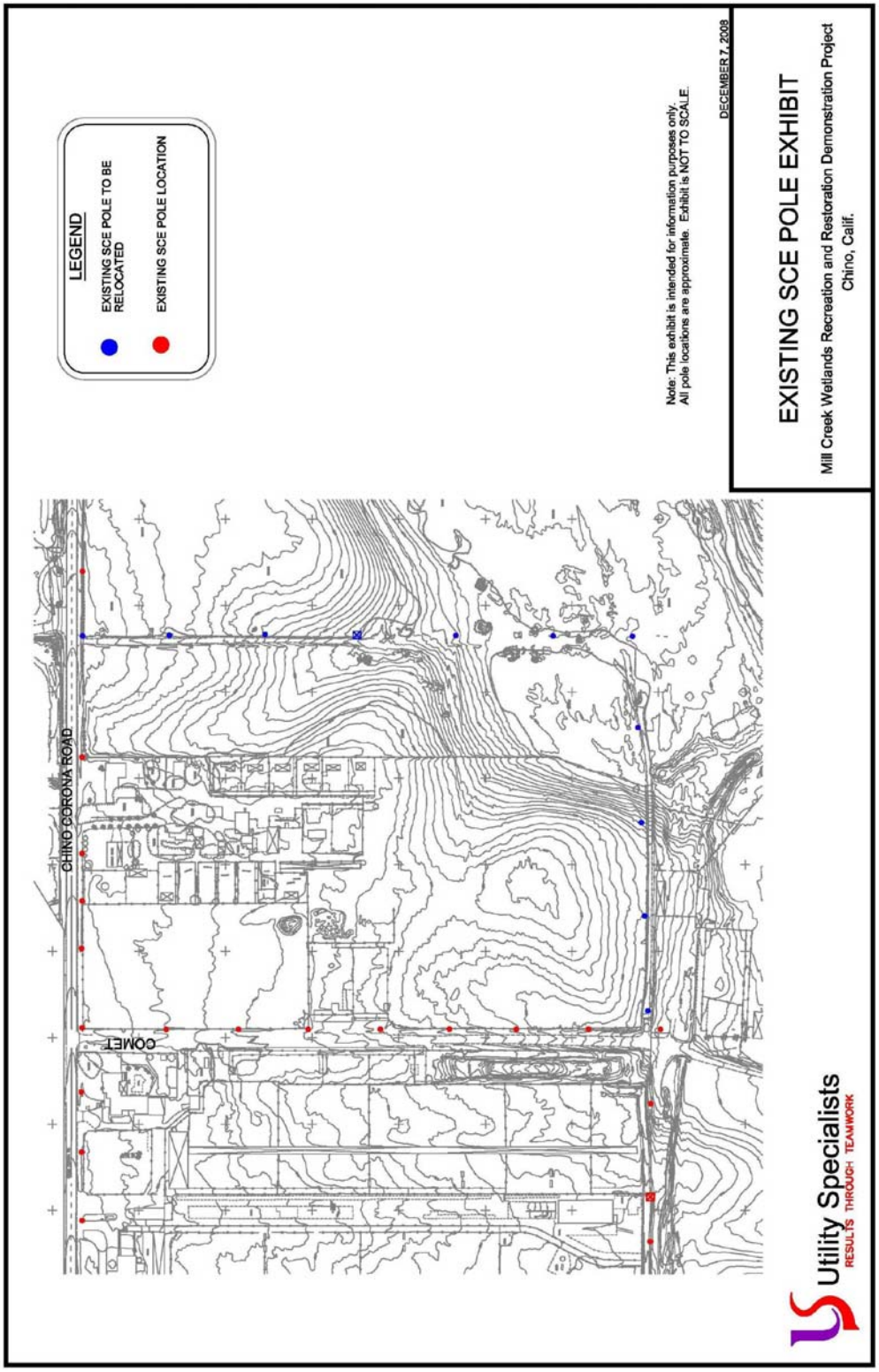
In the northern portion of the project site, north of Chino Corona Road, the existing ground surface elevation is approximately 575 feet above mean sea level (MSL) in the northwestern corner. The elevation slopes gradually to a plateau at an approximate elevation of 545 feet MSL before sloping more rapidly to the invert of Cucamonga Creek, at an approximate elevation of 525 feet MSL.

The southern portion of the project site is similar in character, however the natural channel of Mill Creek is more deeply incised than it is north of Chino Corona Road. Adjacent to Chino Corona Road, the project site has an existing ground surface elevation of approximately 560 feet MSL and undulates slowly as it reaches a plateau at an approximate elevation of 540 feet MSL adjacent to Mill Creek. Mill Creek is steeply incised with an invert elevation of approximately 520 feet MSL.

South of Chino Corona Road electrical transmission lines run north/south in the eastern portion of the site. The 66kv lines include poles approximately 40 feet high. Figure 2.3-1 identifies the location of the existing transmission lines.

The existing vegetation on the project site differs greatly between the west and center portion of the site and the eastern portion of the site along Cucamonga / Mill Creek, both north and south of Chino Corona Road. The west and center portions of the project site include disturbed and ruderal non-native vegetation. The eastern portion of the site includes patches of black willow scrub and riparian scrub native vegetation. Closer to Cucamonga / Mill Creek the vegetation becomes higher quality and more dense. Dense riparian vegetation covers the banks of Cucamonga / Mill Creek.

Figure 2.3-1
Existing Transmission Line Location



2.4 EXISTING ZONING

The Demonstration Project is located within the boundaries of The Chino Preserve Specific Plan. The Chino Preserve Specific Plan, adopted by the City of Chino in 2003, covers an area of approximately 5,435 acres of former dairy and agricultural lands. The Chino Preserve Specific Plan provides the framework for the development of a dynamic and diverse community that includes a mixture of residential neighborhoods focused around a community core and regional commercial center, and interconnected with a multi-purpose open space feature by a series of paseos and trails.

In 2003, the City of Chino amended its General Plan and Zoning Code as part of the adoption of the Chino Preserve Specific Plan. Therefore, the land use designations in the Chino Preserve Specific Plan also represent the General Plan and Zoning designations. The Chino Preserve Specific Plan designates the project site as Open Space-Recreation (OS-R), Agriculture/Open Space-Natural (AG/OS-N) and Open Space-Natural (OS-N), as follows:

AG/OS-N: The Agricultural/Open Space-Natural Land Use Designation is intended to provide for limited agricultural and open space uses, including passive recreation, trails, crop farming, and open space. It is also intended to protect important biological resources found within lands designated AG/OS-N from incompatible land uses that could damage these resources. Land uses in AG/OS-N designated areas must be compatible and coordinated with the Resource Management Plan, which provides for the protection and enhancement of biological resources. They must also comply with the requirements of Dam Inundation Overlay.

OS-R: The Open Space- Recreation Land Use Designation is intended to establish open space areas for active and passive recreation and to provide protection from environmental hazards.

OS-N: The Open Space-Natural Land Use Designation is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats. This designation also permits the use of open space areas for crop farming, passive outdoor recreational uses and other low intensity recreational uses in some instances.

2.5 PROJECT PURPOSE AND BENEFITS

The purpose of the Mill Creek Wetlands Recreation and Restoration Demonstration Project is to create a pilot program that can be used on a larger scale to enhance recreational opportunities, restore native habitat for both plant and wildlife species, and improve water quality. Both the Feasibility Study and the Demonstration Project have wide ranging benefits for multiple agencies. Figure 2.5-1 highlights those benefits.

Figure 2.5-1
Benefits Matrix

Mill Creek Wetlands Recreation and Restoration Demonstration Project

Stakeholder Benefit Matrix

Demonstration Project	City of Ontario	City of Chino	San Bernardino County Parks	Orange County Water District	Inland Empire Utility Agency
Land Use		1. Habitat Creation Consistent with RMP Conservation Area 2. Consistent with Weed Removal and Replanting of Native Vegetation (Conservation Area) 3. Surface Water and Riparian Habit Creation	1. Habitat Creation Consistent with RMP Conservation Area 2. Consistent with Weed Removal and Replanting of Native Vegetation (Conservation Area) 3. Surface Water and Riparian Habit Creation		1. Habitat Creation Consistent with IEUA Habit Restoration Program
Biological Resources		1. Habitat Creation for Federally Threatened and Endangered Species (Vireo) 2. Habit Creation for State Threatened and Endangered Species 3. Habit Creation for Federal and State Sensitive Species (Raptor, Burrowing Owl)	1. Habitat Creation for Federally Threatened and Endangered Species (Vireo) 2. Habit Creation for State Threatened and Endangered Species 3. Habit Creation for Federal and State Sensitive Species (Raptor, Burrowing Owl)	1. Habitat Creation for Federally Threatened and Endangered Species (Vireo) 2. Habit Creation for State Threatened and Endangered Species 3. Habit Creation for Federal and State Sensitive Species (Raptor, Burrowing Owl)	1. Habitat Creation for Federally Threatened and Endangered Species (Vireo) 2. Habit Creation for State Threatened and Endangered Species 3. Habit Creation for Federal and State Sensitive Species (Raptor, Burrowing Owl)
Parks & Recreation	1. Creation of Link for Coast to Crest Trail.	1. Expansion of Urban Buffer 2. Integration into Community Trail System for Hiking & Equestrian Uses. 3. Creation of Link for Coast to Crest Trail. 4. Integration of Local History within Trail System	1. Integration in to Community Trail System for Hiking & Equestrian Uses. 2. Creation of Link for Santa Ana River Trail. 3. Integration of Local History within Trail System		
Cultural Resources		1. Preservation of Sensitive Cultural, Archeo, Paleo Sites	1. Preservation of Sensitive Cultural, Archeo, Paleo Sites		
Aesthetics	1. Mill Creek Scenic Resources Enhancement	1. Mill Creek Scenic Resources Enhancement	1. Mill Creek Scenic Resources Enhancement		1. Mill Creek Scenic Resources Enhancement
Community Education	1. Potential Education Partnership with Local Schools & Universities	1. Community Education Trails Integrated into Chino Communities 2. Potential Education Partnership with Local Schools & Universities	1. Community Education Trails Integrated into Prado Regional Park 2. Potential Education Partnership with Local Schools & Universities	1. Community Education on Effects of Storm Water / Drinking Water Cycles & Impacts 2. Potential Education Partnership with Local Schools & Universities	1. Community Landscape Alliance Education Trails Integrated into Prado Regional Park Area 2. Potential Education Partnership with Local Schools & Universities
Water Quality	1. Centralized Storm Water Quality Treatment System for Communities	1. Centralized Storm Water Quality Treatment System for Communities		1. Enhancement of Urban Run-off Water Treatment for OC Drinking Water Supply	1. Storm Water / RP1 Water Quality Treatment System for Communities
Flood Storage Capacity		1. Potential Flood Storage Offset for City Projects			
Project Process	1. Integration into Regional Chino Integrated Basin Master Plan Partnership Approach with USACE 2. Provide Real Time Evaluation of City Goals & Objectives in Effort to Enhance Options Under Feasibility Study	1. Integration into Regional Chino Integrated Basin Master Plan Partnership Approach with USACE 2. Provide Real Time Evaluation of City Goals & Objectives in Effort to Enhance Options Under Feasibility Study	1. Integration into Regional Chino Integrated Basin Master Plan Partnership Approach with USACE 2. Provide Real Time Evaluation of County Goals & Objectives in Effort to Enhance Options Under Feasibility Study	1. Integration into Regional Chino Integrated Basin Master Plan Partnership Approach with USACE 2. Provide Real Time Evaluation of Agency Goals & Objectives in Effort to Enhance Options Under Feasibility Study	1. Integration into Regional Chino Integrated Basin Master Plan Partnership Approach with USACE 2. Provide Real Time Evaluation of Agency Goals & Objectives in Effort to Enhance Options Under Feasibility Study

2.6 PROJECT MASTER PLANS

The Demonstration Project includes three components: a Recreation Plan, a Native Habitat Plan, and a Water Quality Plan. While each of these three components are related and overlap, for purposes of the Feasibility Study the elements of the Demonstration Project have independent function and priorities.

2.6.1 Recreation Plan

The USACE Feasibility Study will evaluate opportunities to expand recreational facilities within the Prado Basin. Therefore, recreation is the first priority of the Demonstration Project. The Prado Basin currently provides recreation opportunities through parks, such as the Prado Regional Park, community trails, and inter-county trail systems with one example being the Coast to Crest Trail. The Demonstration Project proposes a Recreation Plan, included as Figure 2.6-1, to enhance the existing recreation facilities in the area by providing additional active and passive recreation opportunities in the Prado Basin.

The Recreation Plan proposes to create additional active recreation opportunities in the Prado Basin by the construction of approximately 3.3 additional miles of hiking and equestrian trails. The trails proposed on the north side of Chino Corona Road around the de-silting basin and diversion structure are planned future trail connections. The trails proposed on the south side of Chino Corona Road around the wetland / extended detention ponds will be constructed as part of the Demonstration Project. The trails will be constructed of decomposed granite and form a looped trail system around vegetated and open-water ponds. The new trail system will also connect to the City of Chino Urban Buffer and will provide future trail connections for the inter-county trail system noted above.

The Recreation Plan also contains passive recreation opportunities in the Prado Basin by providing vista and wildlife viewing locations and interpretive signage. The proposed trail system will include benches in locations that offer vistas of the wetland ponds and the surrounding environment. Planting around the benches will provide shade and aesthetics without blocking views. The surrounding native plantings and open water wetlands will attract numerous wildlife species, offering excellent wildlife viewing opportunities.

Interpretive signage will be located at the trailheads as well as throughout the trail system. The interpretive signage will provide park users with a better understanding of the history of the area; local wildlife that might be viewed; information on native vegetation, including plant communities and individual species; and an explanation on water quality and natural treatment systems.

Figure 2.6-1
Recreational Plan

The Recreation Plan identifies two new parking lots for use of the trail system. The primary parking lot for hikers and pedestrians is located off of Chino Corona Road and includes eight spaces. A secondary, future, parking lot designed to accommodate horse trailers with five spaces is located off of Comet Avenue on the west side of the Demonstration Project. No lighting is planned on the trail system around the ponds or within the parking lots. However, both parking lots will be equipped with locking gates and signage that indicates the facility closes at dusk.

Safety fencing around the ponds is included as part of the Recreation Plan. The fencing will occur on slopes with a gradient of 3:1 or steeper only. No fencing would occur on slopes with a gradient of 4:1 or flatter. Fencing will be a minimum of 48-inches high, located downslope from the trail, and screened by vegetation. As the vegetation matures, the fencing in areas with a gradient of 3:1 or steeper may be superseded by vegetation provided the type, density, and height of the vegetation is sufficient to deter human access.

2.6.2 Native Habitat Plan

The Prado Basin currently protects 4,400 acres of native habitat. One mission of USACE's Feasibility Study is to expand the amount of protected native habitat. Therefore, the second priority of the Demonstration Project is to increase the amount of native habitat by replacing non-native vegetation, agricultural lands, and disturbed areas with high quality native vegetation.

The Native Habitat Plan creates several habitat types that will benefit local wildlife, including endangered species. The Native Habitat Plan also supports the Recreation Plan by providing shade, wildlife viewing opportunities, and aesthetics. The Native Habitat Plan proposes to create the following vegetation zones, including:

Open Water: In the arid southwest, areas of open water are vital to wildlife. Areas of open water serve both terrestrial species and birds, including waterfowl.

Wetlands: Wetlands include species such as cattails and rushes. Wetland vegetation provides habitat for a variety of species and is known to benefit water quality by providing pollutant absorbing plant material.

Riparian: Riparian habitat includes species such as willows, mulefat, cottonwoods, and Mexican elderberry. Riparian vegetation provides habitat, including feeding, foraging, and nesting opportunities for a variety of species, including the endangered least Bell's vireo.

Oak Woodland: Oak Woodland habitat includes large tree species such as oaks, walnuts, sycamores, and toyon. These trees provide nesting, foraging, and feeding habitat for a variety of species, including raptors. The Oak Woodland also includes an understory consisting of shrubs, perennials, and native grasses. This understory is also

vital to local wildlife. In addition to providing habitat, the Oak Woodland supports the goals of the Recreation Plan by providing shade and aesthetics along the trail system.

Scrub and Grassland: The Habitat Plan includes areas of scrub vegetation in varying densities. For example, around the de-silting basin the scrub vegetation will be less dense in support of burrowing owl habitat. However, in other areas transition zones will have more dense coastal sage scrub habitat. Native grasslands also play an important role in a variety of ways, including burrowing owl habitat, raptor foraging habitat and water quality benefits within the riparian zone.

Figure 2.6-2 graphically describes the Native Habitat Plan, including the location of the following seven planting zones: De-silting Zone, Island Zone, Wetland Zone, Intermittent Inundation Zone, Transition Zone, Trail Zone and Outlet Zone.

De-silting Zone

The bottom of the de-silting basin will be hard lined, therefore it will not have the same wetland vegetation found in the other ponds. The hard lined bottom will allow equipment to remove silt and debris collected in the basin.

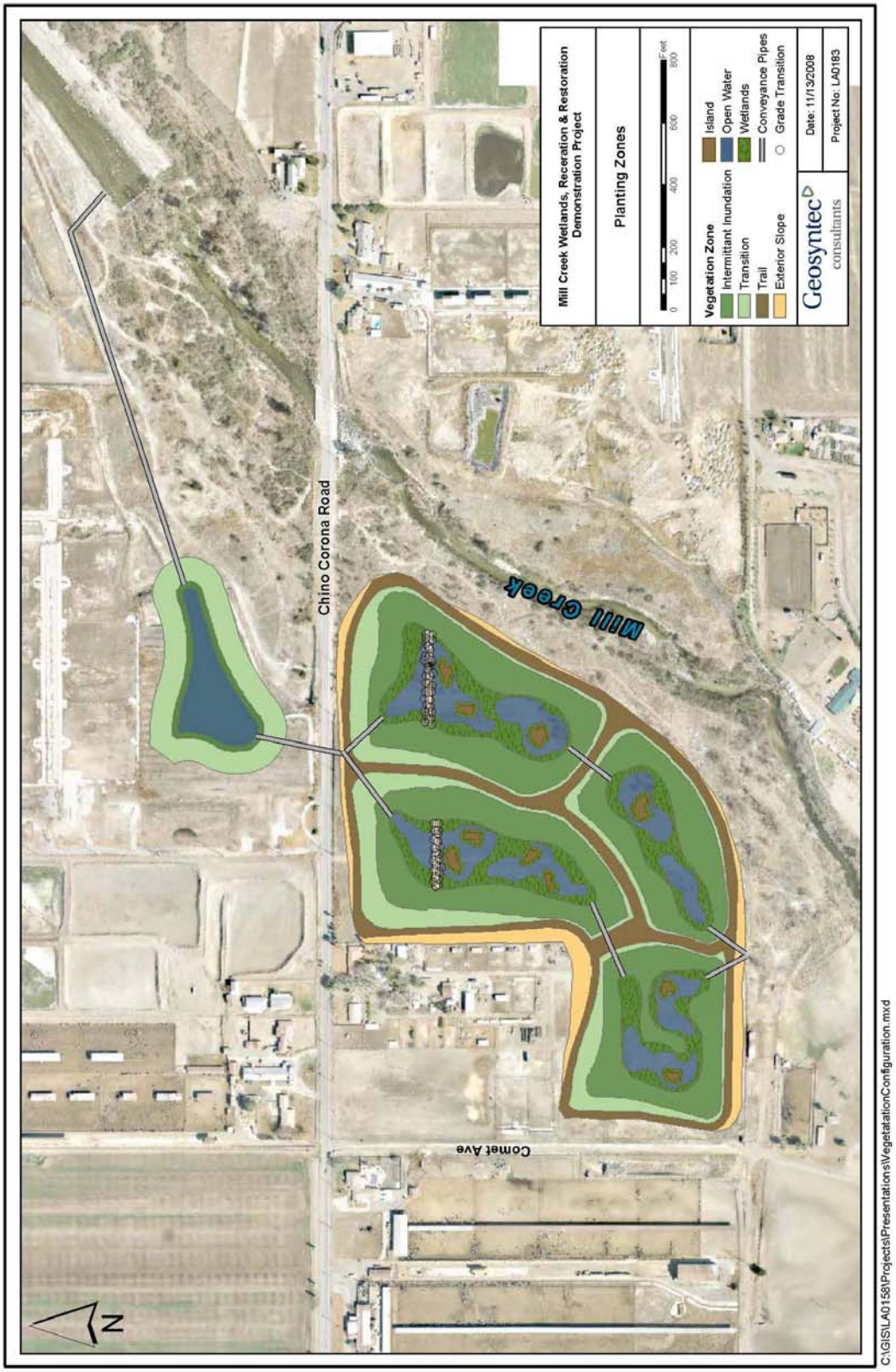
The sides of the de-silting basin will be vegetated primarily with the plant list found in the Transition Zone. Additionally, the side slopes of the de-silting basin will be planted for burrowing owl habitat under the direction of the project biologist. Burrowing owl habitat consists of low-lying native grasslands and sparse scrub habitat. Burrowing owls also like mounds, rocks or low level perches that allow them for watch for both predators and prey. The burrowing owl habitat in the de-silting basin provides regional mitigation opportunities for the City of Chino through the City's RMP, consistent with The Chino Preserve Specific Plan EIR.

Island Zone

The Island Zone includes the planting on each island and the wetland planting surrounding each island. The planting palette provides water quality benefits while also being able to survive periodic inundation. Potential species include:

TREES	
Salix lasiolepis	Arroyo willow
Salix gooddingii	Black willow
CATTAILS	
Typha angustifolia	Narrow-leaf cattail
Typha domingensis	Southern cattail
Typha latifolia	Broad-leaf cattail

Figure 2.6-2
Native Habitat Plan



Wetland Zone

The Wetland Zone provides the planting for all of the other wetlands that are not associated with an island. Similar to the Island Zone, the Wetland Zone planting provides water quality benefits while also being able to survive periodic inundation. The two zones differ by the type of wetland species proposed. Potential species include:

PERENNIALS

Anemopsis californica	Yerba Mansa
Carex praegracilis	Slender Sedge
Cyperus eragrostis	Umbrella Sedge
Eleocharis macrostachya	Common Spikerush
Eleocharis montevidensis	Sand Spikerush
Juncus acutus	Spiny rush
Juncus xiphioides	Iris-leaved rush
Mimulus guttatus	Seep monkeyflower

RUSH

Scirpus acutus	Bulrush
Scirpus americanus	Common Bulrush
Scirpus californicus	California Bulrush
Scirpus maritimus	Cosmopolitan Bulrush

Intermittent Inundation Zone

The Intermittent Inundation Zone includes the Extended Detention portion of each pond. This area also must be able to survive periodic inundation; however, unlike the wetland zones, this area will be very dry during the dry weather months. In addition to providing a water quality benefit during inundation, the Intermittent Inundation Zone will provide vegetation to support local wildlife. Potential species include:

TREES/LARGE SHRUBS

Baccharis salicifolia	Mulefat
Juglans californica	Black walnut
Platanus racemosa	California Sycamore
Populus fremontii	Fremont Cottonwood
Salix gooddingii	Black Willow
Salix laevigata	Red Willow
Salix lasiolepsis	Arroyo Willow
Sambucus mexicana	Mexican Elderberry

PERENNIALS/VINES

Artemisia douglasiana	Mugwort
Pluchea odorata	Sweetscent
Vitis girdiana	Wild grape

GRASSES

Agrostis exarata	Bent Grass
Carex pragracilis	Slender Sedge
Deschampsia caespitosa	California Hairgrass
Distichlis spicata	Salt grass
Hordeum brachyantherum	Meadow barley
Leymus triticoides	Creeping Wild Rye
Muhlenbergia rigens	Deergrass

Transition Zone

The Transition Zone is located between the Intermittent Inundation Zone and the Trail Zone and between the Trail Zone and existing vegetation. This zone provides native, drought tolerant vegetation that functions as a transition between different zones. Potential species include:

TREES

Heteromeles arbutifoliia	Toyon
Juglans californica	California Walnut
Quercus agrifolia	Coast Live Oak
Quercus engelmannii	Englemann Oak

SHRUBS

Artemisia californica	California Sagebrush
Baccharis pilularis	Coyote Brush
Eriophyllum confertiflorum	Golden Yarrow
Isocoma menziesii	Goldenbush
Malosma laurina	Laurel Sumac
Rhus integrifolia	Lemonadeberry
Salvia apiana	White Sage
Salvia mellifera	Black Sage

PERENNIALS

Eschscholzia californica	California Poppy
Lotus scoparius	Deerweed
Lupinus longifolius	Longleaf Bush Lupine
Mimulus aurantiacus	Yellow Sticky Monkeyflower

GRASSES

Melica imperfecta	Junegrass
Muhlenbergia rigens	Deer Grass
Nassella cernua	Nodding Grass
Nassella lepida	Foothill Needlegrass
Nassella pulchra	Purple Needlegrass
Vulpia microstachys	Small fescue

Trail Zone

The Trail Zone is the area on both sides of the top of the berm surrounding the ponds and bisected by the trail system. Even this zone will be planted with drought tolerant natives, limited amounts of irrigation will assist this zone to achieve its primary goal of aesthetics and shade along the trail system. Potential species include:

TREES

Alnus rhombifolia	White Alder
Heteromeles arbutifoliia	Toyon
Juglans californica	California Walnut
Platanus racemosa	California Sycamore
Quercus agrifolia	Coast Live Oak
Sambucus mexicana	Mexican Elderberry

SHRUBS

Artemisia californica	California Sagebrush
Baccharis pilularis	Coyote Brush
Baccharis emoryi	Emory's Baccharis
Ceanothus crassifolius	Hoary Whitethorn
Eriophyllum confertiflorum	Golden Yarrow
Isocoma menziesii	Goldenbush
Malosma laurina	Laurel Sumac
Rhus integrifolia	Lemonadeberry
Rhus ovata	Sugar Bush
Rosa californica	Wild Rose
Rubus ursinus	California Blackberry
Salvia apiana	White Sage
Salvia leucophylla	Purple Sage
Salvia mellifera	Black Sage

PERENNIALS

Encelia californica	California Encelia
Eschscholzia californica	California Poppy
Lupinus latifolius	Broadleaf Canyon Lupine

Penstemon centranthifolius	Scarlet Buglar
Penstemon spectabilis	Showy Penstemon
Sisyrinchium bellum	Blue-eyed Grass
Vitis girdiana	California Wild Grape

GRASSES

Agrostis exarata	Bent Grass
Elymus glaucus	Blue Wild Rye
Leymus condensatus	Giant Wild Rye
Leymus triticoides	Creeping Wild Rye
Muhlenbergia rigens	Deer Grass

Outlet Zone

The outlet of the lower ponds carries flows from the ponds back to Mill Creek. The outlet will be planted with riparian vegetation. Potential species include the following.

TREES/LARGE SHRUBS

Baccharis salicifolia	Mulefat
Juglans californica	Black walnut
Platanus racemosa	California Sycamore
Populus fremontii	Fremont Cottonwood
Salix gooddingii	Black Willow
Salix laevigata	Red Willow
Salix lasiolepsis	Arroyo Willow
Sambucus mexicana	Mexican Elderberry

PERENNIALS/VINES

Artemisia douglasiana	Mugwort
Pluchea odorata	Sweetscent
Vitis girdiana	Wild grape

GRASSES

Agrostis exarata	Bent Grass
Carex pragracilis	Slender Sedge
Deschampsia caespitosa	California Hairgrass
Distichlis spicata	Salt grass
Hordeum brachyantherum	Meadow barley
Leymus triticoides	Creeping Wild Rye
Muhlenbergia rigens	Deergrass

2.6.3 Water Quality Plan

Prado Basin provides an opportunity to improve water quality, prior to the waters' use downstream, associated with the recharge of underground aquifers that provide a source of drinking water for Orange County. Therefore, another component of the USACE's Feasibility Study examines projects that improve water quality. Thus, the third priority of the Demonstration Project is to improve water quality.

The Demonstration Project is a regional natural treatment facility designed to hold and treat 160 acre-feet of water. This volume translates into treatment of 10 – 18% of all wet-weather runoff in the Cucamonga Channel watershed. In contrast, a single-function water quality project of the same size in an upstream tributary could effectively capture approximately 6% of the total wet-weather runoff from the watershed (Geosyntec, 2008). Thus, the Demonstration Project is an effective means of leveraging water quality benefits for the region.

The California State Water Resources Control Board has listed Cucamonga Creek, Mill Creek, and the Santa Ana River as 303(d) impacted water bodies. Pollutants such as pathogens, nutrients, salinity/total dissolved solids/chlorides, and suspended solids are known to occur in these water bodies. Active and former agricultural uses and urban runoff from developed areas represent the primary contributors to the pollutants found in the watershed. Generally, the highest concentration of pollutants occurs in dry weather flows and the first portion of storm events.

The Water Quality Plan proposes to divert both wet weather and dry weather flows in Cucamonga Creek into a series of natural water quality treatment ponds. The diverted water will gravity flow first through a de-silting basin, which is designed to remove debris and trash. From the de-silting basin the water will flow through a series of ponds that include areas of open water and wetland vegetation.
The wetland ponds, which include areas of open water and wetland vegetation, remove pollutants through settlement, ultraviolet light treatment, and biological activity from the wetland vegetation. The targeted pollutant constituents include sediment, nutrients, trash, metals, bacteria, oil and grease, and organics. According to the California Stormwater Quality Association BMP Handbook, the wetland ponds have a high degree of removal effectiveness for all targeted pollutants except nutrients, which has a medium effectiveness rating.

During larger storm events, flow into the ponds will raise the water surface elevation flooding over the wetlands and filling the Extended Detention portion of the Ponds. The Extended Detention includes the vegetated slopes of the ponds above the wetland area. This area only floods during larger storm events and then dries during smaller events and the dry season. The vegetation in the Extended Detention portion of the Ponds also provides water quality benefits from settlement and biological activity. Targeted pollutant constituents also include sediment, nutrients, trash, metals, bacteria, oil and grease, organics, and oxygen demanding chemicals. According to the California

Stormwater Quality Association BMP Handbook, the Extended Detention portion of the ponds has a medium degree of removal effectiveness for all targeted pollutants except nutrients, which has a low effectiveness rating and trash, which has a high effectiveness rating.

After approximately 3 to 6 days of residence time, the water will flow through an outlet and back into Mill Creek. The constant flow through the system minimizes the potential for mosquito breeding and the need for vector control.

The peak diversion from Cucamonga Creek in a wet weather condition is 404 cfs. The entire system has an approximate storage capacity of 160 acre-feet.

The Demonstration Project is partially funded by an Integrated Watershed Management Grant obtained through the State Water Resources Control Board. The grant requires a demonstrable water quality improvement before the end of 2010. Therefore, current water sampling provides a baseline condition. Following construction of the ponds and planting, water quality sampling will occur prior to the end of 2010. The comparison to the baseline samples should demonstrate the benefits of the Demonstration Project.

Current water quality sampling is being conducted per the project's Pre-Construction Water Quality Monitoring Plan, which was been submitted to and approved by the State Water Resources Control Board under the grant agreement. Water samples are being collected from three different locations: 1) before the point of diversion from Cucamonga Creek; 2) at the point of discharge into Mill Creek; and, 3) a midstream point at the Chino Corona Road crossing. Samples will be collected monthly for four consecutive months during the dry weather season and once during a wet weather event.

The two main purposes of the Pre-Construction Water Quality Monitoring Program are to help determine what constituents will be monitored long term for this project and to provide baseline data. To help determine what water quality parameters will be monitored long term, the pre-construction monitoring program includes testing for a wide variety of constituents. The *San Bernardino County Report of Waste Discharge, Application for Renewal of Municipal NPDES Stormwater Permit 2001-2006* provided reference to develop the constituent list.

A Pre-Construction Monitoring Report will be prepared and submitted to the State Water Resources Control Board upon completion of the sample collection and analysis. The report will summarize the laboratory results and make a recommendation for the constituents to monitor for the long term Monitoring Plan.

2.7 PROJECT DESIGN

The following section provides a more detailed description of the physical improvements associated with the Demonstration Project. Appendix N includes the Demonstration Project design plans.

2.7.1 Diversion from Cucamonga Creek

The diversion of flow will occur in the existing hard lined riprap portion of Cucamonga Creek just south of the Hellman Road Bridge and north of Chino Corona Road. The diversion consists of two inlets: one for low flow (dry weather) and one for higher first flush/peak storm flows (wet weather).

The dry weather flow diversion consists of a trapezoidal variable depth channel constructed in the riprap portion of Cucamonga Creek. It extends across two-thirds of the invert of Cucamonga Creek Channel and traverses the invert nearly perpendicular to the flow. The diversion channel, which is approximately 1 foot lower (maximum depth) than the invert of Cucamonga Creek and has a one percent fall toward the western bank, will convey low flows to a 24-inch RCP (Conveyance No. 1). The amount of flow that will be diverted from Cucamonga Creek in the dry weather condition is estimated to range from 2.5 cfs to 15 cfs.

Located at an elevation of approximately 540 feet above MSL, Conveyance No. 1 will have sufficient hydraulic gradient to gravity flow the dry weather flow diversion to the de-silting basin. The 24-inch diameter RCP conveyance pipe measures approximately 950 feet in length and includes a 15-inch orifice plate at the inlet to control the intake flow rate.

The wet weather flow diversion consists of a 9.5 foot high by 8 foot wide RCB (Conveyance No. 2) located just upstream of Conveyance No. 1 in the riprap lined west bank of the Creek. The inlet is designed approximately a half foot above the invert of the Creek to prevent the intake of low flows. Located at an elevation of approximately 542 feet above MSL, it will have sufficient hydraulic gradient to gravity flow the diverted storm water to the de-silting basin during the first flush storm event. This parallel storm conveyance system is also approximately 950 feet long.

Diversion into the wetland chain includes dry weather flows, wet weather flows and diversion from The Chino Preserve. Table 2.7-a summarizes the proposed diversion rates.

***Table 2.7-a:* Proposed Diversion Rates** (cubic feet per second)	
Diversion	**Rate (cfs)**
Dry weather flows	15
Diversion during 100 yr Q in Cucamonga Creek (with ponds full)	249
Diversion during 100 yr Q in Cucamonga Creek (with ponds empty)	269
The Chino Preserve - Hellman Avenue Diversion – peak flow	50
The Chino Preserve – Chino Corona Road Diversion – peak flow	85

Source: Geosyntec 2008

Therefore, the total design peak flows through the wetland chain is 384 cfs when the wetlands are full and 404 cfs when the wetlands are empty.

When the ponds are full the maximum diverted flow is less than when the ponds are empty. This condition occurs because the full ponds provide resistance for incoming flows. That resistance to incoming flows is not present when the ponds are empty, resulting in higher diversion flows. It should also be noted that in Table 2.7-a, the dry weather diversion of 15 cfs is included in the diversion rates during the 100-year condition. Therefore, the dry weather diversion is not included in the calculation of the total peak design flows.

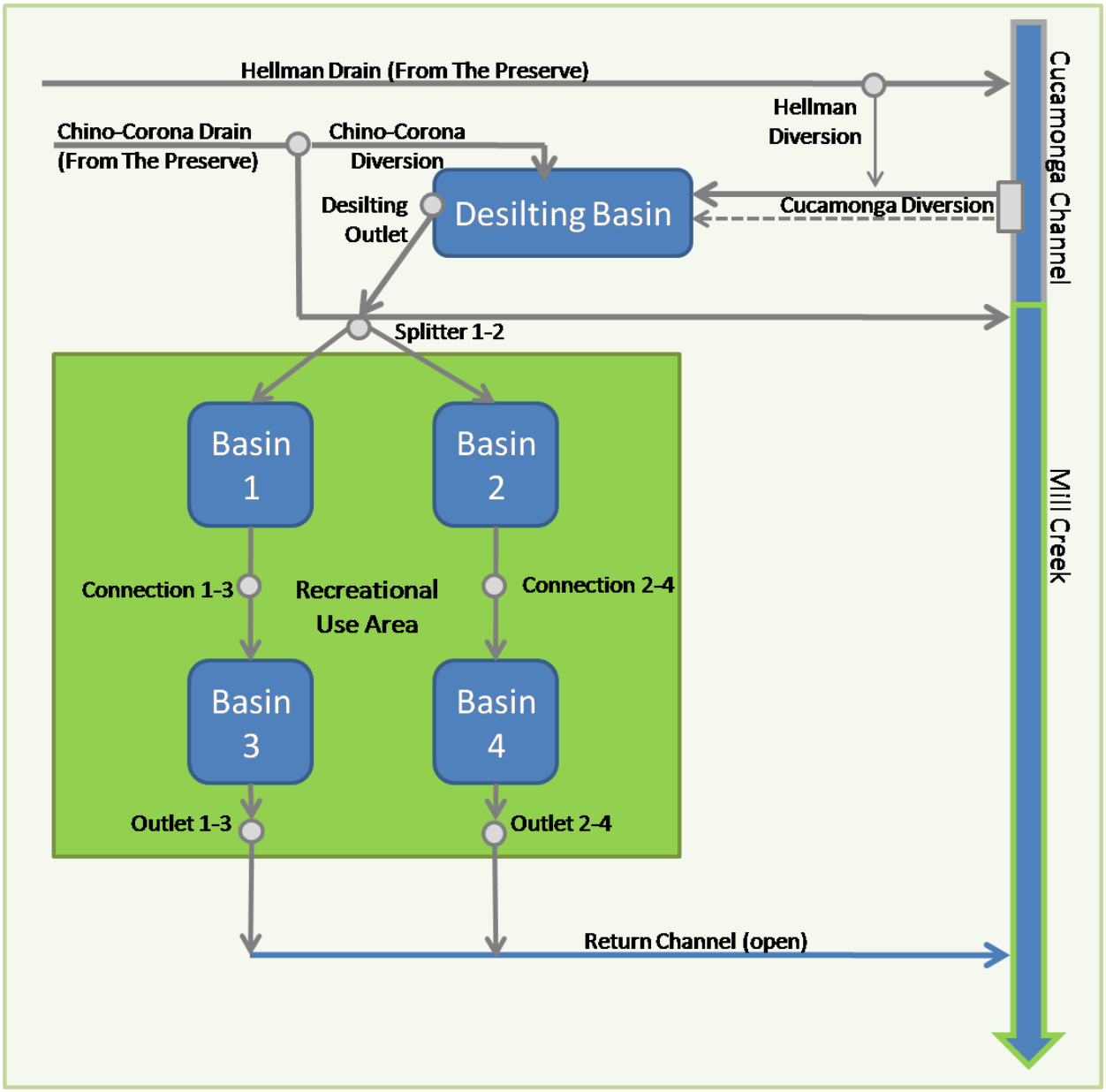
2.7.2 Diversion from The City of Chino Preserve Specific Plan

The City of Chino Preserve Specific Plan is a master planned residential community located north and east of the Demonstration Project site. A portion of the runoff from The Chino Preserve will flow through a separate diversion pipe from the Hellman Avenue Storm Drain, a sub-regional storm conveyance system (Sub Area A from The Chino Preserve Master Plan of Drainage). The Hellman Avenue storm drain is designed to connect directly into the Demonstration Project's wet weather flow diversion pipe (Conveyance Pipe No. 2). Additional flows through a preliminarily master planned storm drain for the area south of Pine Avenue (Sub Area F from The Chino Preserve Master Plan of Drainage) will connect first flush flows directly into the Demonstration Project de-silting basin. Figure 2.7-1 details the diversion from The Chino Preserve Specific Plan.

Construction of the Demonstration Project will precede these other connections. Therefore, the Hellman Avenue diversion and the Sub Area F diversion will be future connections to the Demonstration Project facilities and are considered separate projects that may require additional environmental documentation. The diversions from The Chino Preserve will not affect the dry weather diversion from Cucamonga Creek, so no changes to the diversion into Conveyance Pipe No. 1 will occur once those connections are made. Similarly, the wet weather diversion (Conveyance Pipe No. 2) has been sized with the assumption the other diversion connections will be made. Therefore, the

connection of the Hellman Avenue and Sub Area F diversions will not cause any resizing or adjustments to the proposed Demonstration Project.

Figure 2.7-1
The Chino Preserve Specific Plan Diversion



2.7.3 Capture of Existing On-Site Flows

In the existing condition, surface flows cross the project site on a path to Cucamonga Creek / Mill Creek. Runoff originates from surrounding agricultural properties, neighboring open space, and Chino Corona Road. In certain cases the runoff is substantial enough that the design of the Demonstration Project must accommodate the flow. On example is the agricultural property adjacent to the project site to the west. Drainage from this approximately 10-acre farm currently crosses the project site. In the developed condition, the runoff from this farm will be collected in the wetland / extended detention ponds prior to discharge into Mill Creek.

2.7.4 De-silting Basin

The de-silting basin is designed to remove gross solids and coarse sediments prior to the flow entering the extended detention ponds to reduce sedimentation in the ponds and concentrate maintenance activities. The outlet of the de-silting basin causes flows to slow down and rise to a certain level before passing to the downstream ponds. The slowing of the flows allows gross solids and sediment to settle for removal. The de-silting basin will be hard lined, with either concrete or hard-packed earth material, to facilitate maintenance activities. The side slopes will be approximately 3:1. The de-silting basin will have a storage capacity of approximately 8 acre-feet.

2.7.5 Wetland / Extended Detention Ponds

From the de-silting basin, flows will be conveyed in a 78-inch reinforced concrete pipe (RCP) under Chino Corona Road. South of Chino Corona Road a flow splitter will split the flows equally between Pond 1 (on the west side of the project site) and Pond 2 (on the east side of the project site) through two 60-inch RCPs. During the dry weather condition, flows will fill the ponds creating open water areas and wetland areas. The invert of the ponds is planned at an approximate elevation of 527 feet MSL. The open water areas, also referred to as permanent pools, will permanently have water 4 feet deep, to an elevation of 531 feet MSL. The wetland areas will have a water depth of 18-inches to 4 feet. In these areas the invert will be raised to accommodate the wetlands. Figure 2.7-3 includes a graphic that depicts the location of the open water, wetlands, and islands.

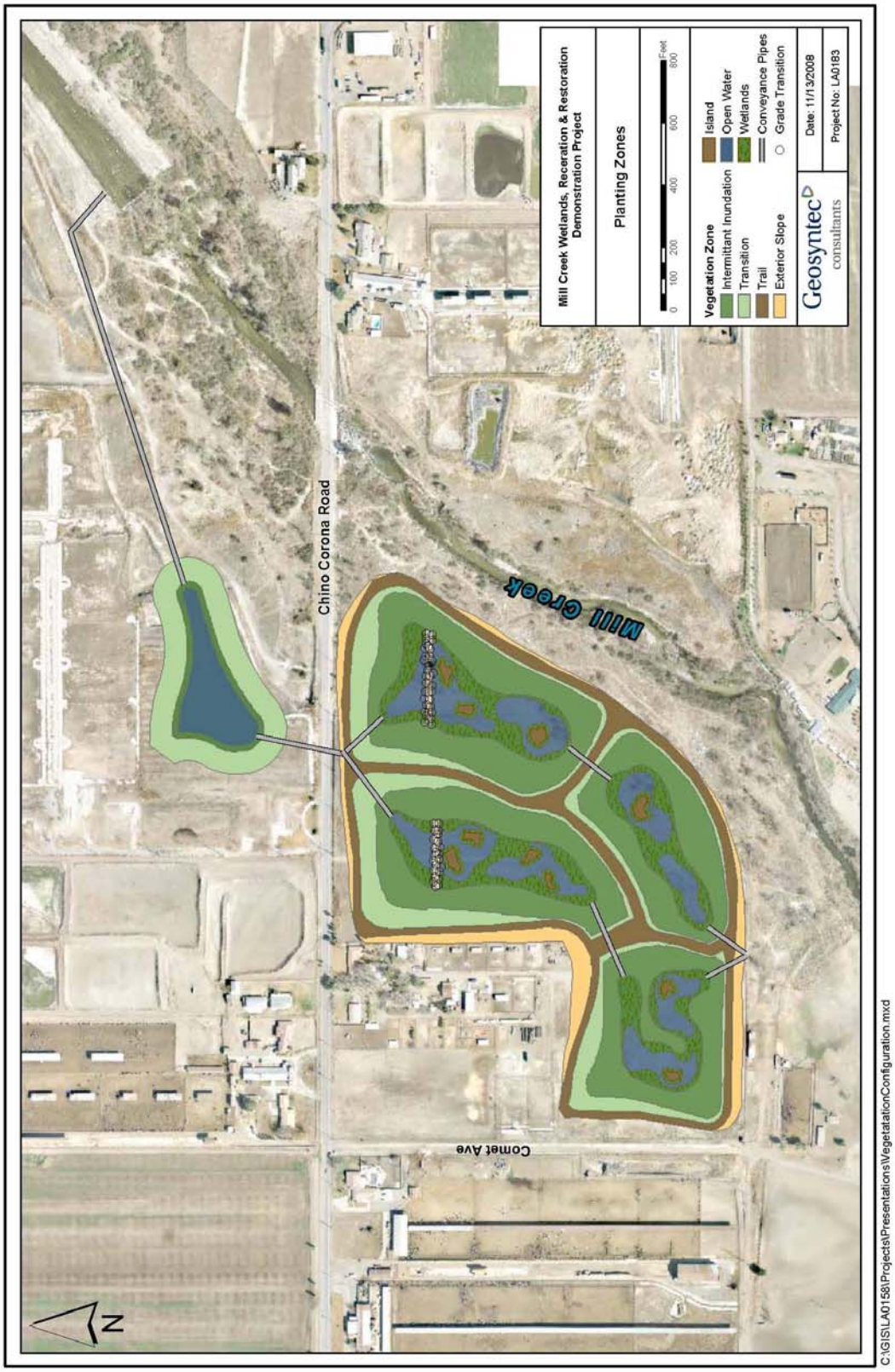
Once the dry weather flow fills in the open water and wetlands of Ponds 1 and 2, excess flows will be conveyed through a 66-inch RCP to Ponds 3 and 4. Pond 1 connects with Pond 3 and Pond 2 connects with Pond 4. There are no connections between Ponds 1/3 and Ponds 2/4.

The dry weather flows will create similar open water and wetland areas within Ponds 3 and 4 to the same depths. The only difference is the invert of Ponds 3 and 4, which is at

an approximate elevation of 525 feet MSL. Once Ponds 3 and 4 reach the appropriate design depths, dry weather flows will exit each pond through the outlet and return to Mill Creek.

During wet weather conditions more flow will enter the ponds. In these conditions, the flow will raise the water surface elevation in the ponds, flooding over the wetlands and the islands. These higher flows fill the "Extended Detention" portion of the ponds. For Ponds 1 and 2, the Extended Detention captures flow up to an elevation of 540 feet MSL. This provides for 13 feet of storage above the invert. In the maximum storage condition, the wetlands and islands would be completely submerged.

Figure 2.7-2
Plant Zones



As the flow into Ponds 1 and 2 increases, the conveyance to Ponds 3 and 4 also increases though the 66-inch RCP. With the invert of Ponds 3 and 4 at an elevation of 525 feet MSL, the Extended Detention pond also provides 13 feet of storage to an elevation of 538 feet MSL.

In the wet weather condition, the amount of water reaching the Extended Detention portion of the ponds (and therefore the overall depth of water in ponds) will vary with each storm. Therefore, the Extended Detention pond will experience periodic flooding and drying.

In both the wet and dry weather conditions, the ponds are designed to provide 3 to 6 days of residence time before the water leaves the system.

In cases of emergency, overflow spillways are provided between Ponds 1 and 3; Ponds 2 and 4; and from Ponds 3 and 4 to the outlet.

Table 2.7-b provides statistics for each Pond:

Table 2.7b: **Pond Statistics**

POND	WATER STORAGE VOLUME	INVERT ELEVATION	PERMANENT POOL W.S. ELEVATION	INFLOW ELEVATION	OUTFLOW ELEVATION
Pond 1	41 af	530/527	534/531	534	531
Pond 2	45 af	530/527	534/531	534	531
Pond 3	34 af	525	529	529	528
Pond 4	32 af	525	529	529	528

Source: Geosyntec 2008

2.7.6 Outlet

Ponds 3 and 4 will outlet into a gradually varying channel following the natural topography that will ultimately discharge back into Mill Creek. The channel reduces the velocity of the flow while bringing the elevation of the discharge closer to the elevation of the invert of Mill Creek. The channel will be lined with un-grouted riprap and/or a stabilizing fabric to prevent erosion and vegetated along the perimeter banks with native vegetation.

The outlet measures approximately 150 feet wide between the top of banks. The invert measures approximately 50 feet wide. To construct the outlet, sheet piles with backing plates will be installed at the edge of the existing flow in Mill Creek during the dry season. The sheet piles will extend out beyond the planned width of the outlet approximately 50 feet on either side in the area where the outlet converges with Mill Creek. This will allow the rip rap protection to wrap around and protect both the upstream and downstream portion of the convergence. Existing vegetation and earth material will be removed behind the sheet piles down to below the level of the invert of

Mill Creek. Large rip rap boulders will be installed behind the sheet piles to protect the invert of the outlet as it reaches Mill Creek and to protect the banks both upstream and downstream of the outlet. Once construction is complete, the sheet piles and backing plates will be removed. Figure 2.7-4 details the design of the Outlet.

2.7.7 Sluice Gates

Throughout the Demonstration Project sluice gates will be used to restrict flow and isolate facility components. The sluice gates provide important controls for emergency conditions, maintenance activities, and operational flexibility. Sluice gates at the diversion structure will allow for the system to be shut off during emergency conditions where longer duration storm or runoff events will continue to push high flows into the system causing overtopping conditions. Sluice gates will also be incorporated at the inlets to Ponds 1 and 2 allowing one side of the system to be shut down for maintenance. Finally, sluice gates can be partially operated allowing flexibility in the operation of the facility through control of flows. Figure 2.7-5 identifies the proposed location of the sluice gates.

2.7.8 Utility Relocation

Existing 66kv electrical transmission lines traverse the eastern portion of the project site. The location of these lines conflicts with the proposed construction of Ponds 1 and 3. Therefore, the Demonstration Project includes a plan to reroute the power lines. The existing 66 kV power lines will be re-routed on existing power poles to follow an alignment that extends from the project site west along Chino Corona Road to Comet Avenue; and south on Comet Avenue to connect back to the existing power line alignment. This re-route of the 66 kV lines is shown in Figure 2.7-6. The current pole height of approximately 40 feet will remain.

Figure 2.7-3
Outlet Design

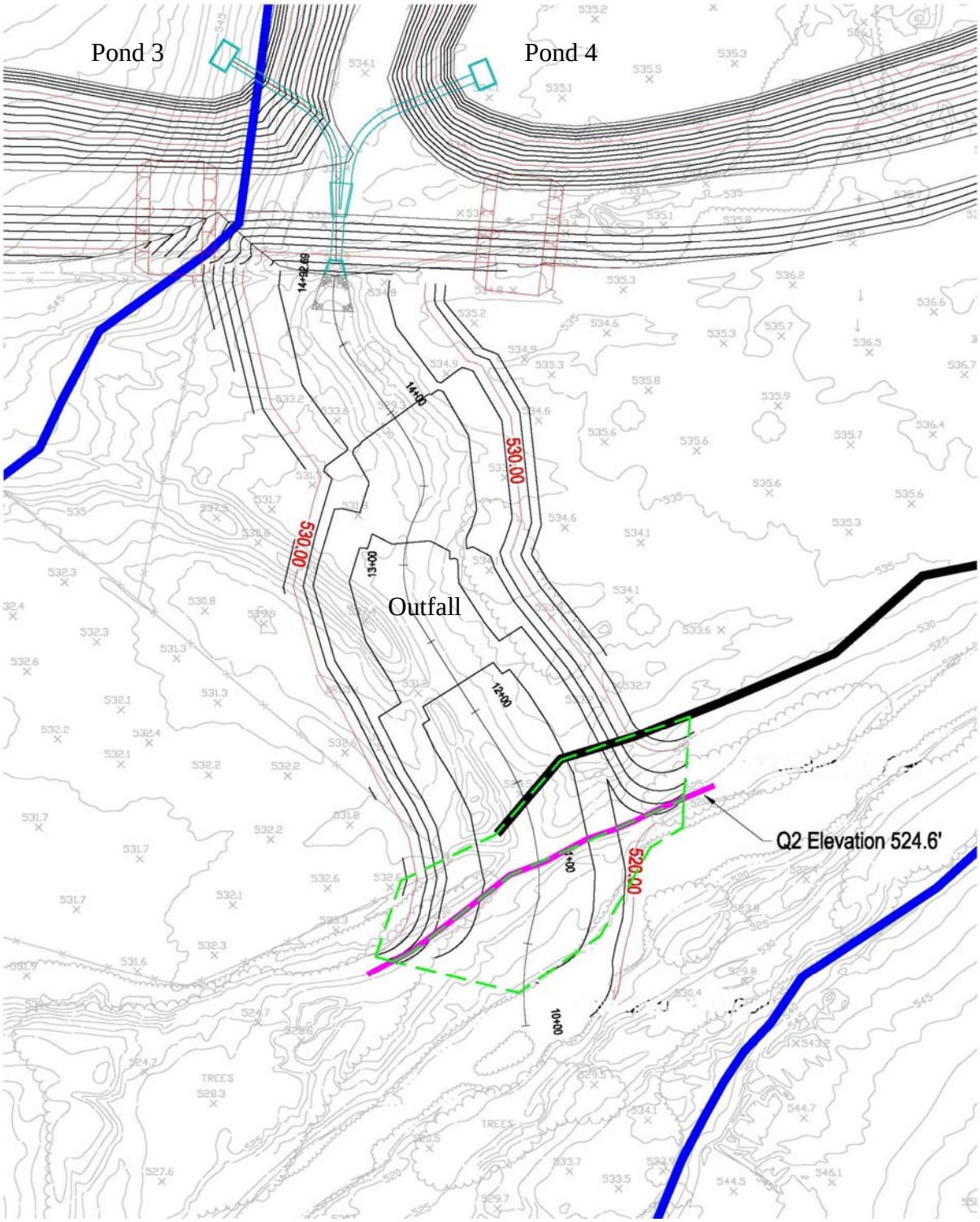


Figure 2.7-4
Sluice Gate Locations

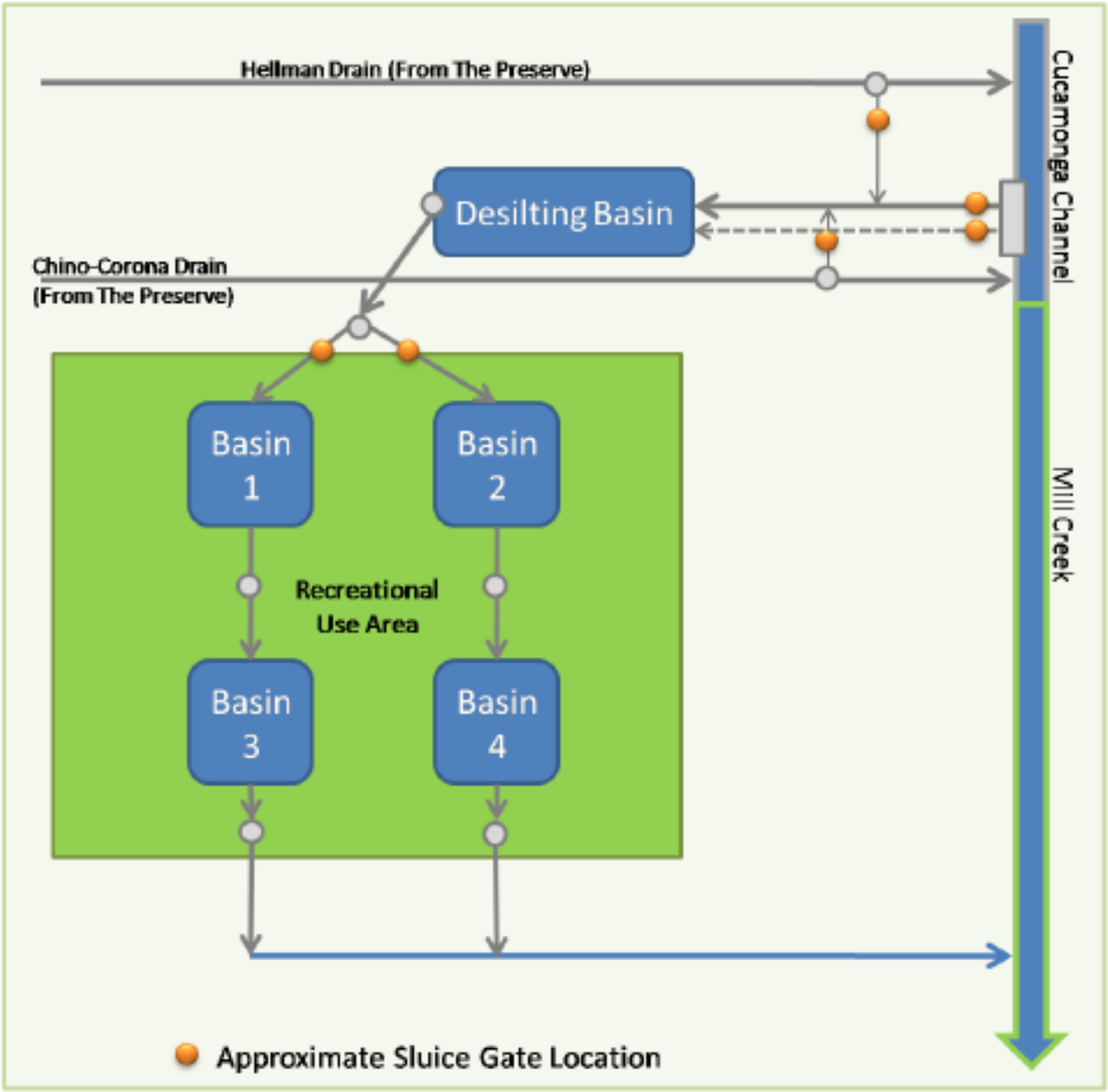
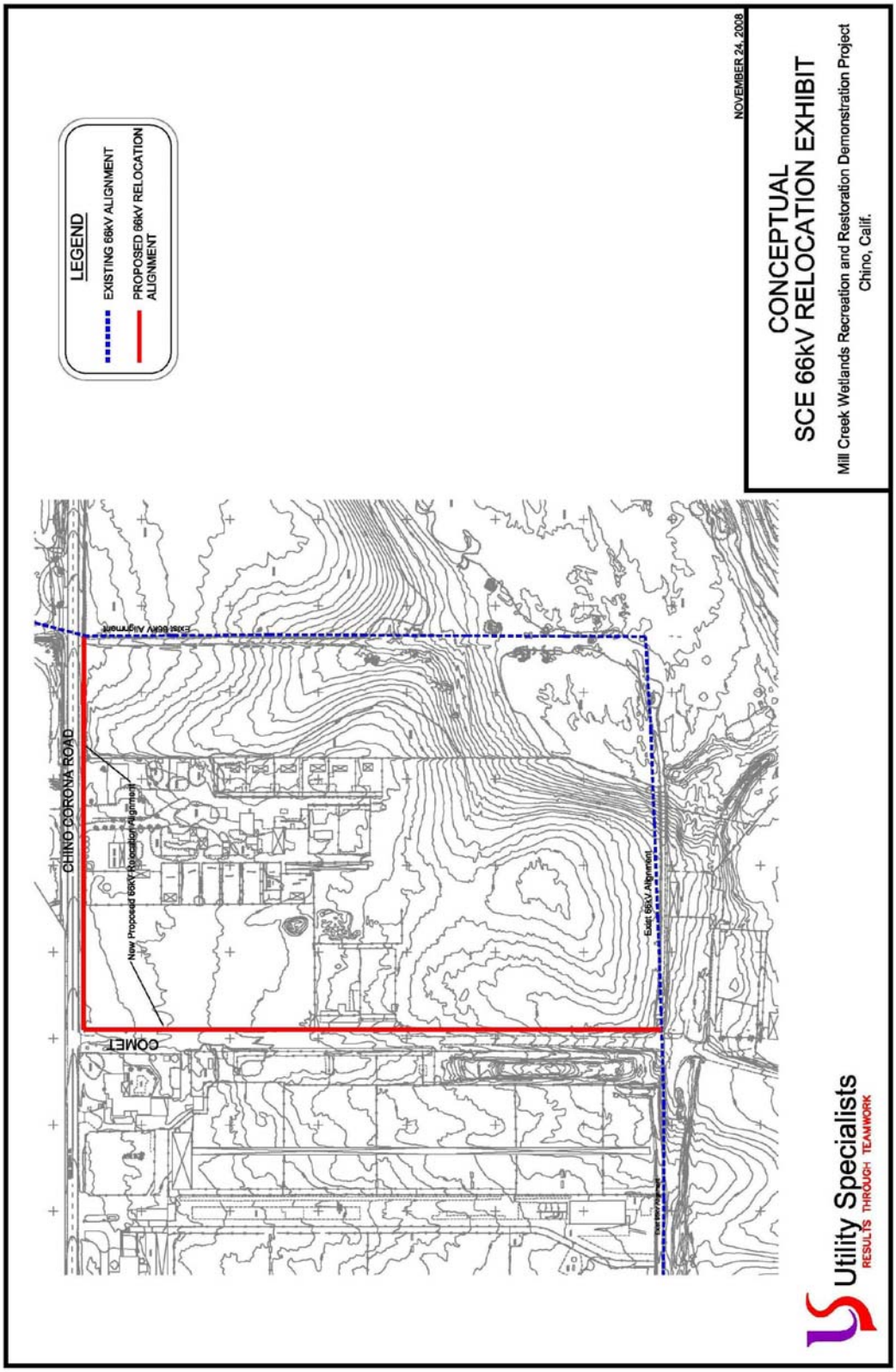


Figure 2.7-5
Transmission Line Relocation



2.8 CONSTRUCTION AND PHASING

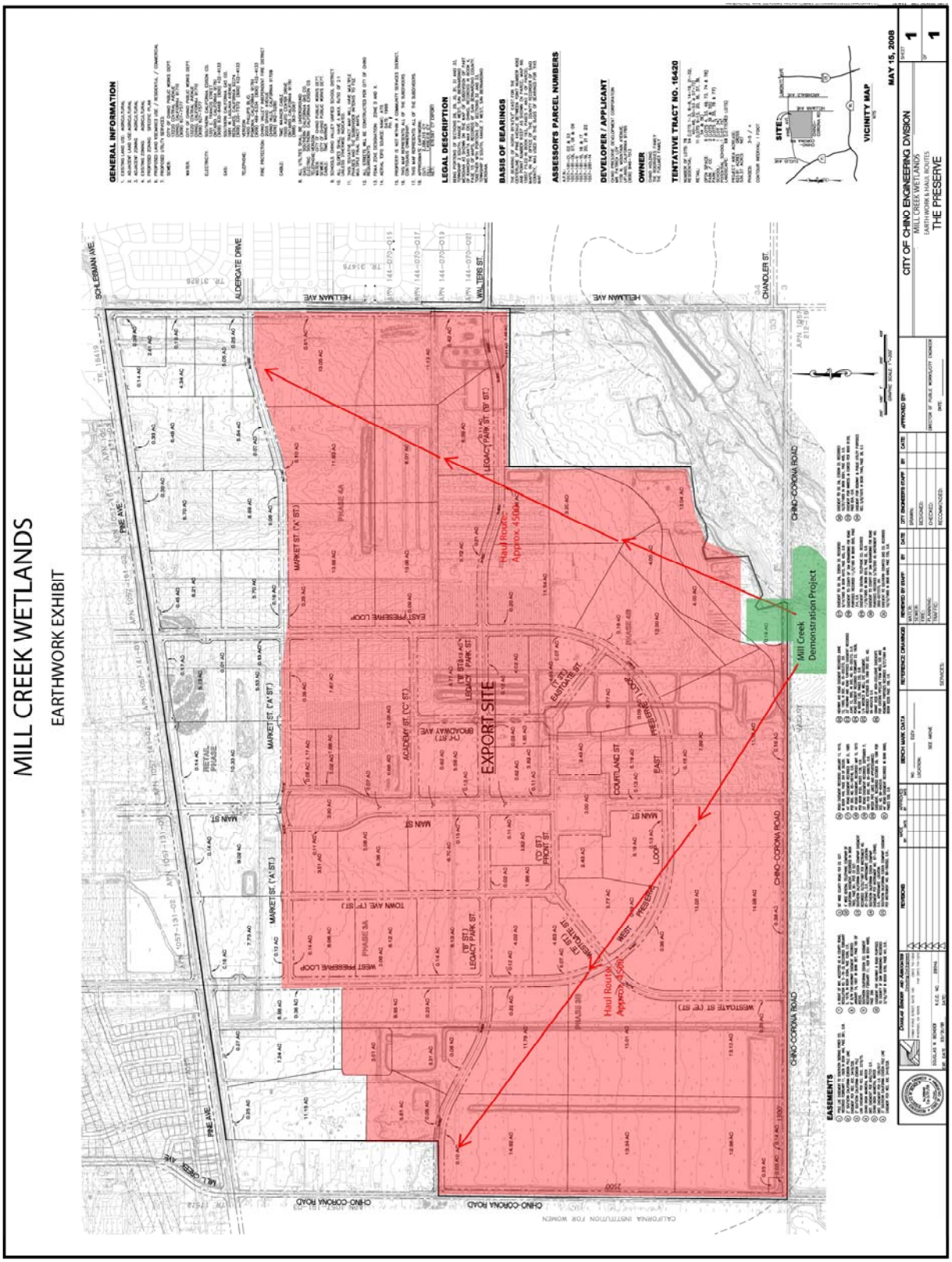
Grading of the Demonstration Project requires approximately 1.1 million cubic yards of earth movement. The diversion pipe requires approximately 200,000 cubic yards of grading, comprised of approximately 100,000 cubic yards of excavation for the trench and after the pipes have been installed almost 100,000 cubic yards of fill. Construction of the de-silting basin and four wetland/extended detention ponds require approximately 800,000 cubic yards of grading. Finally, the outlet will require approximately 100,000 cubic yards of earthwork.

Of the 1.1 million cubic yards of grading, approximately 900,000 cubic yards will be exported from the Demonstration Project site. The exported material will be transported in scrapers to fill locations adjacent to the Demonstration Project within the City of Chino and compacted to a minimum of 90 percent. The proposed fill locations are approximately ¾ mile from the Demonstration Project. The hauling of material to the fill site will require the closure of Chino Corona Road between Comet Avenue and Cucamonga Creek during the majority of the grading operation. Figure 2.8-1 shows generally the areas of proposed fill locations and associated haul routes. All construction equipment will be staged on the project site.

Grading and construction of the Demonstration Project could occur at one time, or it is possible that the project could be phased. One example of phasing includes initially constructing only two wetland/extended detention ponds instead of the proposed four ponds. For purposes of this CEQA document, which must analyze the "worst-case" scenario of potential environmental impacts, grading of the entire Demonstration Project is assumed to occur over an approximately 8 month period. Construction of only a portion of the Demonstration Project as a first phase followed by subsequent phases in the future would have less potential environmental impacts and is therefore not analyzed in this document.

The potential schedule for construction of the entire Demonstration Project is as follows. Following all approvals, permits, and notice to proceed, the Cucamonga Creek diversion structure and the outlet represent the first stage of construction. This initial work is planned to take 3 months and tentatively scheduled for July 2009 to October 15, 2009. The second stage includes the grading of the ponds. This grading operation will require approximately four months and tentatively scheduled for September 2009 to February 2010. Installation of the trail, irrigation, and the parking lots would follow grading. Finally, landscape planting is tentatively scheduled to occur from May 2010 to July 2010. Water quality monitoring would begin very soon after installation of the landscaping and extend to November 30, 2010.

Figure 2.8-1
Fill Location and Haul Routes



2.9 MAINTENANCE

The Demonstration Project has been designed as a gravity system to minimize maintenance. However, each component of the system will require periodic maintenance. Typically preventative maintenance occurs at the end of the dry weather season (usually September) in advance of the pending rains.

The most active maintenance area will be the diversion structure and the de-silting basin. The diversion structure requires maintenance primarily for the dry weather flow trapezoidal channel. Periodic maintenance will be required to ensure this area is clear of silt and debris.

The de-silting basin is designed with a hard bottom to facilitate maintenance and removal of silt, debris, and trash. A maintenance ramp will provide access for machinery to maintain this basin. The side slopes of the de-silting basin will be vegetated with native species that require little maintenance. During establishment, maintenance will occur to remove invasive weeds. After establishment the slopes will remain in a natural condition with minor maintenance. The portion of the slopes that include burrowing owl habitat will not be maintained once the vegetation is established, which typically requires five years.

The four wetland/extended detention ponds require less maintenance. Each pond will include an access ramp to the invert and each pond can be shut down and taken off line for maintenance. Maintenance generally includes removal of trash or debris at the inlet and outlet structures, and any necessary vector control measures.

The open water areas must remain open water for water quality purposes. The open water areas have been designed with a depth of 4-feet to discourage natural recruitment of plant material. However, if any plants do establish in the open water areas, those plants will be removed as part of the maintenance program. The open water area also requires the ultraviolet treatment from the sun to function properly. Therefore, if any of the vegetation on the islands or along the edge of the wetlands becomes too large and shades the open water, maintenance will be required including periodic trimming of that vegetation to eliminate the shading of the open water area.

The Intermittent Inundation Zone will not be actively maintained once the plant material is established. Trash removal and removal of invasive species would constitute the long-term maintenance program.

The Trail Zone and the Transition Zone will require active landscape maintenance to maintain the aesthetic value of the Recreation Plan. This area will be permanently irrigated; therefore maintenance activities will include irrigation maintenance, weeding, pruning, fertilizing, trash removal, etc.

The City of Ontario will be the responsible party for maintaining the Demonstration Project.

2.10 PROJECT STAKEHOLDERS

2.10.1 Land Ownership

The Demonstration Project is located on both public and privately owned land. The following describes the land ownership for each segment of the Demonstration Project.

Diversion Structure: The diversion structure located in Cucamonga Creek occurs on land owned by the USACE and within a flood control channel operated by the County of San Bernardino Flood Control District.

Diversion Pipe: The diversion pipe crosses land owned by the USACE.

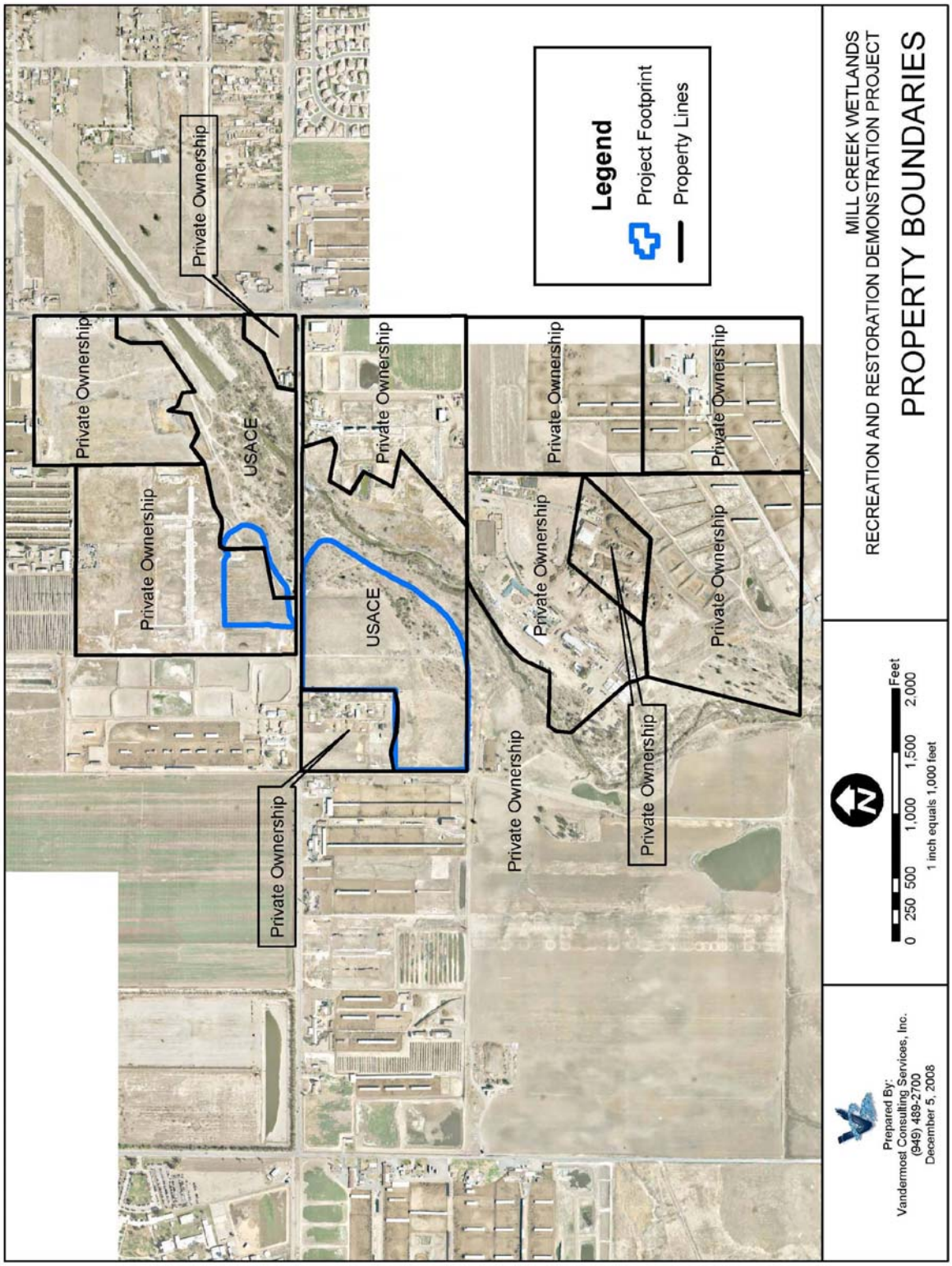
De-silting Basin: The de-silting basin is located on both public and privately owned land. The western portion of the de-silting basin is on privately owned land. The eastern portion of the basin is on land owned by the USACE.

Chino Corona Road: The pipe connecting the de-silting basin to the wetland/extended detention ponds crosses Chino Corona Road. Chino Corona Road is located on land owned by the USACE. The City of Chino holds an easement for the roadway.

Wetland / Extended Detention Ponds: The wetland and extended detention ponds, including the trails and parking lots, are located on land owned by the USACE. The County of San Bernardino Parks Department has a lease over this property for park purposes.

Outlet: The outlet originates on land owned by the USACE and crosses private land on its path to Mill Creek. Mill Creek is owned and operated by the USACE as a flood control channel. Figure 2.10-1 shows the property ownership boundaries of the Demonstration Project.

Figure 2.10-1
Property Ownership Boundaries



2.10.2 Agency Roles and Approvals

The following describes the role of each agency and the types of permits or approvals that may be issued by each agency.

U.S. Army Corps of Engineers: The USACE is the primary sponsor of the Feasibility Study; majority property owner; lease holder; and regulator. The USACE regulatory function includes the responsibility for issuing Section 404 permits pursuant to the Clean Water Act for impacts to jurisdictional waters and reviewing and approving the environmental documentation pursuant to NEPA. Since projects on Federal Land are not subject to State or local ordinances, the USACE will also be responsible for issuing a Notice to Proceed to initiate grading. As landowner and lease holder the USACE will also have the responsibility to issue a lease or easement to the City of Ontario for the Demonstration Project.

City of Ontario: The City of Ontario is the Lead Agency of the Demonstration Project pursuant to CEQA. The City is the project sponsor and will enter into a lease or easement with the USACE for operation of the Demonstration Project on USACE land.

City of Chino: The City of Chino is a Responsible Agency pursuant to CEQA. The City of Chino also has the responsibility for discretionary approvals of the Demonstration Project that occur on private property, such as a portion of the de-silting basin. The City of Chino's discretionary actions may include findings of consistency with the City's General Plan and The Chino Preserve Specific Plan, issuance of an encroachment permit and traffic control permits for Chino Corona Road and issuance of a grading permit for grading on private property.

County of San Bernardino Regional Parks Department: The County Parks Department currently has a recreation lease with the USACE for the portion of the Demonstration Project located south of Chino Corona Road. The County Parks Department is a Responsible Agency pursuant to CEQA.

County of San Bernardino Flood Control: Cucamonga Creek is a County flood control facility owned by the USACE and operated by the County of San Bernardino. Flood Control may review the diversion structure and issue an encroachment permit. County Flood Control may be a Responsible Agency pursuant to CEQA.

State Water Resources Control Board and the Santa Ana Regional Water Quality Control Board: The State Water Resources Control Board is the umbrella agency responsible for water quality protection in the State of California. This authority is generally implemented by the Regional Water Quality Control Boards including compliance with the National Pollutant Discharge Elimination System (NPDES). The State Water Resources Control Board also administers grants, which represents a partial funding source for the Demonstration Project. The Santa Ana Regional Water Quality Control Board serves as the water quality regulatory agency for the Demonstration Project.

Pursuant to Section 401 of the Clean Water Act, the Regional Water Quality Control Board issues Water Quality Certifications for impacts to jurisdictional waters. The Regional Water Quality Control Board is a Responsible Agency pursuant to CEQA.

California Department of Fish and Game: The California Department of Fish and Game (DFG) regulates activities that could impact fish or wildlife. The DFG requires a Streambed Alteration Agreement for impacts to jurisdictional waters pursuant to Section 1600 of the Fish and Game Code. DFG is a Responsible Agency pursuant to CEQA.

U.S. Fish and Wildlife Service: The U.S. Fish and Wildlife Service (USFWS) is the federal agency concerned with fish and wildlife species and the species habitat. The USFWS has special provisions related to the protection of threatened or endangered species. Since the Demonstration Project will require a Section 404 permit from the USACE there may be a consultation between the USACE and USFWS pursuant to Section 7. The USFWS may be a Trustee Agency pursuant to CEQA if consultation is required.

Inland Empire Utility Agency: The Inland Empire Utility Agency (IEUA) operates two wastewater treatment facilities that discharge into Cucamonga Creek. IEUA is a stakeholder in the area for issues that affect Cucamonga Creek.

Orange County Water District. The Prado Basin is a major source of drinking water for Orange County. Therefore, the OCWD is a stakeholder in the area.

2.11 FUNDING

Funding for the Demonstration Project includes both a grant from the State Water Resources Control Board and City of Ontario Development Impact Fees. The City of Ontario, with help from the State Water Resources Control Board, successfully secured a $5 Million grant for the development of water quality facilities under Propositions 40 and 13 (Appendix B). In order to meet the terms of the grant, the Demonstration Project must be completed and demonstrate water quality benefits by the end of 2010. The grant funding requires local matching funds, which will be provided by the City of Ontario Development Impact Fee Program.

2.12 CONTACT INFORMATION

The Expanded Initial Study / Mitigated Negative Declaration for the Demonstration Project is subject to public review and comment pursuant to Section 15200 of the State CEQA Guidelines. Copies are available during normal business hours at the City of Ontario, Planning Department, 303 East “B” Street, Ontario, California. A copy of the 2003 Chino Preserve EIR is referenced as Appendix A and can be obtained through the City of Chino, Community Development Department, 13220 Central Avenue, Chino,

California. Comments on this Expanded Initial Study / Mitigated Negative Declaration may be submitted to:

Scott Murphy, Assistant Planning Director
City of Ontario – Planning Department
303 East "B" Street
Ontario, California 91764
909-395-2036

3.0 AUTHORITY AND USE OF DOCUMENT

3.1 AUTHORITY

This Expanded Initial Study / Mitigated Negative Declaration was prepared pursuant to the provisions of the California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Section 15000 et seq.) This Expanded Initial Study / Mitigated Negative Declaration assess the potential impacts associated with the proposed Demonstration Project. The City of Ontario is the Lead Agency.

3.2 INCORPORATION BY REFERENCE

As permitted by Section 15150 of the CEQA Guidelines, this Expanded Initial Study / Mitigated Negative Declaration has referenced several technical studies, analyses, and reports, including the City of Chino Preserve Specific Plan Environmental Impact Report (Preserve 2003 EIR, State Clearinghouse No. 2000121036). In accordance with Section 15150 (b) of the State CEQA Guidelines, the location where the public may obtain and review these referenced documents and other sources used in the preparation of this Expanded Initial Study / Mitigated Negative Declaration is identified in Section 2.0.

3.3 INTENDED USES OF THE EXPANDED INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

Pursuant to the requirements of CEQA, the Expanded Initial Study / Mitigated Negative Declaration is intended to provide information regarding the environmental consequences of, and mitigation measures for, the Demonstration Project, as follows:

- Inform the decision-makers, public, and agencies about the project;
- Analyze the environmental impacts of the proposed Demonstration Project;
- Provide notice to Responsible/Trustee Agencies regarding required permits;
- Incorporate analysis that allows the Lead Agency and Responsible Agencies to certify the environmental analysis, make findings pursuant to CEQA, and take discretionary action related to the Demonstration Project.

4.0 ENVIRONMENTAL ANALYSIS

Environmental Checklist Form

1. **Project Title**: Mill Creek Wetlands Recreation and Restoration Demonstration Project

2. **Lead Agency name and address**: City of Ontario, 303 East "B" Street, Ontario, California 91764

3. **Contact person and phone number**: Scott Murphy, Assistant Planning Director, 909-395-2036

4. **Project location**: Bisected by Chino Corona Road, east of Comet Avenue and west of Cucamonga / Mill Creek in the City of Chino

5. **Project sponsor's name and address**: City of Ontario, 303 East "B" Street, Ontario, California 91764

6. **General plan designation**: Open Space-Recreation (OS-R), Agriculture/Open Space –Natural (AG/OS-N) and Open Space –Natural (OS-N).

7. **Zoning**: Open Space-Recreation (OS-R), Agriculture/Open Space –Natural (AG/OS-N) and Open Space –Natural (OS-N).

8. **Description of project**:

   The Demonstration Project is a 47-acre natural water treatment system consisting of a Recreation Plan, Native Habitat Plan, and Water Quality Plan. The Demonstration Plan includes approximately 3.3 miles of new trails with interpretative signage surrounding a series of wetland/extended detention ponds vegetated with native vegetation and sized to storage approximately 160 acre feet of runoff for natural water treatment of runoff from Cucamonga Creek.

9. **Surrounding land uses and setting**: Briefly describe the project's surroundings:

   The project is located on vacant land surrounded by agricultural uses and open space.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)**

    U.S. Army Corps of Engineers, City of Ontario, City of Chino, County of San Bernardino Parks Department, County of San Bernardino Flood Control, Regional

Water Quality Control Board, California Department of Fish and Game, and U.S. Fish and Wildlife Service

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation./Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have significant effect on the environment, and a NEGATIVE DECLARATION will be prepared

☑ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in the earlier document pursuant to applicable legal standards, and 2) has been addressed by

mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	12·18·08 Date
SCOTT MURPHY Printed Name	CITY OF ONTARIO For

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answered except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project- specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less that significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how

they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a) Earlier Analysis Used: Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). References to a previously or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
    a) the significant criteria or threshold, if any, used to evaluate each question; and
    b) the mitigation measure identified, if any to reduce the impact to less than significant.

4.1 AESTHETICS

This chapter analyzes the potential impacts on aesthetics from the Demonstration Project.

4.1.1 Existing Conditions

The Demonstration Project is located in the Chino Valley, which is a large part of the greater San Bernardino Valley.

The Demonstration Project site is currently vacant undeveloped land and the area's history as farmland is still evident today. The northern portion of the project site has evidence of a former dairy farm, including concrete wash/feed pads, manure spreading grounds, and fencing. The southern portion of the project site also includes fencing, unimproved roads/trails and scattered debris piles.

The project vicinity is generally slightly sloped with undulating topography. The overall topography tends to be higher in the north and western portions of the project site and slopes toward the south and east as it approaches Cucamonga / Mill Creek.

In the northern portion of the project site, north of Chino Corona Road, the existing ground surface elevation is approximately 575 feet above mean sea level (MSL) in the northwestern corner. The elevation slopes gradually to a plateau at an approximate elevation of 545 feet MSL before sloping more rapidly to the invert of Cucamonga Creek, at an approximate elevation of 525 feet MSL.

The southern portion of the project site is similar in character, however the natural channel of Mill Creek is more deeply incised than it is north of Chino Corona Road. Adjacent to Chino Corona Road, the project site has an existing ground surface elevation of approximately 560 feet MSL and undulates slowly as it reaches a plateau at an approximate elevation of 540 feet MSL adjacent to Mill Creek. Mill Creek is steeply incised with an invert elevation of approximately 520 feet MSL.

South of Chino Corona Road electrical transmission lines run north/south in the eastern portion of the site. The 66kv lines include poles approximately 40 feet high.

The existing vegetation on the project site differs greatly between the west and center portion of the site and the eastern portion of the site along Cucamonga / Mill Creek, both north and south of Chino Corona Road. The west and center portions of the project site include disturbed and ruderal non-native vegetation. The eastern portion of the site includes patches of black willow scrub and riparian scrub native vegetation. Closer to Cucamonga / Mill Creek the vegetation becomes higher quality and more dense. Dense riparian vegetation covers the banks of Cucamonga / Mill Creek.

The most visible distant features from the project site include the hills of the Cleveland National Forest to the south and the Chino Hills to the west.

Figure 4.1-1 includes photographs of the project site.

Figure 4.1-1
Project Site Photos – Existing Conditions

Diversion Point at Cucamonga Creek

Northern Portion of Project Site

Figure 4.1.1-1
Project Site Photos – Existing Conditions

Southern Portion of Project Site

Wetlands Outfall Area

4.1.2 Potential Impacts

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan that will change the character of the project site from relatively flat, vacant, disturbed land to an area with ponds filled with water and wetland vegetation, native vegetation extending up the slopes of the ponds, and a trail system surrounding the ponds with benches and interpretive signage.

4.1.3 Scenic Resources

The only scenic resource on or adjacent to the project site is Mill Creek. Otherwise, the disturbed former agricultural land does not represent a scenic resource. Mill Creek however, contains well established, dense riparian vegetation along its banks. In the arid southwest, the lush green canopy associated with riparian vegetation constitutes a scenic resource.

Construction of the wetland/extended detention ponds requires the temporary removal of 0.94 acre of black willow vegetation and 0.98 acre of disturbed black willow vegetation. Permanent impacts include 1.43 acres of black willow vegetation and 5.15 acres of disturbed black willow vegetation. The willow-scrub vegetation is located beyond the banks of Mill Creek, separate from the dense riparian vegetation located directly along the banks of Mill Creek. The willow-scrub vegetation occurs in patches, with established patches of willow-scrub separated by ruderal disturbed grassland.

Construction of the outlet, which connects the wetland/extended detention ponds to Mill Creek, will impact 0.66 acre of riparian vegetation along Mill Creek. As the outlet swale connects to Mill Creek a confluence of two drainages will be created. To construct that confluence, approximately 290 linear feet of vegetation must be removed from the west bank of Mill Creek.

The removal of the willow-scrub and riparian vegetation associated with the Demonstration Project constitutes an impact to visual resources. However, the proposed Native Habitat Plan includes approximately 47 acres of new native vegetation. The wetland / extended detention ponds and outlet include, wetland, willow-scrub, and riparian vegetation. Therefore, the Demonstration Project will create a net increase in native vegetation, which offsets the project impacts. Therefore, no significant impacts will occur.

4.1.4 Visual Character

The visual character of the project site will change from disturbed land to a series of trails, ponds and new native vegetation. This change is not out of character with the surrounding environment. Prado Basin contains extensive trails and native vegetation.

Furthermore, the new vegetation on the project site will appear as an extension of and compliment to the vegetation in Mill Creek. Therefore, the change in visual character results in a benefit to the area. No impacts are associated with the change in visual character.

Existing 66kv power poles traverse the project site. As part of the Demonstration Project these poles will be removed. The existing 66 kV power lines will be re-routed on existing power poles to follow an alignment that extends from the project site west along Chino Corona Road to Comet Avenue; and south on Comet Avenue to connect back to the existing power line alignment. The current pole height of approximately 40 feet will remain. The proposed change in the location of the power poles will not change the visual character of the project site or surrounding area. No significant impacts will occur with the relocation of the power lines and removal of the power poles from the project site.

4.1.5 Light and Glare

The Demonstration Project will not create any new sources of lighting. The parking lots will be locked at dusk to prevent access to the parking lots and trails. Therefore, no new lighting is proposed. Therefore, no significant impacts are associated with light and glare.

4.1.6 Surrounding Views

The Demonstration Project will retain and enhance the surrounding views of the Cleveland National Forest and the Chino Hills. The Recreation Plan includes a series of trails with benches and viewpoint areas. The viewpoints will provide recreation users an opportunity to view the newly created wetlands, which provides opportunities for wildlife viewing, as well as the surrounding environment. Therefore, the Demonstration Project provides a benefit to viewing the surrounding areas.

The Demonstration Project includes new native vegetation, some of which may grow to 40+ feet tall. This type of vegetation is consistent with the vegetation currently found in Mill Creek. The surrounding land uses include either vacant land or working farms, which are not oriented to capture surrounding views. Since the proposed vegetation is consistent with the existing vegetation in Mill Creek, the proposed project will not impact surrounding views from neighboring properties.

4.1.7 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Aesthetics	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Have a substantial adverse effect on a scenic vista?	☐	☐	☑	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☑	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

a) Would the project have a substantial adverse effect on a scenic vista?

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan that will change the character of the project site from relatively flat, vacant, disturbed land to an area with ponds filled with water and wetland vegetation, native vegetation extending up the slopes of the ponds, and a trail system surrounding the ponds with benches and interpretive signage. The Demonstration Project will remove 0.66 acre of existing native riparian vegetation along Mill Creek; however the Native Habitat Plan provides substantially more vegetation than the amount being removed. Therefore, the potential impacts to a scenic vista are less than significant.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The Demonstration Project is not located adjacent to a state scenic highway. Impacts will occur to vegetation along Mill Creek. Please see the response to a) above.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The Demonstration Project will substantially change the character of the project site from vacant disturbed land to a series of recreation trails, native vegetation, and water quality ponds. This proposed change is considered beneficial.

The current condition of the project site includes evidence of prior agricultural uses. The site is disturbed, contains trash and debris, and vegetated primarily with non-native invasive weeds. The proposed project will add recreation to the area with trails, interpretative signs, and viewing opportunities. The Demonstration Project will also add extensive native vegetation and wetland ponds that include both open water as well as wetland vegetation. The proposed changes will enhance the visual character of the project site and the surrounding area. No impacts will occur.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The Demonstration Project will not create new sources of light or glare. Therefore, no impacts will occur.

4.2 AGRICULTURE

This chapter analyzes the potential impacts to agricultural resources associated with the Demonstration Project.

4.2.1 Background

The Demonstration Project site was previously used for agriculture and the surrounding properties consist of farms and dairies. There are several methods of classifying farmland, including the Department of Conservation's classification system, Williamson Act contracts, soil types, and local zoning. The following are analyzed below.

4.2.2 Farmland Classification

The Department of Conservation classifies farmland as prime, unique, farmland of local importance, grazing, urban, and other land. Based on the mapping from the California Department of Conservation Farmland Mapping and Monitoring Program, the Demonstration Project site is classified as "Other Land" as shown on the Figure 4.2-1. The Other Land classification describes land that is not included in other agricultural categories and is generally not suited for agriculture.

4.2.3 Williamson Act Contracts

The California Land Conservation Act of 1965, also known as the Williamson Act, was established to encourage the preservation of the State's agricultural lands. The Act provides property tax incentives for landowners to enter into a 10-year contract that commits the property to remain agricultural.

The property just north of Chino Corona Road in the immediate vicinity of the de-silting basin was previously under a Williamson Act contract. However, according to the City of Chino website, this contract has expired. Figure 4.2-2 depicts the City of Chino's mapping of the Demonstration Project site. Therefore, the Demonstration Project site does not contain any properties with an active Williamson Act contract.

Figure 4.2-1
San Bernardino County Important Farmland

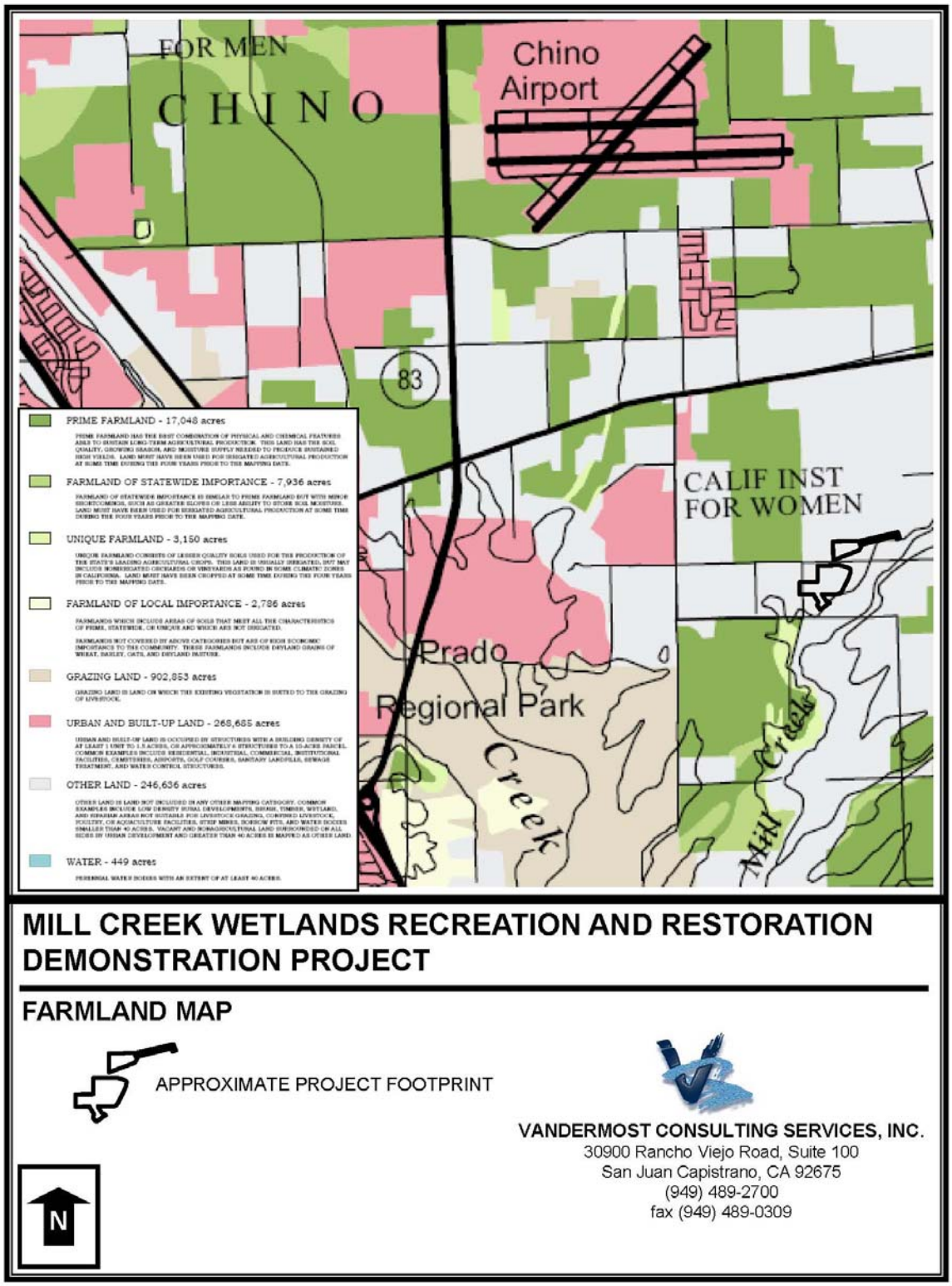
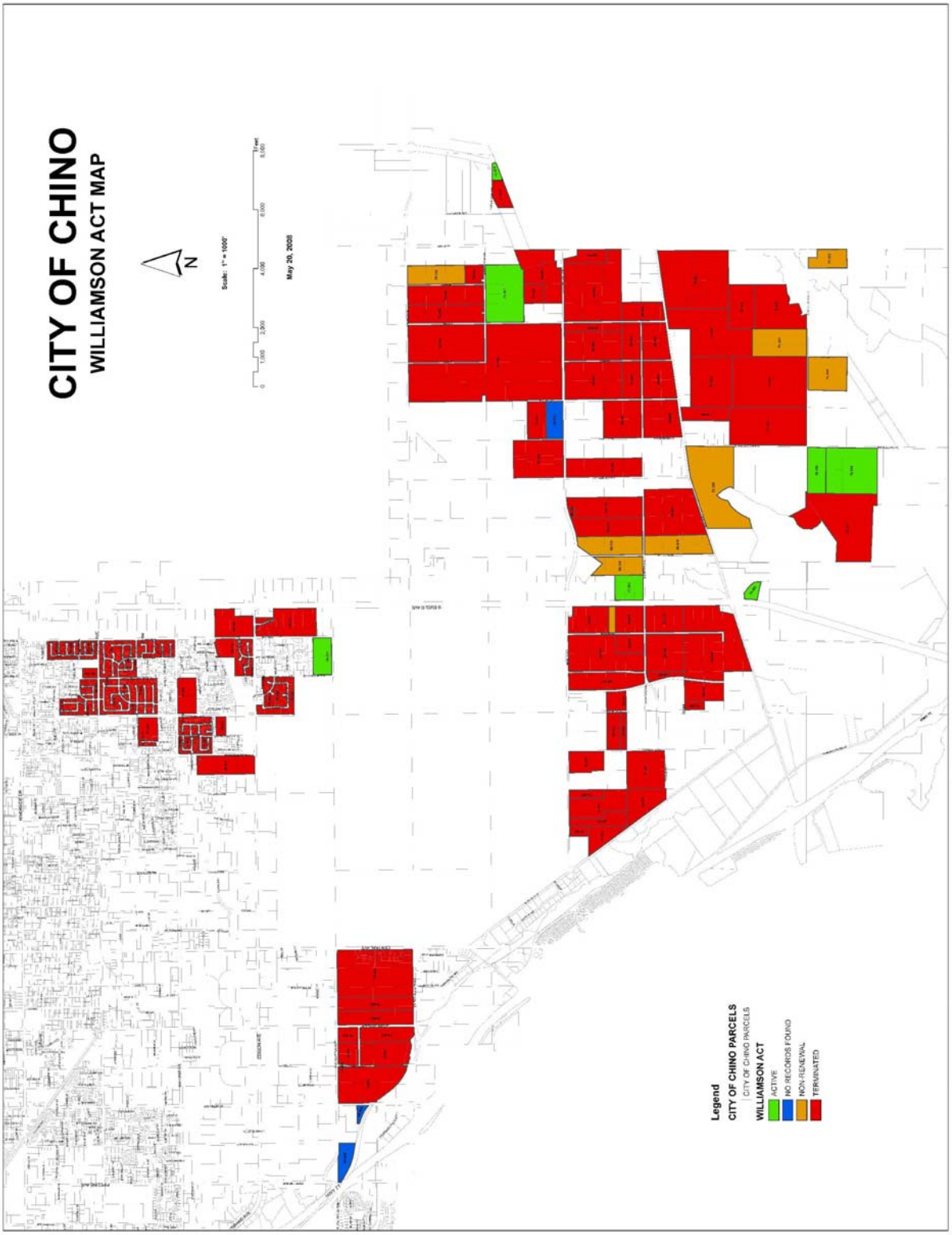


Figure 4.2-2
Williamson Act Map



4.2.4 Soil Types

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) has developed a system that generally describes soil types, their physical characteristics and limitations, and their suitability for agriculture and other uses. The following describes the soil associations found on the project site.

- Grangeville-Chino-Hilmar association – Described as nearly level, somewhat poorly drained, very deep soils in basins and on alluvial flood plains and fans.

- Ramona-Chualar-Sorrento association – Described as nearly level to moderately sloping, well drained, very deep soils on alluvial fans and terraces.

4.2.5 Zoning

The Demonstration Project site is located within the boundaries of The Chino Preserve Specific Plan. The City of Chino General Plan and Zoning Code designate the Demonstration Project site as OS-R (Open Space – Recreation), OS-N (Open Space – Natural) and AG/OS-N (Agriculture/Open Space-Natural). The City of Chino Municipal Code defines the two zones as follows:

> *The OS (open space) zone is for the purpose of implementing the policies and goals of the open space and conservation element of the city's general plan and establishing non-urban uses as a land use equal in importance to urbanized land uses. Furthermore, the zone is intended to: establish open space areas for active and passive recreation; protect and preserve open space as a valuable land resource; protect the public health, safety and general welfare; and reduce the financial burden imposed upon the city which may result from the improper use of lands which are subject to environmental hazard, such as periodic or frequent floods or earth movement.*
>
> *The AG (general agricultural) zone is intended to provide for the continuation of agricultural uses, including those under Williamson Act contract after annexation to the city, in those instances when the city council declares its intention to succeed the San Bernardino County in administering those contracts. Furthermore, it is the intent of this zone to permit continued agricultural use of properties or to establish general agricultural uses, including dairies and stables, which are appropriate for areas of concentrated agricultural uses.*

4.2.6 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Agriculture	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in: a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☑

a) Would the project Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the

Farmland Mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?

According to the California Department of Conservation Farmland Mapping and Monitoring Program 2006, the Demonstration Project site is classified as Other Land, not Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, there are no impacts to the conversion of farmland.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

According to the City of Chino's mapping of Williamson Act contracts, the Demonstration Project site does not have an active Williamson Act contract. Therefore there are no impacts associated with conflicting with a Williamson Act contract.

The project site is zoned as Open Space-Recreation, Open Space-Natural and Agriculture / Open Space-Natural. The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan, all of which are consistent with the zoning on the project site. Therefore, there are no conflicts with existing zoning.

c) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

No active farming currently exists on the Demonstration Project site, therefore there are no impacts associated with changes to the existing condition that would convert farmland to non-agricultural uses.

4.3 AIR QUALITY

This chapter analyzes the potential air quality impacts associated with the Demonstration Project.

4.3.1 Background

Investigative Science and Engineering prepared an Air Quality Assessment, dated November 18, 2008, for the proposed Demonstration Project. The report is included as Appendix C.
.
Air quality is defined by ambient air concentrations of specific pollutants determined by the Environmental Protection Agency (EPA) to be of concern with respect to the health and welfare of the public. The subject pollutants, which are monitored by the EPA, are Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Ozone (O_3), respirable 10- and 2.5-micron particulate matter (PM_{10}), Volatile Organic Compounds (VOC), Reactive Organic Gasses (ROG), Hydrogen Sulfide (H_2S), sulfates, lead, and visibility reducing particles.

Examples of sources and effects of these pollutants are identified below:

- Carbon Monoxide (CO): Carbon monoxide is a colorless, odorless, tasteless and toxic gas resulting from the incomplete combustion of fossil fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. CO is a criteria air pollutant.

- Oxides of Sulfur (SOx): Typically strong smelling, colorless gases that are formed by the combustion of fossil fuels. SO_2 and other sulfur oxides contribute to the problem of acid deposition. SO_2 is a criteria pollutant.

- Nitrogen Oxides (Oxides of Nitrogen, or NOx): Nitrogen oxides (NOx) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility.

- Ozone (O_3): A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy. Ozone exists in the upper atmosphere ozone layer as well as at the

earth's surface. Ozone at the earth's surface causes numerous adverse health effects and is a criteria air pollutant. It is a major component of smog.

- PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.

- $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NOx release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions.

- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOC's contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOC's often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

- Reactive Organic Gasses (ROG): Similar to VOC, Reactive Organic Gasses (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight.

- Hydrogen Sulfide (H_2S): A colorless, flammable, poisonous compound having a characteristic rotten-egg odor. It often results when bacteria break down organic matter in the absence of oxygen. High concentrations of 500-800 ppm can be fatal and lower levels cause eye irritation and other respiratory effects.

- Sulfates: An inorganic ion that is generally naturally occurring and is one of several classifications of minerals containing positive sulfur ions bonded to negative oxygen ions.

- Lead: A malleable metallic element of bluish-white appearance that readily oxidizes to a grayish color. Lead is a toxic substance that can cause damage to the nervous system or blood cells. The use of lead in gasoline, paints, and plumbing compounds has been strictly regulated or eliminated such that today it poses a very small risk.

- Visibility Reducing Particles (VRP): VRP's are just what the name implies, namely, small particles that occlude visibility and or increase glare or haziness. Since sulfate emissions (notably SO_2) have been found to be a significant contributor to visibility-reducing particles, Congress mandated reductions in annual emissions of SO_2 from fossil fuels starting in 1995.

The EPA (under the Federal Clean Air Act of 1970, and amended in 1977) established ambient air quality standards for these pollutants. This standard is called the National Ambient Air Quality Standards (NAAQS). The California Air Resources Board (CARB) subsequently established the more stringent California Ambient Air Quality Standards (CAAQS).

Areas in California where ambient air concentrations of pollutants are higher than the state standard are considered to be in "non-attainment" status for that pollutant.

4.3.2 Existing Conditions

The California Air Resources Board (CARB) monitors ambient air quality at approximately 250 air-monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Ambient air pollutant concentrations are measured at 19 air-quality-monitoring stations currently operated by the SCAQMD.

Two ambient air-quality-monitoring stations, which are in close proximity to the project site and contain a representative sampling of ambient air toxics, are located within the City of Pomona approximately 11.3 miles from the project site, and within the City of Norco approximately 3.1 miles distant.

The Pomona station currently records CO, NO_2, O_3, Wind Direction, and Horizontal Wind Speed, while the Norco station only measures PM_{10}. Other stations within the project vicinity present either incomplete or redundant data or were determined not to be representative of localized ambient air quality conditions present at the project site.

Due to the type of equipment employed at each station, not every station is capable of recording the entire set of criteria pollutants previously identified. Periodic audits are conducted to ensure calibration conformance.

The project site is located in the north central portion of the South Coast Air Basin. The Basin continues to have a transitional-attainment status of federal standards for Ozone (O_3), PM_{10}, and $PM_{2.5}$. The Basin is either in attainment or unclassified for federal standards of CO, SO_2, NO_2, and lead. Factors affecting ground level pollutant concentrations include the rate at which pollutants are emitted to the atmosphere, the height from which they are released, and topographic and meteorological features. Given these factors, the closest monitoring stations reported exceedances of O_3 and PM_{10}. All other criteria pollutants were within both federal and state standards or not monitored.

4.3.3 Regulatory Setting

In the absence of formally adopted thresholds, the City of Ontario, City of Chino, and the County of San Bernardino use Appendix G.III of the State CEQA guidelines as thresholds of significance and recognize the SCAQMD's established screening thresholds for air quality emissions as screening standards.

The South Coast Air Quality Management District (SCAQMD) establishes significance criteria for air quality emissions. The aggregate project-related maximum levels are shown quantitatively in Table 4.3-a. These standards are compatible with those utilized elsewhere in the State and are currently enforced within the City of Ontario, Chino and the County of San Bernardino. For projects whose stationary-source emissions are below these criteria, no AQIA is typically required, and project level emissions are presumed to be less than significant.

***Table 4.3-a*: Thresholds of Significance for Air Quality Impacts - SCAQMD**

Pollutant	Operational Thresholds of Significance (pounds per day)	Construction Thresholds of Significance (pounds per day)	Clean Air Act less than significant Levels (tons per year)
Carbon Monoxide (CO)	550	550	100
Oxides of Sulfur (SO_x)	150	150	100
Volatile/Reactive Organic Compounds & Gasses (VOC/ROG)	55	75	50
Oxides of Nitrogen (NO_x)	55	100	50
Particulate Matter (PM_{10})	150	150	100
Particulate Matter ($PM_{2.5}$)	55	55	100

Source: SCAQMD CEQA Air Quality Handbook, 1993, 1998, 2002

The $PM_{2.5}$ threshold is based upon the proposed standard identified in the, "*Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds.*" Published by SCAQMD in October 2006

In the event that project emissions may approach or exceed these screening level criteria, modeling would be required to demonstrate that the project's ground-level concentrations, including appropriate background levels, are below the Federal and State Ambient Air Quality Standards (i.e., the NAAQS and CAAQS standards).

The existing ambient conditions are compared for the with- and without project cases. If emissions exceed the allowable thresholds, additional analysis is conducted to determine whether the emissions would exceed an ambient air quality standard. Determination of significance considers both localized impacts (such as CO hotspots) and cumulative impacts. In the event that any criteria pollutant exceeds the threshold levels, the proposed action's impact on air quality is considered significant and mitigation measures would be required.

Finally, under the General Conformity Rule, the EPA has developed a set of deminimus thresholds for all proposed federal actions in a non-attainment area for evaluating the significance of air quality impacts. It should be noted that the State (i.e., SCAQMD) standards are equal to, or more stringent than, the Federal Clean Air standards. Development of the proposed project would therefore fall under the stricter SCAQMD guidelines.

4.3.4 Potential Air Quality Impacts

The proposed Demonstration Project includes three master plans: Recreation Plan, Native Vegetation Plan, and Water Quality Plan. The Recreation Plan and the Water Quality Plan both have the potential to cause air quality impacts. Operationally, the Recreation Plan will, on average, draw 128 two-way vehicle trips to the trail system daily. This increase in vehicle trips includes 5 trips during the AM peak hour and 10 trips during the PM peak hour. The Recreation Plan includes eight parking spaces with the potential for an additional five parking spaces for equestrian users in the future. Based on a screening assessment of the very low operational use of the recreation facilities, the potential air quality impacts are de minimums and less than significant.

The Water Quality Plan also has the potential to cause air quality impacts due to maintenance of the basins. The de-silting basin will be actively maintained annually. Mechanical equipment such as front loaders and bulldozers will operate within the de-silting basin to remove trash, debris, and sediment. This maintenance activity will occur annually for several days to a week. The remaining ponds will be maintained primarily by hand. Crews will annually remove trash and debris, and maintain the inlet and outlet structures. Finally, the trail and the associated landscaping will be maintained very much like gardeners maintain a park, however native, drought-tolerant landscaping along the trail lends itself to less maintenance than an active recreation park. Combined, the maintenance of the Demonstration Project results in de minimus levels of pollutants based on a screening assessment. Therefore, potential impacts to air quality due to maintenance activities are considered less than significant.

Construction of the de-silting basin, four wetland/extended detention ponds, and trail system requires approximately 1.1 million cubic yards of grading over approximately 150 days. Grading the wetland ponds requires moving approximately 800,000 cubic yards of earth to a nearby stockpile location. Construction of the diversion pipe and the outlet facility require approximately 300,000 cubic yards of earthwork.

The attached Air Quality Assessment (Appendix C) analyzes the potential air quality impacts associated with the construction operations, or more specifically the rough grading operation, which creates the most pollutant emissions.

4.3.5 Construction Impacts

Grading of the Demonstration Project has the potential to cause air quality impacts from construction vehicle emissions, fugitive dust emissions and combustion-fired health risk emissions.

Construction Vehicle Emissions

Construction vehicle emissions primarily consist of earthwork activities, such as scraper, dozer, and other earth moving equipment. The Federal Clean Air Act classifies construction equipment depending on age. Older equipment, which tends to emit more pollutants, is classified as Tier 0. The newest equipment, with the most advanced technology for reducing emissions, has a classification of Tier 4. The USEPA also has a program called "Blue Sky Series" engines, which include cleaner burning engines that are at least 40% better than current Tier 2 or 3 mandates. The primary pollutants of concern include CO, NOx, SOx, PM_{10}, $PM_{2.5}$, and ROG.

The rough grading of the Demonstration Project using Tier 0 equipment is not expected to generate significant air quality impacts for construction of the diversion structure and the outlet. However, the mass grading required for the de-silting basin and wetland/extended detention ponds would generate significant levels of NOx. Therefore, cleaner equipment is necessary to comply with the SCAQMD threshold for this pollutant.

By using Tier 3 or better construction equipment for the mass grading operation and the construction of the diversion structure and outlet, all aggregate emissions would be reduced below the SCAQMD Significance Thresholds as shown on Table 4b of the Air Quality Assessment (Appendix C).

TABLE 4b: Predicted Construction Emissions – Rough Grading Phase (Tier 3+Mitigated)

					Aggregate Emissions in Pounds / Day[1]					
Equipment Type	**Qty. Used**	**HP**	**Daily Load Factor (%)**	**Duty Cycle (Hrs. / day)**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**
Mass Grading for Basins and De-Silting Pond										
Dozer - 824 Cat	1	315	50	6	5.4	2.6	1.9	0.2	0.2	2.8
Dozer - D8 Cat	1	300	50	6	5.1	2.5	1.8	0.2	0.2	2.7
Dozer - D9 Cat	2	450	50	6	15.4	7.6	5.4	0.5	0.5	8.1
16 Blades	2	275	50	4	6.3	3.1	2.2	0.2	0.2	3.3
Water Truck	4	200	30	4	5.5	14.6	1.9	0.3	0.3	1.9
Scraper	10	550	50	8	125.4	61.6	44.0	4.4	4.0	22.0
				Total (Σ)	**163.1**	**92.0**	**57.2**	**5.8**	**5.4**	**40.8**
SIGNIFICANCE THRESHOLD SCAQMD:					**550**	**100**	**150**	**150**	**55**	**75**

[1] Values rounded to nearest significant figure.

Fugitive Dust Emissions

Grading and construction activities are also a source of fugitive dust emissions. Land clearing, excavating, and grading can generate substantial levels of dust. Additionally, hauling material on unpaved surfaces and uncovered loads can cause dust emissions. The primary pollutants of concern are PM_{10} and $PM_{2.5}$.

The Air Quality Assessment analyzed the potential impacts associated with dust emissions from both grading and hauling operations. Grading the Demonstration Project requires movement of 1.1 million cubic yards of material over a 150-day grading period. This translates into approximately 5,720 tons of material per day. Based on SCAQMD guidelines, this level of earthwork would produce 367.2 pounds of PM_{10} per day, which is well above the threshold of 150 pounds per day.

In order to reduce fugitive dust emissions to a level below significance, surface wetting at a minimum level of three times per day is required for grading operations and dust suppression techniques, such as a co-polymer soil stabilizer or equivalent, is necessary for stockpile areas. Implementation of such a program would provide a control efficiency of up to 90% reduction of fugitive dust, thereby reducing the amount of fugitive dust generated to 36.7 pounds per day. This level is below the 150 pounds per day threshold established by SCAQMD. The commensurate $PM_{2.5}$ level would be 7.6 pounds per day, which is also below the proposed threshold of significance for this pollutant. Therefore, less than significant impacts are expected.

Of the 1.1 million cubic yards of earthwork, approximately 900,000 cubic yards will be hauled approximately 0.75 miles away. On an unpaved road the fugitive dust emissions would exceed the thresholds of significance. However, the application of a co-polymer to stabilize the roadway would reduce the PM_{10} emissions to 29.3 pounds per day, which is below the 150 pound per day threshold. The commensurate $PM_{2.5}$ level would be 6.2 pounds per day, which is also below the proposed threshold of significance for this pollutant. Therefore, less than significant impacts are expected.

Combustion-Fired Health Risk

The combustion-fired health risk assessment analyzes potential health risks, such as diesel-fired toxics analysis, associated with construction equipment. On-site construction equipment was found to generate the worst-case daily pollutant levels during the mass-grading phase. The primarily pollutants of concern include CO, NOx, SOx, PM_{10} and $PM_{2.5}$. However, for cancer-risk potential, only combustion-fired PM_{10} particulates are considered.

Based upon the model results, all criteria pollutants were below the recommended risk level with a PM_{10} risk probability of 0.1222% (or 12.2 one-hundredths of a percent risk per 70-year exposure duration. Additionally, the model identified a worst-case PM_{10} level of 4.08 ug/m^3, which is far below the California Ambient Air Quality Standard (CAAQS) of 50 ug/m^3 established by the State for any given 24-hour exposure period.

Finally, diesel-fired $PM_{2.5}$ levels are not expected to exceed 3.75 ug/m^3, which is also well below the Federal NAAQS 24-hour threshold of 35 ug/m^3. The Federal standard is used because there are no State thresholds for $PM_{2.5}$. These results are presented in the following Table 6 from the Air Quality Assessment.

TABLE 6: SCREEN3 Predicted Diesel-Fired Emission Concentrations

Criteria Pollutant	**Pollutant Concentration (µg/m^3)**	**Pollutant Concentration (ppm)**	**Pollutant Risk Probability (percent risk per person for 70-year exposure)**	*Significant?*
CO	114.60	0.0997	n/a	**No**
NO_x	64.66	0.0344	n/a	**No**
SO_x	40.20	0.0153	n/a	**No**
PM_{10}	**4.08**	**- -**	**0.122%**	**No**
$PM_{2.5}$	3.75	- -	n/a	**No**

Diesel risk calculation based upon ARB 1999 Staff Report from the Scientific Review Panel (SRP) on Diesel Toxics inhaled in a 70-year lifetime.

Conversion Factors (approximate):

CO: 1 ppm = 1,150 µg/m^3 @ 25 deg-C STP, NO_x: 1 ppm = 1,880 µg/m^3 @ 25 deg-C STP
SO_x: 1 ppm = 2,620 µg/m^3 @ 25 deg-C STP, PM_{10} and $PM_{2.5}$: 1 ppm = 1 g/m^3 (solid)

$PM_{2.5}$ levels based upon the CEIDARS database fractional emission factor for diesel construction equipment of 0.920 $PM_{2.5}$ / PM_{10}.

Based on these results, the carcinogenic impact potential due to the proposed grading operations is considered less than significant.

Aggregate Emission Levels

Grading emissions, grading dust generation, and hauling dust generation all have the potential to cause air quality impacts. Individually, the emission levels of these activities are less than the established thresholds, with mitigation. The following table from the Air Quality Assessment documents that the aggregate emissions from these activities are also less than the established thresholds of significance.

TABLE 7: Aggregate Emissions Synopsis w/ Project Imposed Mitigation

	Aggregate Emissions in Pounds / Day					
SCENARIO EXAMINED	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$[2]**	**ROG/VOC**
Construction Grading Operations (Worst-Case)						
Grading Emissions (Tier 0 Baseline):	316.3	565.1	57.2	41.4	38.1	40.8
Grading Emissions (Tier 3+ Mitigated):	163.1	92.0	57.2	5.8	5.4	40.8
Surface Grading Dust Generation (Stabilized Soil):				36.7	7.6	
Powered Haulage Dust Generation (Stabilized Soil):				29.3	6.2	
Unmitigated Total (Σ):	**163.1**	**92.0**	**57.2**	**71.8**	**19.2**	**40.8**
Significance Threshold (SCAQMD):	**550**	**100**	**150**	**150**	**55**	**75**

[2] Values shown in this column are for informational purposes only. $PM_{2.5}$ emissions are not currently regulated by CARB. The 55 pound-per-day level shown are a proposed standard that has not been adopted.

4.3.6 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Air Quality	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project: a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☑	☐	☐

Air Quality	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

a) Would the project Conflict with or obstruct implementation of the applicable air quality plan?

The Regional Air Quality Management Plan (AQMP) establishes essentially an "emissions budget" for the South Coast Air Basin. This budget takes into account existing conditions, planned growth based on General Plans for cities within the Southern California Association of Governments (SCAG) region, and air quality control measures implemented by the AQMD. The Chino Preserve EIR determined that The Chino Preserve Specific Plan was consistent with the AQMP by concluding: "The basinwide AQMP is based on the designated land use for the project site contained in the City of Chino and San Bernardino County General Plans. To the extent that the proposed development represents a level of growth anticipated in these general plans, it is, by inference, consistent with the AQMP." The Demonstration Project is consistent with the land uses established in The Chino Preserve Specific Plan. Furthermore, the air quality emissions from operation of the Demonstration Project are de minimus. Therefore, the Demonstration Project will not contribute emissions that were not accounted for in the AQMP emissions budget. The Demonstration Project is consistent with the AQMP and the potential impacts are less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The Demonstration Project has the potential to cause operational air quality impacts associated with trail users driving to the site and maintenance of the de-silting basin, ponds, and trails, and construction air quality impacts associated with grading the ponds. The Air Quality Assessment determined that the potential operational impacts would be less than significant due to the limited maintenance activities annually and the minor number of vehicle trips generated by the trail system.

Grading of the Demonstration Project has the potential to cause significant air quality impacts associated with grading emissions, fugitive dust due to grading, and fugitive dust due to hauling. The rough grading of the Demonstration Project using Tier 0 equipment is not expected to generate significant air quality impacts for construction of the diversion structure and the outlet. However, the mass grading required for the de-silting basin and wetland/extended detention ponds would generate significant levels of NOx. Therefore, cleaner equipment is necessary to comply with the SCAQMD threshold for this pollutant. Implementation of the following mitigation measure would reduce grading emissions to a less than significant level.

AQ1: Grading Emissions

a. Construction grading equipment (such as scrapers, dozers, excavators, etc.), with the exception of water trucks, shall have Tier 3 or better technology to reduce emission levels.

Grading and hauling activities also have the potential to violate air quality standards associated with fugitive dust emissions. Implementation of the following mitigation measures would reduce potential fugitive dust emission impacts to a less than significant level.

AQ2: Dust Emissions

a. The Grading Contractor shall apply water at least three times daily to grading operations and use a non-toxic co-polymer soil stabilizer, or equivalent, on all stockpile areas.

b. The Grading Contractor shall apply a non-toxic co-polymer soil stabilizer to all unpaved haul routes, or equivalent, such as paving, gravel, road base, etc.

c. All equipment hauling dirt, sand, soil, or other loose materials shall either be sufficiently watered, covered, or shall have at least two feet of freeboard (i.e. minimum vertical distance between top of the load and the top of the trailer) to prevent dust from leaving the equipment during hauling operations.

d. The Grading Contractor shall suspend all excavating and grading operations when wind speeds exceed 25 mph.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Individually, all of the potential air quality impacts result in less than significant levels. Cumulatively, the construction impacts are temporary, occurring over approximately 150 days. This short-term impact is not considered cumulatively considerable. Therefore, cumulative construction impacts are considered less than significant.

The potential operational impacts associated with the Demonstration Project include the use of the trail system and the maintenance activities of the de-silting basin and trail system. The Demonstration Project includes 13 parking spaces, which will attract new trail users. The facility is relatively small; therefore, the new trail users will likely be local residents with a short travel distance. Once at the facility, the users do not generate emissions, because all activities are either hiking or riding. The impacts associated with the low number of trail users are de minimus and therefore not considered cumulatively considerable. Maintenance activities also have the potential to generate pollutants. However, the maintenance activities involving heavy equipment will only occur annually for several days to a week. This short duration, temporary in nature impact, also results in a de minimus impact that is also not cumulatively considerable. Therefore, the potential cumulative impacts associated with the Demonstration Project are less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

The project site is located on agricultural land and surrounded by other agricultural uses. Some of the surrounding farms also include residences. The Air Quality Assessment analyzed potential impacts from combustion-fired health-risk emissions. Based on the model results, all criteria pollutants were below the recommended risk level with a PM_{10} risk probability of 0.1222% (or 12.2 one-hundredths of a percent) risk per 70-year

exposure duration. Additionally, the model identified a worst-case PM_{10} level of 4.08 ug/m^3, which is far below the California Ambient Air Quality Standard (CAAQS) of 50 ug/m^3 established by the State for any given 24-hour exposure period. Finally, diesel-fired $PM_{2.5}$ levels are not expected to exceed 3.75 ug/m^3, which is also well below the Federal NAAQS 24-hour threshold of 35 ug/m^3. The Federal standard is used because there are no State thresholds for $PM_{2.5}$. Based on these results, potential carcinogenic impacts are considered less than significant.

e) Create objectionable odors affecting a substantial number of people?

Construction of the Demonstration Project could generate trace amounts of substances such as ammonia, carbon dioxide, hydrogen sulfide, methane, dust, organic dust, and endotoxins (i.e. bacteria present in dust). However, these potential odors are only associated with construction operations, which are temporary. No odors are anticipated with the operation of the trails or wetland facilities. Therefore, potential impacts associated with odors are less than significant.

4.4 BIOLOGICAL RESOURCES

This chapter analyzes the potential impacts from the Demonstration Project on Biological Resources.

4.4.1 Background

Vandermost Consulting Services, Inc. (VCS) prepared a Biological Resource Assessment (BRA) for the proposed Demonstration Project. The report is included as Appendix D. The purpose of the Assessment is to determine the extent to which the Demonstration Project may affect biological resources including threatened, endangered, candidate, or other sensitive species, sensitive habitats, critical habitat, or jurisdictional waters.

4.4.2 Methodology

Preparation of the Biological Resource Assessment included literature review and field assessments, as follows:

- California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB) identifies locations of sensitive plant species, wildlife species, and natural communities that are known, or have been known in the past, to occur in a specific or general area.

- California Native Plant Society (CNPS) inventory provides information and range for sensitive plant species within a specific or general area.

- U.S. Fish and Wildlife Service (USFWS) critical habitat maps.

- Topographic maps and aerial photographs were used to identify any blue line streams.

Field surveys were conducted on May 5, May 29, June 9, and September 24, 2008. Vegetation communities were mapped according to Holland (1986) and Sawyer and Keeler-Wolf (1995) by marking the limits of each vegetation community onto an aerial photograph. Furthermore, the study area was assessed for its potential to support any special status plant, fish, wildlife species, or habitats. Additionally, VCS conducted a delineation of potentially jurisdictional drainages pursuant to the Clean Water Act and Fish and Game Code.

The BRA also relied on focused survey data collected by the Santa Ana Watershed Authority (SAWA) and provided by the Orange County Water District (OCWD) for least Bell's vireo, southwestern willow flycatcher, and burrowing owl.

4.4.3 Existing Conditions: Plants and Wildlife

Vegetation Communities

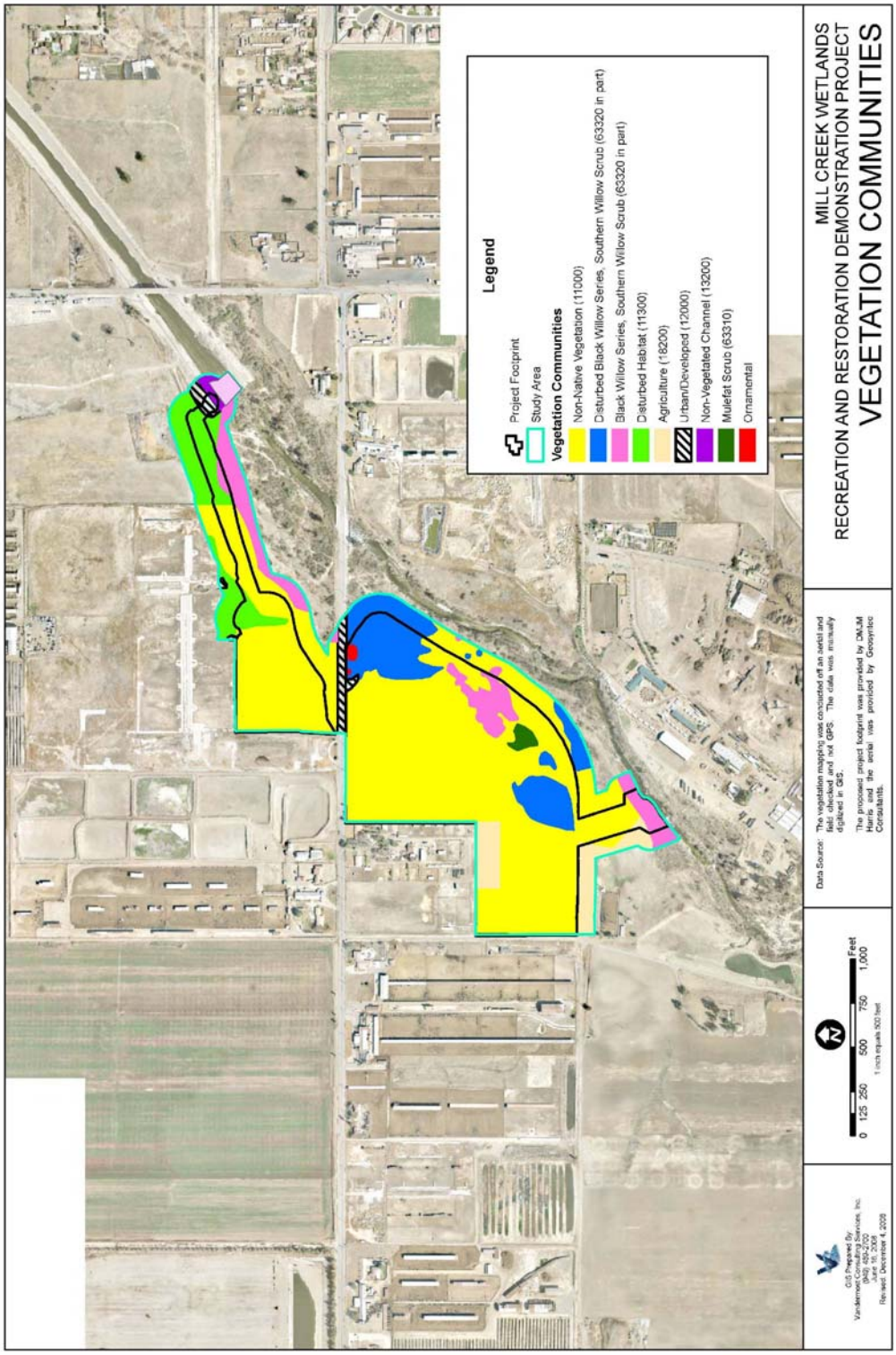
Field surveys were conducted to map the existing biological communities and vegetation on and adjacent to the project site. The Demonstration Project site includes approximately 47 acres, however the vegetation mapping expanded beyond the project site boundaries and covered over 64 acres (study area).

The study area has been extensively disturbed by prior agricultural activities and is consequently dominated by non-native vegetation. Table 4.4-a summarizes the various vegetation communities located within the study area. Figure 4.4-1 graphically depicts the same vegetation communities.

Table 4.4-a: **Existing Vegetation Communities of the Study Area**

Vegetation Community	Acreage
Non-Native Vegetation	41.97
Disturbed Black Willow Series – Southern Willow Scrub	7.34
Disturbed Habitat	4.50
Intensive Agriculture	2.87
BlackWillow Series – Southern Willow Scrub	4.93
Urban/Developed	1.36
Non-Vegetated Channel	0.68
Mulefat Scrub	0.41
Ornamental	0.15
Total Acreage	**64.21**

Figure 4.4-1
Vegetation Communities with Project Overlay



Two of the mapped vegetation communities (Black Willow Series – Southern Willow Scrub and Mulefat Scrub) contain well-established native vegetation. Of the total 64.21 acres, well-established native vegetation constitutes 5.34 acres or 8.3%.

Five plant communities listed by CNDDB occur within the vicinity of the study area as follows:

California Walnut Woodland – approximately 5.2 miles west

Riversidian Alluvial Fan Sage Scrub – approximately 6.3 miles southwest

Southern Interior Cypress – approximately 6.2 miles south

Southern Cottonwood Willow Riparian Forest – approximately 0.2 miles south

Southern Sycamore Alder Riparian Woodland – approximately 3.0 miles south

None of these communities recorded by CNDDB occur in the study area. Furthermore, none of the vegetation communities identified within the study area were listed by CNDDB.

Critical Habitat

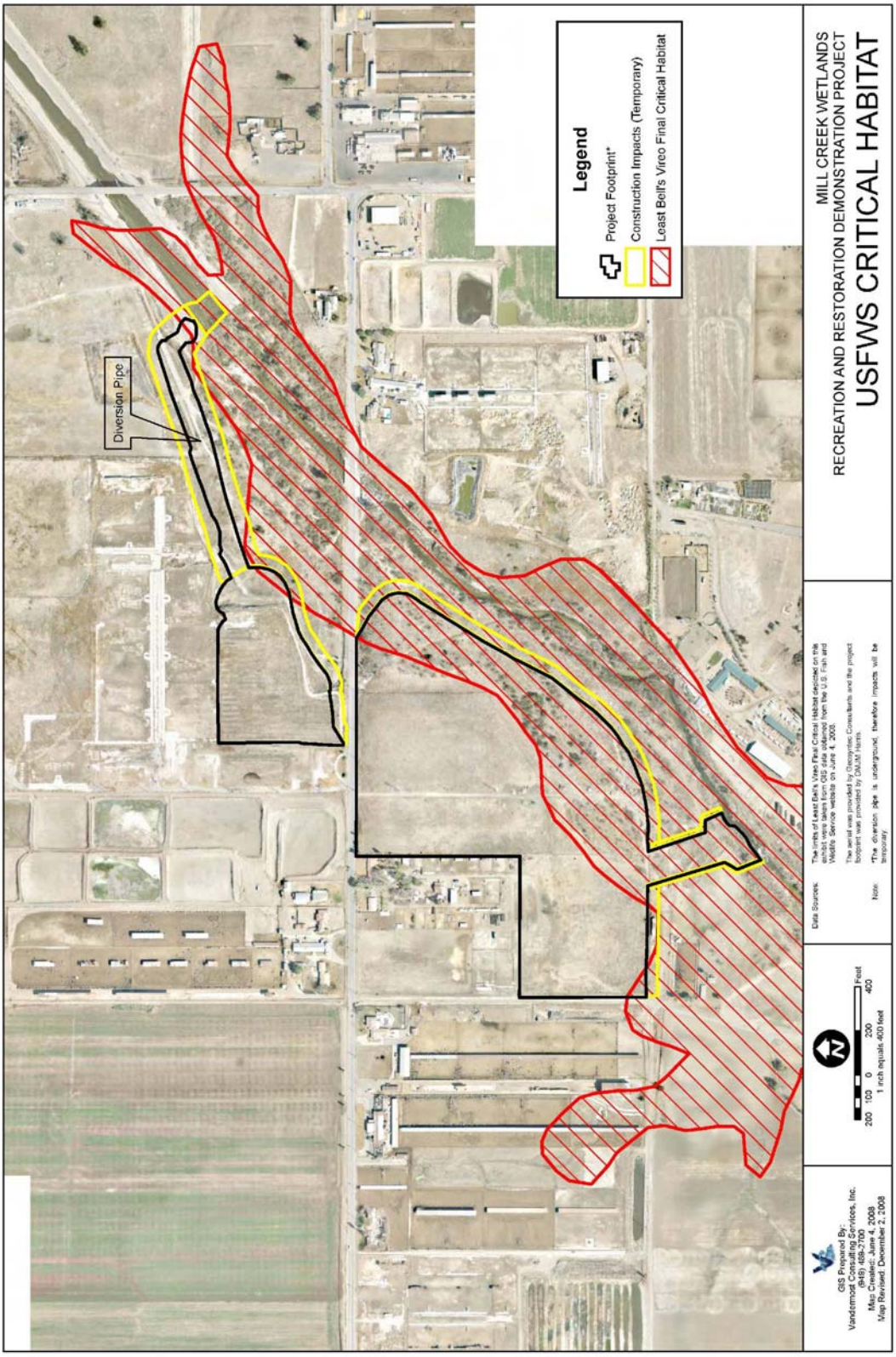
The Demonstration Project is located within the USFWS designated critical habitat for one listed species, the least Bell's vireo (*Vireo bellii pusillus*). Least Bell's vireo (LBV) critical habitat comprises approximately 24 acres of the study area along the eastern edge.

Currently, all areas below the elevation of 543 feet MSL are within LBV critical habitat. However, not all areas mapped critical habitat include habitat critical to the survival of the LBV. The USFWS mapping is conducted at a large scale without benefit of field-level biological surveys. Therefore, LBV critical habitat designation within the study area also includes non-native vegetation, disturbed habitat, agriculture, ornamental, and urban vegetation zones. Figure 4.4-2 shows the limits of critical habitat compared to the existing vegetation zones in the study area. Table 4.4-b summarizes the acreage of each vegetation community located within mapped critical habitat.

Table 4.4-b: **Vegetation Communities within the Study Area and Critical Habitat**	
Vegetation Community	**Acreage**
Non-Native Vegetation	10.53
Disturbed Black Willow Series – Southern Willow Scrub	6.64
BlackWillow Series – Southern Willow Scrub	3.66
Disturbed Habitat	0.08
Intensive Agriculture	1.53
Urban/Developed	0.29
Non-Vegetated Channel	0.68
Mulefat Scrub	0.41
Ornamental	0.04
Total Acreage	**23.86**

Critical habitat for the Santa Ana Sucker (*Catostomus sanaanae*) occurs outside of the study area, approximately 1.23 miles to the south.

Figure 4.4-2
Critical Habitat and Vegetation Zones



Sensitive Plant Species

According to CNDDB and CNPS records, eleven plant species, including one federally endangered species, has the potential to occur within the study area. Table 4.4-c lists those species and the likelihood for occurrence on the study area.

***Table 4.4-c*: Sensitive Plant Communities within Study Area**		
Chaparral Sand-Verbena	No potential for occurrence	Nearest record 4.6 miles
Braunton's Milk Vetch	No potential for occurrence	Nearest record 6.1 miles
Coulter's Saltbush	No potential for occurrence	Nearest record 3.2 miles
Intermediate Mariposa-Lily	No potential for occurrence	Nearest record 6.0 miles
Many-Stemmed Dudleya	No potential for occurrence	Nearest record 3.7 miles
Heart Leaved Pitcher Sage	No potential for occurrence	Nearest record 6.4 miles
Robinson's Pepper-Grass	No potential for occurrence	Nearest record 5.6 miles
Peninsular nolina	No potential for occurrence	Nearest record 5.6 miles
White Rabbit-Tobacco	No potential for occurrence	Nearest record 6.0 miles
Salt Spring Checkerbloom	No potential for occurrence	Nearest record 3.2 miles
San Bernardino Aster	No potential for occurrence	Nearest record 5.6 miles

Sensitive Wildlife Species

According to CNDDB records, twenty wildlife species have the potential to occur within the study area. Table 4.4-d identifies those species and the likelihood for occurrence on the study area. The species with the potential to occur on the study area are discussed in greater detail following the table.

***Table 4.4-d*: Sensitive Wildlife Species Within Study Area**		
Stephen's Kangaroo Rat	Very low potential	Nearest record 5.1 miles
Western Mastiff Bat	No potential for occurrence	Nearest record 3.4 miles
Pocketed Free-Tailed Bat	No potential for occurrence	Nearest record 4.6 miles
Tricolored Blackbird	No potential for occurrence	Nearest record 2.3 miles
Southern California Rufous-Crowned Sparrow	No potential for occurrence	Nearest Record 4.7 miles
Long-eared Owl	No potential for occurrence	Nearest Record 5.8 miles
Burrowing Owl	High to moderate potential	Nearest Record 0.4 miles
Golden Eagle	No potential for occurrence	Nearest Record 5.3 miles
Coastal Cactus Wren	No potential for occurrence	Nearest Record 6.3 miles
Western Yellow-billed Cuckoo	No potential for occurrence	Nearest Record 1.5 miles
Yellow Warbler	Very low potential	Nearest Record 1.5 miles
Southwestern Willow Flycatcher	Very low potential	Nearest Record 1.7 miles
Yellow-breasted Chat	No potential for occurrence	Nearest Record 1.5 miles
Coastal California Gnatcatcher	No potential for occurrence	Nearest Record 4.5 miles
Least Bell's Vireo	High Potential	Nearest Record 0.1 miles
Orange-throated Whiptail	No potential for occurrence	Nearest Record 2.7 miles
Northern Red-Diamond Rattlesnake	Low Potential	Nearest Record 5.3 miles

***Table 4.4-d*: Sensitive Wildlife Species Within Study Area**		
Coast (San Diego) Horned Lizard	No potential for occurrence	Nearest Record 6.2 miles
Santa Ana Sucker	Very low potential	Nearest Record 1.7 miles
Arroyo Chub	Very low potential	Nearest Record 3.0 miles

Stephen's kangaroo rat (*Dipodomys stephensi*) [SKR]. This species is found in annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover and prefers plants such as buckwheat (*Eriogonum sp*.), chamise (*Adenostoma fasciculatum*), brome grass (*Bromus sp*.), and filaree (*Erodium sp*.). CNDDB records document this species greater than 4 miles from the study area southeast of the Santa Ana River and north of the 91 freeway on the east side of Norco, last observed in 2003. Although the study area supports brome grasses, it does not support areas characterized by the remaining known SKR habitat and is outside of the known geographical distribution for this species. The potential for this species to occur is considered very low due to the low density of burrows observed within the study area, the historical agriculture and ongoing disturbance in the study area, and the limited distribution of this species in the area. Therefore no focused surveys were considered required.

Western burrowing owl (*Athene cunicularia hypugaea*) is a California Species of Special Concern. Burrowing owl typically use existing burrows and inhabit a wide array of natural and modified habitats, including native and nonnative grasslands, fallow fields, washes, arroyos, areas of low-density cover, vacant lots, and road embankments. CNDDB records document this species 0.4 to 4.9 miles of the project site in agricultural areas, last observed in 2007. The nearest CNDDB record is located east of Mill Creek. Incidental sightings documented by the Santa Ana Watershed Authority (SAWA) record an additional 10 sightings of burrowing owl within Prado Basin observed on December 10th and 12th, 2007. These sightings include one less than approximately 1,500 feet west of the study area, referred to as the "Comet" location that is known to have been active for several years. No incidental sign of burrowing owl was observed during field surveys within the study area. Potentially suitable habitat occurs in the Non-Native Vegetation and Disturbed mapped within the study area. The potential for this species to occur in the Non-Native Vegetation is considered moderate due to the lack of low vegetation heights and/or low density of burrows. The potential for this species to occur in the disturbed areas is considered high due to the presence of low-grazed vegetation despite the low density of burrows observed. Therefore, pre-construction surveys are required.

Yellow warbler (*Dendroica petechia brewsteri*) is categorized as a California Species of Special Concern. This species is considered fairly common in mature riparian woodland on coastal slopes. Riparian plant association preferences include willows, cottonwoods, aspens, sycamores, and alder for nesting and foraging. It also nests in montane shrubbery in open conifer forests. One CNDDB record documents occurrences of this species within 0.4 miles of the study area within the Santa Ana River, last observed in 2000. Yellow warblers are known to breed in close proximity to the least Bell's vireo in the Prado Basin. SAWA survey data from 1992 revealed 72 to 100 pairs, and the 2004

estimate was 500 pairs. The remnant riparian habitat within the study area is considered only marginally suitable habitat per the description above and based on the known least Bell's vireo population and habitat in the study area (see below). Therefore the potential for this species to occur within the project site is considered very low. Suitable habitat for this species may be present adjacent to the project site within Mill Creek, but is not considered likely to occur due to the absence of recorded observations. No focused surveys were considered required because SAWA surveys for yellow warbler on a yearly basis during least Bell's vireo and southwestern willow flycatcher surveys.

Southwestern willow flycatcher (*Empidonax traillii extimus*) is categorized as a USFWS Federally Endangered species. Southwestern willow flycatcher [SWFL] breeds in dense riparian habitats along rivers, streams, or other wetlands, and prefers dense willow-dominated riparian habitat with lush understory vegetation. This species uses cottonwood-willow riparian forest for foraging and nesting and feeds on insects by either aerially gleaning from trees, shrubs, and herbaceous vegetation or hawking larger insects by waiting on exposed forage perches and capturing insects in flight. Two CNDDB records document sightings of this species within approximately 0.5 to 1.6 miles from the study area associated with the Santa Ana River. SAWA survey data revealed only 3 occurrences of this species within Prado Basin in 2007 (territorial males, no young), none of which occurred along Mill Creek. Since 1991, successful breeding has been limited to the South Basin and West Basin. All known flycatcher territories in the Basin have been in close proximity to water-filled creeks or channels consisting of overgrown clearings, with nesting occurring in often dense willows, primarily arroyo willows, and tamarisk (*Tamarix* sp.). The remnant riparian habitat within the study area is considered isolated from Mill Creek with an open canopy dominated by black willows, and therefore is only marginally suitable per the description above. Furthermore, according to SAWA it appears this species is in imminent danger of extirpation from Prado Basin since only 3 territorial males were detected in 2007, and only 43 fledged young over the past nineteen breeding seasons. Therefore the potential for this species to occur within the project site is considered very low to negligible. Suitable habitat for this species may be present adjacent to the project site within Mill Creek, but is not considered likely to occur due to the absence of recorded observations and known decline of this species. No focused surveys were considered required as they are conducted by SAWA on a yearly basis.

Least Bell's vireo (*Vireo bellii pusillus*) [LBV] is categorized as a Federally Endangered and State Endangered species. LBV is restricted to riparian habitat found mostly in coastal lowlands. Preferred habitat for LBV is dense willow-dominated riparian habitat with lush understory vegetation, although the species is widely known to occupy marginal habitats. In Prado Basin, LBV are known to nest primarily in willows (black willows and arroyo willows), followed by mulefat and gum trees (Eucalyptus sp.). CNDDB records and SAWA 2004 to 2007 survey data (territorial males) document occurrences throughout the Prado Basin, as shown in Figures 4.4-3 through 4.4-6. Based on this data, only between 1.2% to 1.9% of the territorial males observed throughout the entire Prado Basin (4,500 hectares) were observed within the project vicinity. Furthermore, just over double the number of males were observed north of Chino Corona

Road versus south of Chino Corona Road. Only 1 territorial male observed in 2006 occurred within the project site.

The study area is also within USFWS designated LBV critical habitat along the eastern boundary. The riparian scrub within the study area is considered suitable LBV territory habitat per the description above based on the presence of black willows and mulefat and the observation of a few territorial males in and adjacent to the study area. The habitat quality in the study area for LBV territory is considered low based on the small percentage of Prado Basin males observed in this area, particularly south of Chino Corona Road, and the open canopy, disturbed habitat that has also recently been partially burned. The habitat is considered low quality nesting habitat based on the limited availability of low, dense foliage. The potential for this species to occur within the study area is considered high based on recent observations, however the potential for nesting within the study area is considered low away from Mill Creek. No focused surveys are required because SAWA coordinates LBV focused surveys annually and SAWA's data are included in the BRA.

Figure 4.4-3
Least Bell's Vireo Survey Data (2004)

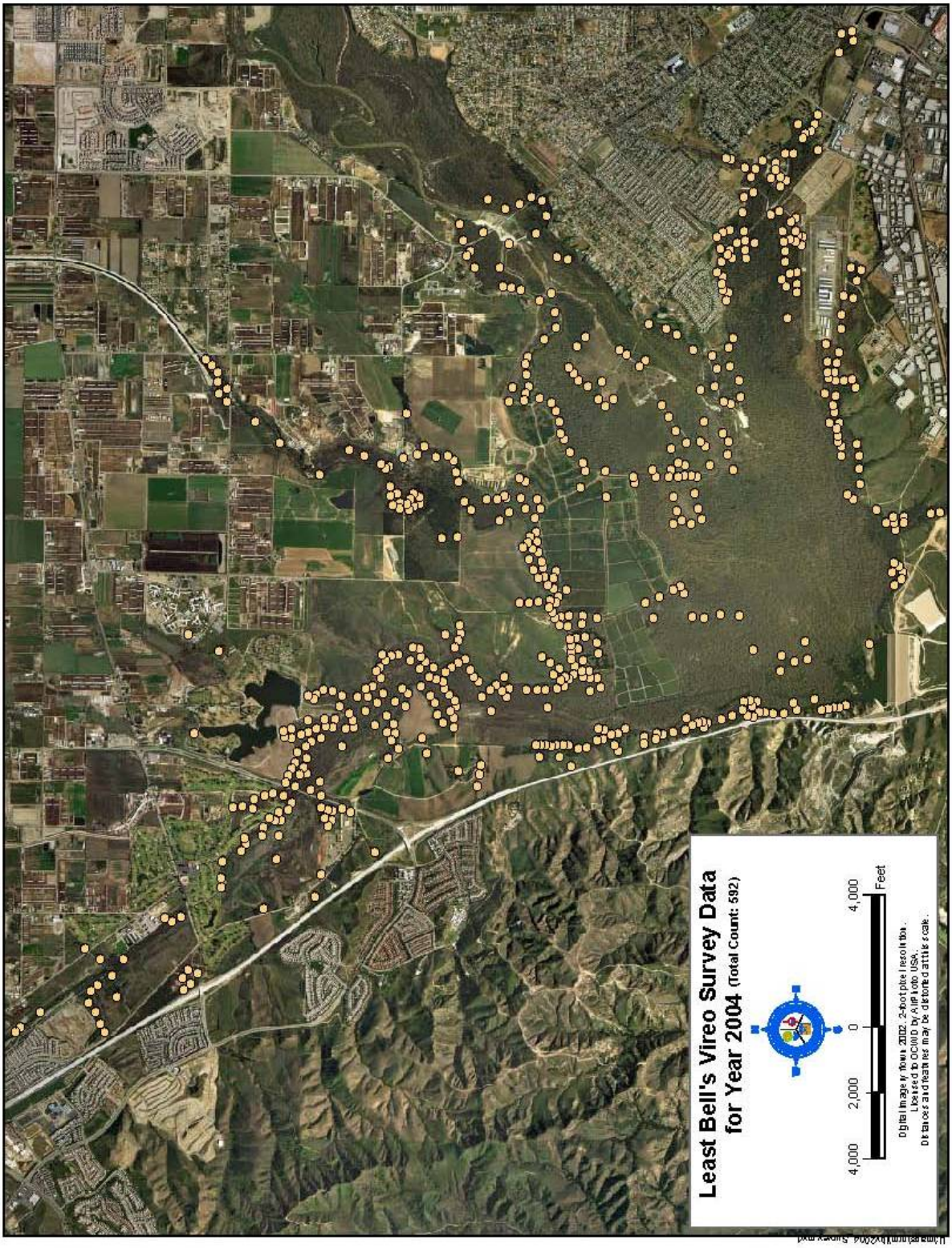


Figure 4.4-4
Least Bell's Vireo Survey Data (2005)

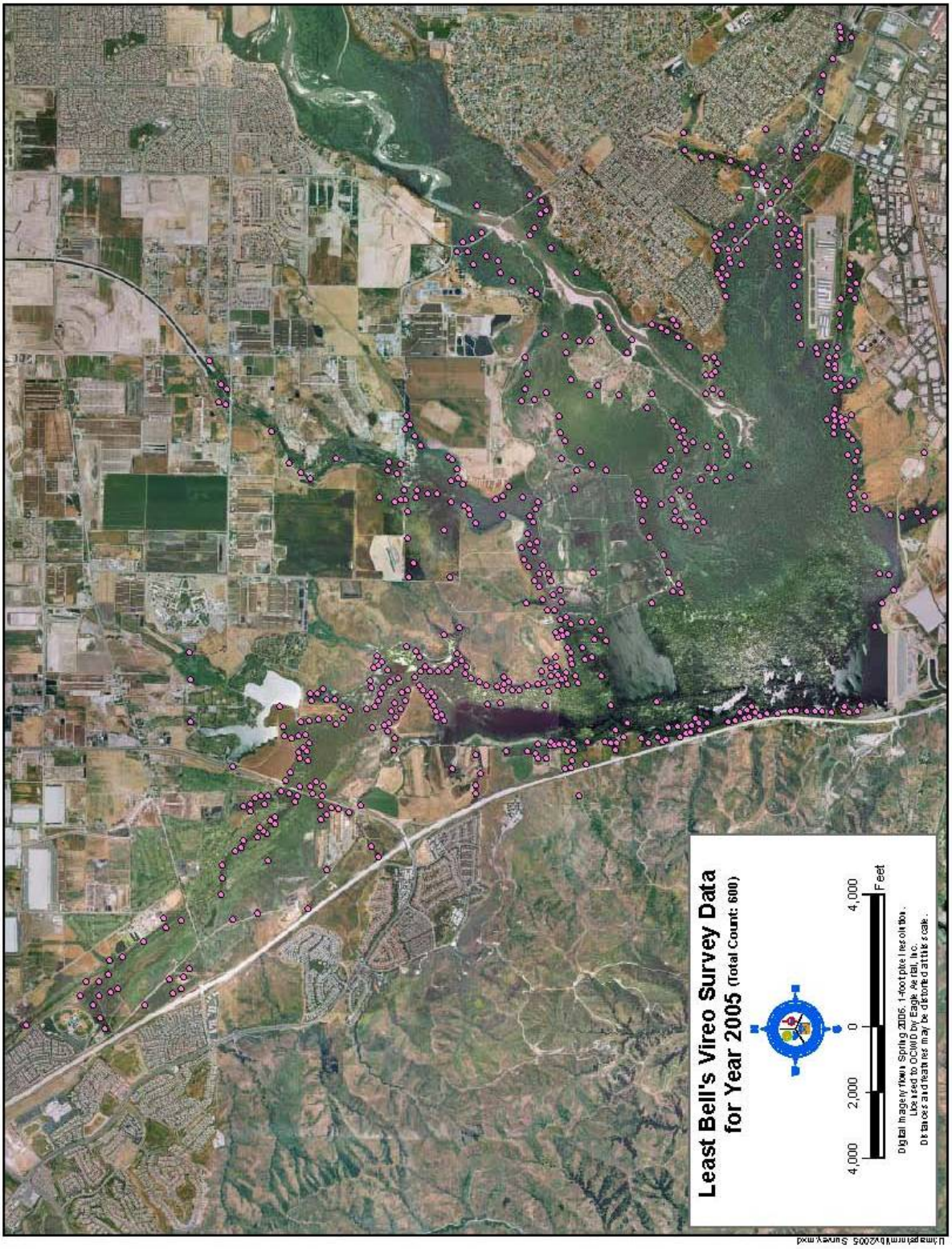


Figure 4.4-5
Least Bell's Vireo Survey Data (2006)

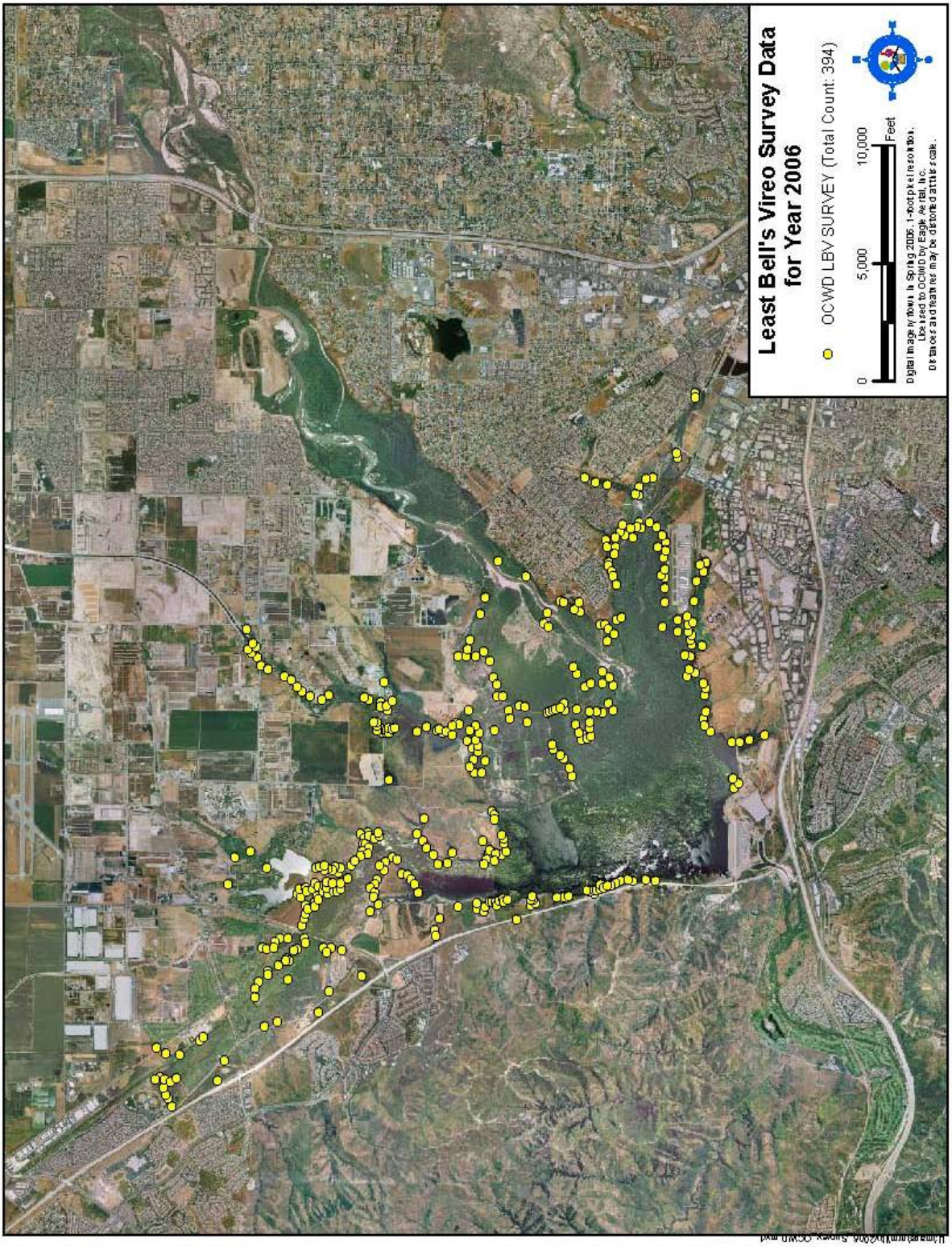
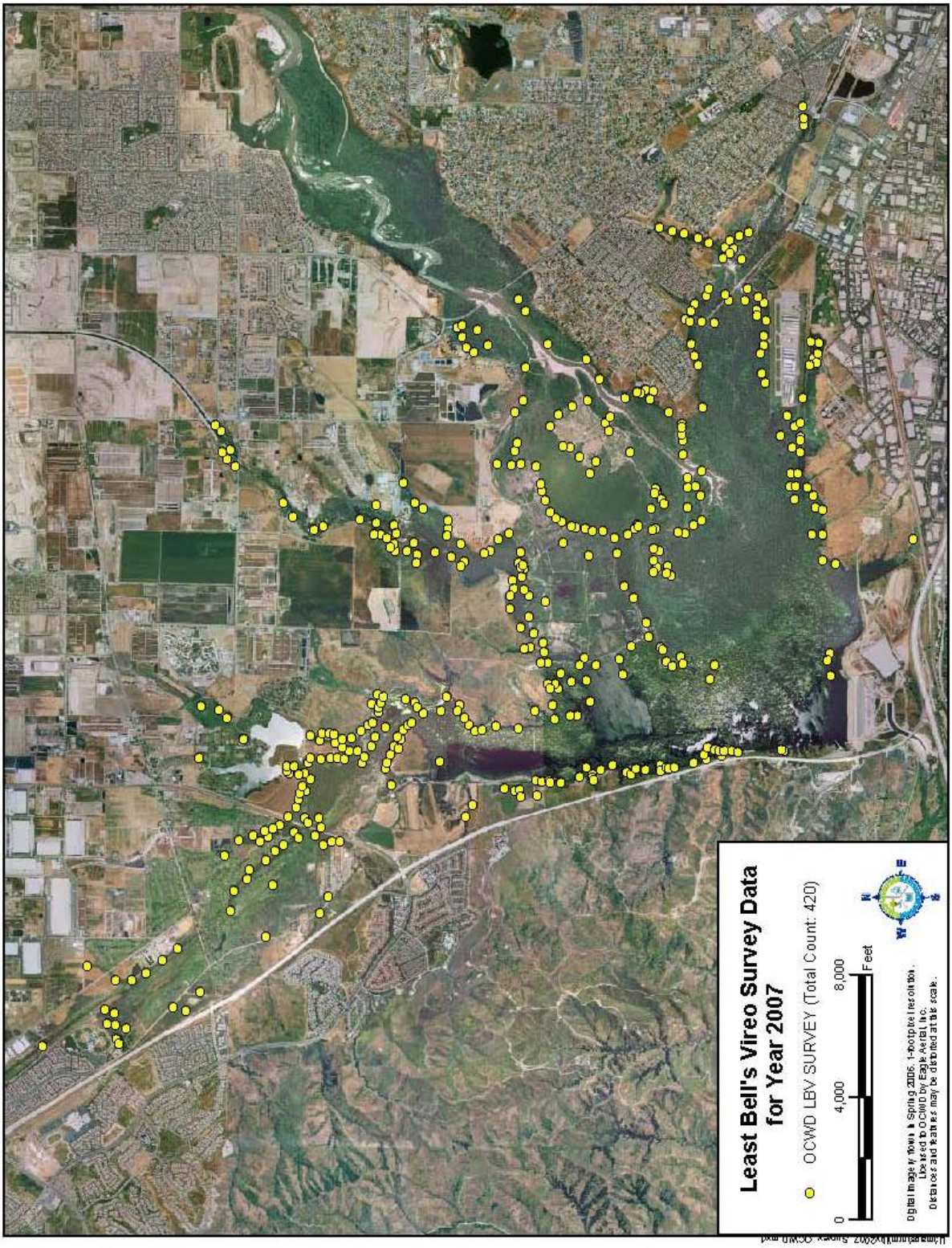


Figure 4.4-6
Least Bell's Vireo Survey Data (2007)



Northern red diamond rattlesnake (*Crotalus ruber ruber*) is categorized as a CDFG California Species of Special Concern. The northern red diamond rattlesnake is a heavy-bodied, venomous pit viper, which occurs in southern California and Baja California from the coast to eastern mountain slopes in rocky areas and dense vegetation such as chaparral, woodland, grassland and desert where rodent burrows and surface cover objects exist. CNDDB records of this species were documented approximately 4.5 miles from the study area. Patches of dense brome grass vegetation and debris piles exist within the study area but there are low densities of rodent burrows. No incidental sign of burrowing owl was observed during field surveys. Habitat is considered limited, therefore the potential for this species to occur within the study area is considered low and no focused surveys are required.

Santa Ana Sucker (*Catostomus santaanae*) is categorized as federally threatened. The sucker inhabits small to medium-sized streams less than 7.6 meters (25 feet) in width, with depths ranging from a few centimeters to over a meter. The range of this species is now confined to the Santa Ana River, Tujunga Wash in the Los Angeles River system (possible extirpated), and in the upper San Gabriel River system. One CNDDB record in 2000 documented occurrence approximately 1.7 to 4.2 miles from the Demonstration Project area within the Santa Ana River. Marginally suitable habitat exists within the portion of Mill Creek within and adjacent to the Demonstration Project study area. This species was not observed in Mill Creek during surveys conducted in 1999 for The Preserve EIR. Due to the history of land alteration and consequent lack of habitat, the potential for this species to occur within the Demonstration Project study area, specifically the natural portion of Mill Creek, is considered very low. Focused surveys are only required for work performed in the natural portion of Mill Creek.

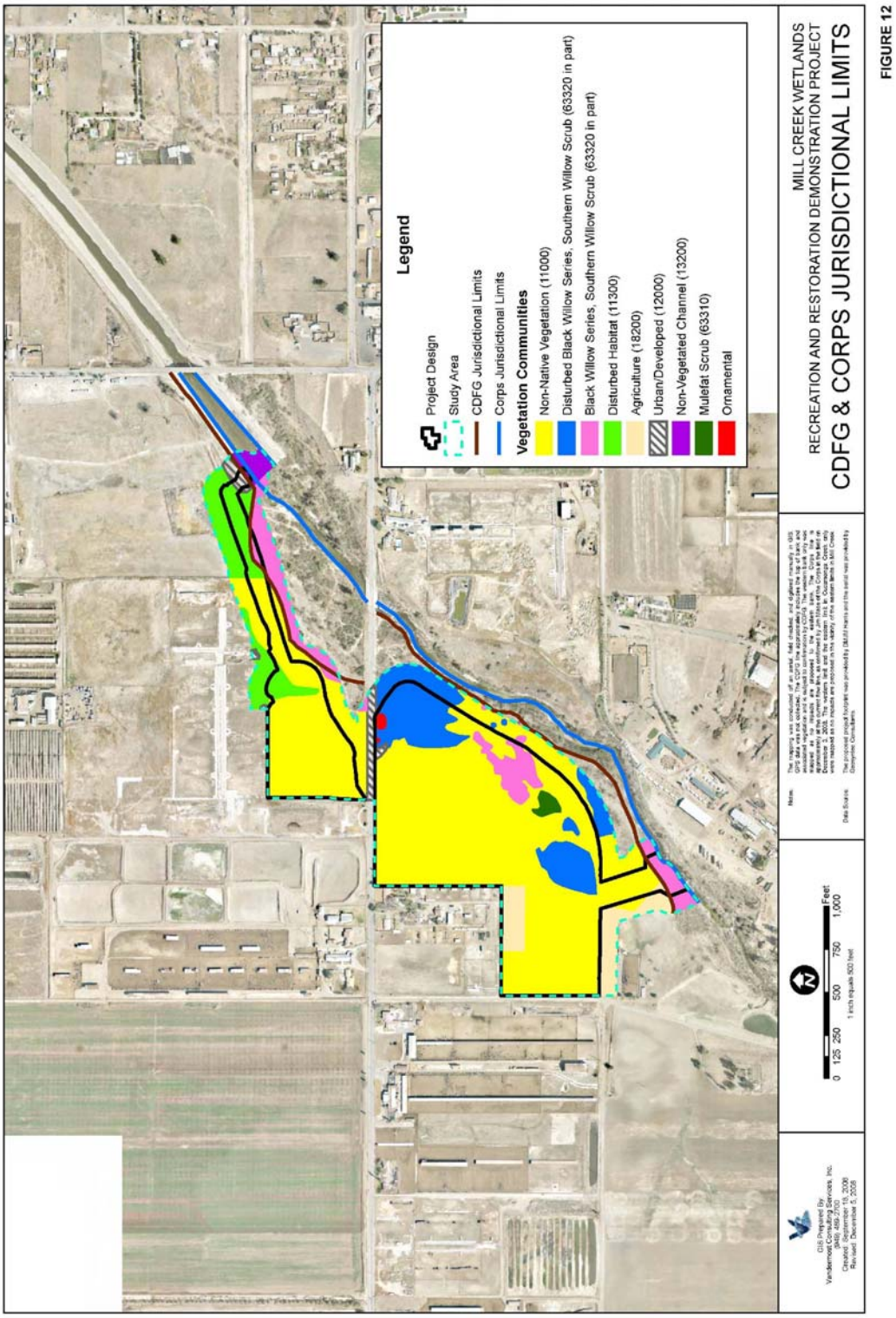
Arroyo Chub (*Gila orcutti*) is categorized as CDFG California Species of Special Concern. The chub is a small fish that occurs in the Santa Anay River and its tributaries in Orange, Riverside, and San Bernardino counties. This species prefers small to moderate sized streams with some flow, and became scarce due to competition and predation by introduced species, controlled flow by Prado Dam, and impacts caused by urbanization and pollution. One CNDDB record in 1997 documented occurrence approximately 3.0 miles from the Demonstration Project area within the Santa Ana River. Marginally suitable habitat exists within the portion of Mill Creek within and adjacent to the Demonstration Project study area. This species was not observed in Mill Creek during surveys conducted in 1999 for The Preserve EIR. Due to the history of land alteration and consequent lack of habitat, the potential for this species to occur within the Demonstration Project study area, specifically the natural portion of Mill Creek, is considered very low. Focused surveys are only required for work performed in the natural portion of Mill Creek.

4.4.4 Existing Conditions: Jurisdictional Waters

One blue line perennial stream, Cucamonga / Mill Creek, occurs within the study area. Cucamonga Creek is a hard-lined channel with concrete rip rap slopes. At the outfall of the hard-lined improved channel, the name of the natural stream changes to Mill Creek. The portion of Mill Creek north of Chino Corona Road is within a low-lying area consisting of a channel with gently sloping, low elevation banks, and an associated floodplain extending to the west. South of Chino Corona Road Mill Creek becomes deeply incised with steep banks, likely a result of the road constricting flows and causing down cutting of the creek, consequently isolating the historical floodplain which is up to 30 feet higher than the creek.

The Demonstration Project includes a diversion structure within Cucamonga Creek and an outlet within Mill Creek. Cucamonga / Mill Creek was confirmed as USACE, CDFG and RWQCB jurisdictional waters during field surveys based on the presence of an Ordinary High Water Mark (OHWM) and associated riparian vegetation (only the Mill Creek portion is vegetated). The jurisdictional limits of the hard-lined Cucamonga Creek occur at the toe of the slope for the USACE and RWQCB, which is considered the OHWM. In the natural portion of Mill Creek, the jurisdictional limits for the USACE and RWQCB also occur at the OHWM, which is defined as the water level during the dry weather condition. The definition of OHWM for both conditions was confirmed by the USACE during a site visit on December 3, 2008. The CDFG jurisdictional limits for both Cucamonga Creek and Mill Creek were taken at the top of banks and the canopy of any associated vegetation, subject to confirmation by the CDFG. No wetlands were identified on the project site. Figure 4.4-7 graphically shows the limits of jurisdiction.

Figure 4.4-7
CDFG Jurisdictional Limits



4.4.5 Impacts: Plants and Wildlife

The Demonstration Project will cause direct and indirect impacts to biological resources. Those impacts vary for the different components of the Demonstration Project as described in this section.

Impacts to biological resources will occur from construction of the diversion structure, transmission pipe, de-silting basin, wetland ponds, and outlet channel. Figure 4.4-1 shows the Demonstration Project overlaid on the vegetation map.

The following provides the impact assumptions for each element of the Demonstration Project.

Diversion Structure: Impacts include approximately 125 linear feet of Cucamonga Creek by 127 feet into the span of the invert.

Transmission Pipe: Impacts assumed a 200-foot wide construction zone along the alignment of the transmission pipe.

De-silting basin: Impacts assumed the footprint of the basin plus a 50-foot construction zone along the eastern edge.

Wetland ponds: Impacts assumed the footprint of the ponds plus a 50-foot construction zone along the eastern edge.

Outlet channel: Impacts assumed construction of a new 150-foot wide outlet channel plus 50 feet on either side for construction. Where the outlet confluences with Mill Creek, impacts are assumed to widen to 290 linear feet along Mill Creek for bank stabilization.

Vegetation Impacts

Based on the above-described assumptions, the Demonstration Project will result in the vegetation impacts per Table 4.4-e:

***Table 4.4-e*: Impacts to Vegetation Communities**

Vegetation Community	Existing Acreage	Construction Impacts (acres)	Structures Impacts (acres)	Acreage Not Impacted
Non-Native Vegetation	41.97	4.74	34.58	2.65
Disturbed Black Willow Series	7.34	0.98	5.15	1.21
BlackWillow Series – Southern Willow Scrub	4.93	1.03	2.00	1.90
Disturbed Habitat	4.50	2.23	0.59	1.68
Intensive Agriculture	2.87	0.55	1.25	1.07
Urban/Developed	1.36	0.32	0.21	0.83
Non-Vegetated Channel	0.68	0.55	-	0.13

Table 4.4-e: Impacts to Vegetation Communities				
Vegetation Community	**Existing Acreage**	**Construction Impacts (acres)**	**Structures Impacts (acres)**	**Acreage Not Impacted**
Mulefat Scrub	0.41	-	0.41	-
Ornamental	0.15	-	0.15	-
Total Acreage	64.21	10.40	44.34	9.47
Source: VCS, Biological Resource Assessment, November 2008				

Construction impacts are temporary impacts that occur during construction. The areas of temporary construction impacts will be restored to pre-construction conditions for native-habitat areas and enhanced with native habitat for non-native vegetation communities.

Impacts from the actual structural elements of the Demonstration Project are also considered temporary since the Project design involves creating native wetland, riparian and upland habitats that will not only compensate for any losses but also increase the acreage of these native habitats and enhance habitat quality for sensitive species. Therefore vegetation impacts are considered less than significant with mitigation.

Critical Habitat

The USFWS mapped critical habitat for the least Bell's vireo (LBV) within and adjacent to the Demonstration Project. Figure 4.4-2 shows the limits of critical habitat compared to the design of the Demonstration Project.

Currently, all areas below the elevation of 543 feet MSL are within LBV critical habitat. However, not all areas mapped critical habitat include habitat critical to the survival of the LBV. The USFWS mapping is conducted at a large scale without benefit of field-level biological surveys. Therefore, LBV critical habitat designation in the study area also includes non-native vegetation, disturbed habitat, agriculture, ornamental, and urban vegetation zones. Table 4.4-f summarizes the acreage of impact to critical habitat by mapped vegetation zones.

Table 4.4-f: Impacts to Vegetation Communities within Mapped Critical Habitat				
Vegetation Community	**Existing Acreage**	**Construction Impacts (acres)**	**Structures Impacts (acres)**	**Acreage Not Impacted**
Non-Native Vegetation	10.53	1.91	6.90	1.72
Disturbed Black Willow Series	6.64	0.98	4.45	1.21
BlackWillow Series – Southern Willow Scrub	3.66	0.30	1.99	1.37
Disturbed Habitat	0.08	0.05	-	0.03
Intensive Agriculture	1.53	0.36	0.08	1.09
Urban/Developed	0.29	0.09	-	0.20
Non-Vegetated Channel	0.68	0.55	-	0.13
Mulefat Scrub	0.41	-	0.41	-
Ornamental	0.04	-	0.04	-
Total Acreage	23.86	4.24	13.87	5.75
Source: VCS, Biological Resource Assessment, November 2008				

Sensitive Species

Habitat in the study area potentially supports seven sensitive species, including Stephens' Kangaroo Rat (SKR), burrowing owl, yellow warbler, Southwestern willow flycatcher (SWFL), northern red diamond rattlesnake, Santa Ana Sucker, and Arroyo Chub, and one sensitive species, LBV, has been observed on the project site. Potential habitat for these species occurs in areas mapped as Non-native Vegetation (SKR and northern diamond back rattlesnake), Disturbed (burrowing owl), and Black Willow Series and Mulefat scrub (yellow warbler, SWFL and LBV). These habitats can also provide habitat for common wildlife species (particularly Non-Native Vegetation and the Black Willow Series/Mulefat scrub) and foraging for raptors (particularly Non-native Vegetation and Disturbed). Potential impacts to individuals of the sensitive species, plus migratory birds, are as follows:

SKR - This species was determined as having a very low potential to occur due to the limited suitability of available habitat within the project footprint, the limited known distribution of the species in the area, and the lack of observations of this species in similar habitat within 5 miles of the Demonstration Project site. The chance of this species occurring within the project footprint is considered negligible. Therefore no impacts are expected to occur to SKR.

Burrowing Owl - This species was determined as having a moderate to high potential to occur due to the suitability of available habitat in the study area and survey data. Pre-construction surveys will be conducted to confirm the presence/absence of this species prior to construction, and any burrowing owls observed will be either avoided or relocated. Therefore impacts are less than significant with mitigation.

Yellow warbler - This species was determined as having a very low potential to occur due to the limited suitability of available habitat within the study area and known occurrences. The chance of this species occurring within the study area in considered low and nesting negligible, although pre-construction surveys conducted for LBV and SWFL would detect this species. Therefore no impacts are expected to occur to yellow warbler.

LBV - This species was determined as having a high potential to occur due to the recorded observations within the study area and vicinity, even though the observations in and around the study area only represent 2% of all observations within the Prado Basin. There is however a low potential for nesting due to the limited availability of dense, low growing vegetation layers. Additionally, temporary impacts to the marginal habitat will be restored and the Demonstration Project results in an overall improvement and expansion of LBV habitat. Therefore potential impacts are less than significant with mitigation.

SWFL - This species was determined as having a very low potential to occur due to the limited suitability of available habitat within the study area and the limited known

distribution of the species in the area. The chance of this species occurring within the study area in considered negligible. Therefore no impacts are expected to occur to SWFL.

Northern Red Diamond Rattlesnake - This species was determined as having a low potential to occur due to the limited suitability of available habitat within the study area and CNDDB records. Since the amount of suitable habitat is relatively small and highly disturbed, and the species is capable of dispersal, the Demonstration Project is not expected to have a significant regional long-term impact on the northern red diamond rattlesnake. No impacts are anticipated.

Migratory Birds - There is a potential for migratory birds and raptors to nest within the study area due to the presence of suitable habitat including trees. Construction will occur outside of the breeding season, where feasible. If construction occurs within the breeding season, presence/absence surveys will be conducted prior to construction. Any migratory birds observed will be avoided and measures implemented to avoid indirect impacts. Therefore impacts are less than significant with mitigation.
Santa Ana Sucker - This species was determined as having a very low potential to occur due to the limited suitability of available habitat in Mill Creek within the project study area and the limited known distribution of the species in the area. There is no potential for this species to occur within the study area since construction and structures are proposed to occur outside of the channel invert. However, should any work be required within Mill Creek including diversion of water or construction activities, pre-construction surveys will be conducted. Therefore impacts are less than significant with mitigation.

Arroyo Chub - This species was determined as having a very low potential to occur due to the limited suitability of available habitat in Mill Creek within the project study area and the limited known distribution of the species in the area. There is no potential for this species to occur within the study area since construction and structures are proposed to occur outside of the channel invert. However, should any work be required within Mill Creek including diversion of water or construction activities, pre-construction surveys will be conducted. Therefore impacts are less than significant with mitigation.

4.4.6 Impacts: Jurisdictional Waters

The diversion structure, transmission pipe, and outlet have the potential to impact Waters of the U.S., which are regulated by the USACE and the Regional Water Quality Control Board (RWQCB), and Waters of the State, which are regulated by the Department of Fish and Game.

The diversion structure will impact Waters of the U.S. and State. The transmission pipe and outlet will impact only Waters of the State. Table 4.4-g summarizes impacts to jurisdictional waters.

***Table 4.4-g*: Summary of Impacts to Jurisdictional Waters**		
Jurisdictional Waters	**Construction Impacts (acres)**	**Structures Impacts (acres)**
Waters of the U.S.	0.40	-
Waters of the State	1.47	0.51
Total	1.87	0.51
Source: VCS 2008		

The construction impacts are temporary. Areas impacted during construction will be returned to its prior condition. Structures impacts are considered permanent and require mitigation.

Once the Demonstration Project is constructed and diversion from Cucamonga Creek begins, the de-silting basin and four wetland / extended detention ponds will become jurisdictional Waters of the U.S. and State. Since the operation of the Demonstration Project requires on-going maintenance, the potential exists for on-going impacts to jurisdiction waters. Therefore, all required regulatory permits for the construction of the Demonstration Project must also include provisions for the ongoing maintenance of the ponds.

4.4.7 Impacts: Diversion of Dry Weather Flows

Cucamonga / Mill Creek has an average flow of 30 cfs and ranges between 30 cfs and 60 cfs during the dry weather condition. The Demonstration Project proposes to divert some of that flow to maintain the wetland ponds and improve water quality. A minimum of 2.5 cfs is required to maintain the vegetation in the wetland ponds. However, the Demonstration Project proposes to divert up to 15 cfs to maximize water quality benefits.

The diversion of flows during the dry season could cause downstream impacts to vegetation associated with the change in flow. Therefore, a HEC-RAS analysis was conducted to determine the change in water surface elevation, top width of the water flow, and flow rate from the dry weather diversion, which would lower the flow from 35 to 20 cfs. The location of cross sections is included in Figure 4.4-4.

By way of comparison, in October 2000, the OCWD received permission to construct a very similar project. OCWD proposed to divert water from Mill Creek into a series of wetlands. The project was located farther downstream in Mill Creek than the proposed Demonstration Project. OCWD proposed to divert between 50% and 80% of the dry weather flow in Mill Creek into the wetlands, leaving at least 12 cfs flowing in the dry season.

OCWD received a 404 permit from the USACE (960045700-RRS), a Section 7 consultation from the U.S. Fish and Wildlife Service (1-6-00-F-743.1), a Section 401 Water Quality Certification from the RWQCB, and a Section 1600 Streambed Alteration

Agreement from the CDFG. OCWD began construction but due to excessive flooding abandoned its project.

Figure 4.4-8
HEC-RAS Cross Section Locations

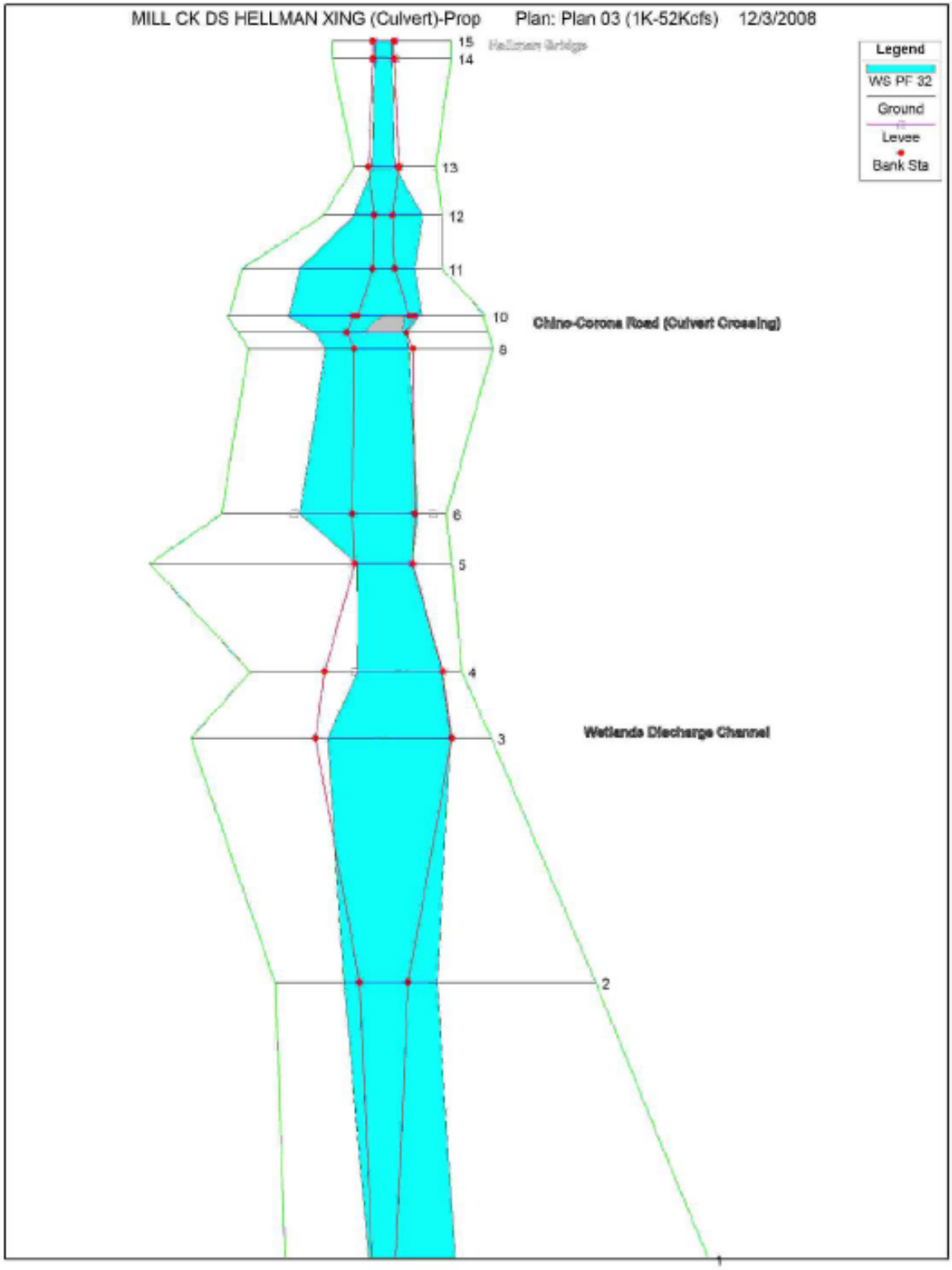


Table 4.4-h summarizes the results of the HEC-RAS analysis of the diversion of 15 cfs during the dry season:

***Table 4.4-h*: Summary of HEC-RAS Parameter Value Differences Between 35 cfs and 20 cfs**

X-Section No.	Q Total (cfs)	Change in Water Depth (in)	Change in Width of Flow (ft)	Channel Velocity (ft/s)
13-Diversion	20	(0.7)	(7.3)	(1.9)
12	20	(3.4)	(11.7)	(2.1)
11	20	(2.4)	(1.0)	(0.4)
10	20	(1.1)	(14.1)	(2.3)
9	20	(2.4)	(1.6)	(0.4)
8.5	Culvert-Chino-Corona Road			
8	20	(1.8)	(1.6)	(3.2)
7	20	(3.5)	(1.3)	(0.8)
6	20	(3.0)	(1.7)	(0.6)
5	20	(3.4)	(8.0)	(1.6)
4	20	(3.5)	(1.4)	(0.6)
3-Discharge	20	(2.9)	(0.7)	(1.5)

The changes to Mill Creek identified in Table 4.8-d due to the dry weather diversion highlight the varied nature of Mill Creek. For example, Mill Creek has areas of deep pools, such as the area surrounding Section 7. In this area the diversion of 15 cfs results in almost a four-inch drop in water surface elevation, yet only a 1.7-foot reduction in flow width. In contrast, Mill Creek also has wider and shallower sections, such as Section 10. In this area the diversion of 15 cfs results in a 14-foot reduction in top flow width, but only a 1.1-inch reduction in water depth.

Mill Creek consists of flowing open water with some braiding that has created small, cobbly and unvegetated islands. The vegetation associated with the Creek is limited to the edge of the flowing water at the base of the channel slopes, and on the steep banks. Vegetation in both of these zones is dominated by species that are adapted to either tapping into groundwater or to drier conditions, including black willow and mulefat respectively. Willows are deep rooting species while mulefat is a species that can grow in upland areas with limited hydrology. These species have already adapted to the drier slopes of the creek and therefore the minimal reduction in surface water elevation, top water width and flow area are not expected to impact the ability of these species to continue to survive. Furthermore, the geotechnical analysis determined that groundwater exists approximately 30 feet below ground surface. This relatively shallow groundwater

is also a source of water for the riparian species, as evidenced by the patches of willow and mulefat located 100 or more feet away from the top edge of the bank of Mill Creek. Therefore, potential impacts to vegetation associated with the dry weather diversion are considered less than significant.

Additionally, the CNDDB did not identify any occurrences of fish or fish habitat within Mill Creek in the location of the Demonstration Project. Therefore, the reduction in water surface elevation between the diversion and the outlet is considered less than significant. Furthermore, downstream of the outlet, the water surface elevation will return close to pre-diversion conditions (accounting for minor losses through the wetlands), and therefore not impact fish habitat that may exist farther downstream.

4.4.8 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Biological Resources	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☑	☐	☐

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☑	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☑	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan?	☐	☐	☐	☑

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The Demonstration Project will cause the following modifications to vegetation communities.

***Table 4.4-e*: Impacts to Vegetation Communities**

Vegetation Community	Existing Acreage	Construction Impacts (acres)	Structures Impacts (acres)	Acreage not Impacted
Non-Native Vegetation	41.97	4.74	34.58	2.65
Disturbed Black Willow Series	7.34	0.98	5.15	1.21
BlackWillow Series – Southern Willow Scrub	4.93	1.03	2.00	1.90
Disturbed Habitat	4.50	2.23	0.59	1.68

***Table 4.4-e*: Impacts to Vegetation Communities**				
Intensive Agriculture	2.87	0.55	1.25	1.07
Urban/Developed	1.36	0.32	0.21	0.83
Non-Vegetated Channel	0.68	0.55	-	0.13
Mulefat Scrub	0.41	-	0.41	-
Ornamental	0.15	-	0.15	-
Total Acreage	64.21	10.40	44.34	9.47
Source: VCS, Biological Resource Assessment, November 2008				

A portion of the project site is mapped as Critical Habitat for the LBV. Therefore, the Demonstration Project will also cause impacts to critical habitat as follows:

***Table 4.4-f*: Impacts to Vegetation Communities within Mapped Critical Habitat**				
Vegetation Community	**Existing Acreage**	**Construction Impacts (acres)**	**Structures Impacts (acres)**	**Acreage not Impacted**
Non-Native Vegetation	10.53	1.91	6.90	1.72
Disturbed Black Willow Series	6.64	0.98	4.45	1.21
BlackWillow Series – Southern Willow Scrub	3.66	0.30	1.99	1.37
Disturbed Habitat	0.08	0.05	-	0.03
Intensive Agriculture	1.53	0.36	0.08	1.09
Urban/Developed	0.29	0.09	-	0.20
Non-Vegetated Channel	0.68	0.55	-	0.13
Mulefat Scrub	0.41	-	0.41	-
Ornamental	0.04	-	0.04	-
Total Acreage	23.86	4.24	13.87	5.75
Source: VCS, Biological Resource Assessment, November 2008				

The majority of the impacts to vegetation communities occur to non-native and disturbed vegetation. Of the 64.21-acre study area surveyed, 2.41 acres, or 3.7% of permanent impacts will occur to well-established native habitat (black willow series and mulefat scrub). The remainder of the impacts will occur to non-native and disturbed vegetation.

The areas of temporary construction impacts will be restored to pre-construction conditions for native-habitat areas and enhanced with native habitat for non-native vegetation communities.

Impacts from the actual structural elements of the Demonstration Project are also considered temporary since the project design involves creating native wetland, riparian and upland habitats that will not only compensate for any losses but also increase the acreage of these native habitats and enhance habitat quality for sensitive species.

None of these vegetation impacts include sensitive plant habitats or sensitive plant species. However, the vegetation impacts occur within mapped LBV critical habitat. Therefore, to mitigate potential impacts to the LBV due to loss of habitat, the following mitigation measure is included:

BIO-1: Native Vegetation

Impacts to native vegetation will be compensated as follows:

a. **Temporary construction impacts to native vegetation will be restored by replanting following completion of construction activities. Planting will be consistent with pre-impact conditions, including native plant species and density. In cases where the existing vegetation is non-native, replanting will include native vegetation appropriate to the location.**

b. **Permanent structures impacts to native vegetation within the designated USFWS LBV critical habitat will be mitigated at a 1:1 ratio for disturbed habitat (4.45 acres) and at a 2:1 ratio for undisturbed habitat (4.80 acres) by planting 9.25 acres of native riparian habitat within the extended detention ponds consistent with the Extended Detention Zone planting, which includes willow, mule fat, and other riparian species commonly used by LBV. The mitigation will be monitored and maintained for 5-years pursuant to a Habitat Mitigation and Monitoring Plan to be prepared by a qualified biologist. The location of the proposed mitigation will occur in the extended detention portion of the ponds, as determined by the project biologist.**

Habitat in the study area potentially supports seven sensitive species, including Stephens' Kangaroo Rat (SKR), burrowing owl, yellow warbler, Southwestern willow flycatcher (SWFL), northern red diamond rattlesnake, Santa Ana Sucker, and Arroyo Chub, and one sensitive species, LBV, has been observed. Potential habitat for these species occurs in areas mapped as Non-native Vegetation (SKR and northern diamond back rattlesnake), Disturbed (burrowing owl), and Black Willow Series and Mulefat scrub (yellow warbler, SWFL and LBV). These habitats can also provide habitat for common wildlife species (particularly Non-Native Vegetation and the Black Willow Series/Mulefat scrub) and foraging for raptors (particularly Non-native Vegetation and Disturbed).

No impacts are anticipated for the SKR, yellow warbler, SWFL, northern red diamond and rattlesnake because either the on-site habitat is not appropriate and/or these species do not have a history of occurring in the project vicinity. However, potential impacts could occur to the following species.

Burrowing Owl - This species was determined as having a moderate to high potential to occur due to the suitability of available habitat in the study area and survey data. Pre-construction surveys will be conducted to confirm the presence/absence of this species prior to construction, and any burrowing owls observed will be either avoided or relocated. Therefore impacts are less than significant with implementation of the following mitigation measure.

BIO-2: Burrowing Owls

a. A qualified biologist will conduct a pre-construction survey for occupied burrowing owl burrows within 30-days of vegetation clearing or grading in suitable habitat following The California Burrowing Owl Consortium Burrowing Owl Survey Protocol and Mitigation Guidelines (April 1993). If occupied burrows are found, measures outlined in the CDFG Staff Report on Burrowing Owl Mitigation (October 17, 1995) and The California Burrowing Owl Consortium Guidelines will be followed, as outlined in The Chino Preserve Master Plan EIR and provided below:

a.1 Occupied burrows should not be disturbed during the nesting season, from February 1 through August 31.
a.2 If owls must be moved away from the disturbance area, passive relocation is preferable to trapping.
a.3 A time period of at least one week is recommended to allow owls to move and acclimate to the alternate burrows.
a.4 Passive relocation involves encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are at least 50 meters from the impact zone with a minimum of 6.5 acres of suitable foraging habitat for each pair of relocated owls.
a.5 Owls should be excluded from the burrows in the immediate impact zone and within a 50-meter buffer zone by installing one-way doors in burrow entrances.
a.6 One-way doors should be left in place for at least 48 hours to insure that owls have left the burrow before excavating the burrow.
a.7 One alternate burrow (natural or artificial) should be provided for each burrow that will be excavated in the project impact zone.
a.8 The project sites should be monitored daily for at least one week to confirm no owl use before excavating burrows in the immediate impact zone.
a.9 When excavating burrows, hand tools should be used and the burrows should be refilled to prevent reoccupation.
a.10 Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels during excavation to maintain an escape route for any animals that may still be located inside the burrow

LBV - This species was determined as having a high potential to occur due to the recorded observations within the study area and vicinity, even though the observations in and around the project site only represent 2% of all observations within the Prado Basin. There is however a low potential for nesting due to the limited availability of dense, low growing vegetation layers. Additionally, temporary impacts to the marginal habitat will be restored and the Demonstration Project results in an overall improvement and expansion of LBV habitat. Therefore potential impacts are less than significant with implementation of the following mitigation measure.

BIO-3: Least Bell's vireo (LBV)

a. **Grading and construction of the Demonstration Project within 300 feet of suitable LBV habitat shall occur outside of the LBV breeding season (March 15 to September 15) unless the following measures are implemented:**

b. **A qualified biologist will conduct a pre-construction survey for nesting LBV birds in suitable habitat within the project footprint and up to 300 feet around the project footprint, as appropriate, during the breeding season (March 15 to September 15). If active nests are found the following measures will be adopted:**

   b.1 Construction will not occur within a buffer area surrounding the active LBV nest(s) during the breeding season to avoid disturbing the birds. The biologist will determine an appropriate buffer area in consultation with USFWS.

   b.2 Orange fencing will be used to clearly mark the buffer area prior to construction. The biologist will monitor the installation of the orange fencing.

   b.3 The biologist will inform construction personnel regarding the location of active LBV nests and required avoidance measures during the pre-construction meeting (see BIO-8).

   b.4 During construction the biologist will monitor the active nests to observe breeding behavior. If normal breeding behavior is not observed and the birds show signs of being disturbed by construction activities, the biologist will halt construction activities and contact USFWS to discuss appropriate remedial measures. These may include measures such as modifying the buffer area or installing sound walls.

Santa Ana Sucker - This species was determined as having a very low potential to occur due to the limited suitability of available habitat in Mill Creek within the project study area and the limited known distribution of the species in the area. There is no potential for this species to occur within the study area since construction and structures are proposed to occur outside of the channel invert. However, should any work be determined required within Mill Creek including diversion of water or construction activities, pre-construction surveys will be conducted. Therefore impacts are less than significant with implementation of the following mitigation measure.

Arroyo Chub - This species was determined as having a very low potential to occur due to the limited suitability of available habitat in Mill Creek within the project study area and the limited known distribution of the species in the area. There is no potential for this species to occur within the project footprint since construction and structures are proposed to occur outside of the channel invert. However, should any work be determined required within Mill Creek including diversion of water or construction

activities, pre-construction surveys will be conducted. Therefore impacts are less than significant with implementation of the following mitigation measure.

BIO-4: Santa Ana Sucker and Arroyo Chub

a. **If any work is required within the natural portion of Mill Creek, including diversion of water or construction activities, a qualified biologist will conduct pre-construction surveys for Santa Ana Sucker and Arroyo Chub. If either species are found present, no work in the Creek will be permitted until a Section 7 consultation with the USFWS is completed and appropriate mitigation or changes to the project have been developed.**

Maintenance of the de-silting basin and wetland/extended detention ponds also has the potential to cause vegetation impacts to the LBV. Therefore, the following mitigation measures are incorporated to reduce impacts to less than significant.

BIO-5: Maintenance Activities

a. **All maintenance activities (including but not limited to trail maintenance, vegetation removal or trimming, and debris removal) will avoid breeding seasons to the greatest extent feasible, or adopt measures to avoid impacts, as outlined in BIO-2, BIO-3, and BIO-9.**

BIO-6: Pesticide Regulations

a. **All maintenance activities will comply with California Pesticide Regulations (CCR Title 3, Division 6) to minimize the use of rodenticides and herbicides during maintenance of the trail and avoid impacts to sensitive species and their habitats. Herbicides are permitted for control of non-native vegetation provided the herbicide is approved for use in an aquatic environment.**

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

The diversion structure, transmission pipe, and outlet have the potential to impact Waters of the U.S., which are regulated by the USACE and the Regional Water Quality Control Board (RWQCB), and Waters of the State, which are regulated by the Department of Fish and Game.

The diversion structure will impact Waters of the U.S. and State. The transmission pipe and outlet will impact only Waters of the State. The following table summarizes impacts to jurisdictional waters.

***Table 4.4-g*: Summary of Impacts to Jurisdictional Waters**

Jurisdictional Waters	Construction Impacts (acres)	Structures Impacts

		(acres)
Waters of the U.S.	0.40	-
Waters of the State	1.47	0.51
Total	1.87	0.51
Source: VCS 2008		

The impacts to jurisdictional waters require the approval of a Section 404 Permit from the USACE, a Streambed Alteration Agreement from the CDFG and a Section 401 Water Quality Certification from the RWQCB. In addition to the Section 404 permit, a Section 7 consultation with the USFWS is necessary because of impacts to critical habitat. The permitting process with the regulatory agencies will also establish mitigation for impacts to jurisdictional waters.

Once the Demonstration Project is constructed and diversion from Cucamonga Creek begins, the de-silting basin and four wetland / extended detention ponds will become jurisdictional Waters of the U.S. and State. Since the operation of the Demonstration Project requires ongoing maintenance, the potential exists for ongoing impacts to jurisdiction waters. Therefore, all required regulatory permits for the construction of the Demonstration Project must also include provisions for the ongoing maintenance of the ponds.

In accordance with CEQA, the implementation of the following mitigation measures will reduce impacts to a less than significant level.

BIO-7: Jurisdictional Waters

a. **Prior to impacts to jurisdictional "waters of the U.S." and "waters of the State", the applicant shall obtain all necessary regulatory permits, including a USACE Section 404 Permit, a RWQCB Section 401 WQC, and a Section 1602 CDFG SAA for the construction and maintenance of the Demonstration Project. A Section 7 consultation will also be required between the USACE and USFWS pursuant to the ESA due to impacts to LBV critical habitat. Mitigation proposed to compensate for impacts to jurisdictional waters shall be determined by the regulatory agencies but shall at minimum include the establishment of 9.25 acres of native riparian habitat consistent with BIO-1. All temporary impacts will be restored to pre-construction conditions.**

BIO-8 Education Plan

a. **The project biologist will attend the pre-construction meeting to educate all construction personnel regarding sensitive species, their habitats, and jurisdictional waters, and mitigation measures to avoid impacts to these resources.**

BIO-9 Best Management Practices (BMPs)

a. **The project will implement BMPs to minimize impacts to water quality and wildlife species, including but not limited to assigning equipment maintenance and staging areas away from water resources, implementing standard stormwater pollution prevention measures, enforcing temporary erosion and sediment control measures, removing trash from the construction area at the end of each day to avoid attracting wildlife, inspecting pipes stored on the construction site for wildlife species prior to moving them; dust control measures; and constructing appropriate energy dissipating structure(s) to avoid erosion particularly in Mill Creek.**

The dry weather diversion of 15 cfs has the potential to impact downstream riparian habitat. During the dry weather diversion the water surface elevation will not change by more than 4 inches at any point along the entire reach as a result of the proposed flow diversion. Depending on the location of the section evaluated, the top width of the water surface may be reduced up to 14.1 feet with diversion of 15 cfs.

Mill Creek consists of flowing open water with some braiding that has created small, cobbly and unvegetated islands. The vegetation associated with the creek is limited to the edge of the flowing water at the base of the channel slopes, and on the steep banks. Vegetation in both of these zones is dominated by species that are adapted to either tapping into groundwater or to drier conditions, including black willow and mulefat respectively. Willows are deep rooting species while mulefat is a species that can grow in upland areas with limited hydrology. These species have already adapted to the drier slopes of the creek and therefore the minimal reduction in surface water elevation, top water width and flow area are not expected to impact the ability of these species to continue to survive. Furthermore, the geotechnical analysis determined that groundwater exists approximately 30 feet below ground surface. This relatively shallow groundwater is also a source of water for the riparian species, as evidenced by the patches of willow and mulefat located 100 or more feet away from the top edge of the bank of Mill Creek. Therefore, potential impacts to vegetation associated with the dry weather diversion are considered less than significant.

Additionally, the CNDDB did not identify any occurrences of fish or fish habitat within Mill Creek in the vicinity of the Demonstration Project. Therefore, the reduction in water surface elevation between the diversion and the outlet is considered less than significant. Furthermore, downstream of the outlet, the water surface elevation will return close to pre-diversion conditions (accounting for minor losses through the wetlands), and therefore not impact fish habitat that may exist farther downstream.

The proposed dry weather diversion of 15 cfs is less than a similar project proposed by OCWD. In October 2000, the OCWD received permission to construct a very similar project. OCWD proposed to divert water from Mill Creek into a series of wetlands. The project was located farther downstream in Mill Creek than the proposed Demonstration Project. OCWD proposed to divert between 50% and 80% of the dry weather flow in Mill Creek into the wetlands, leaving at least 12 cfs flowing in the dry season.

OCWD received a 404 permit from the USACE (960045700-RRS), a Section 7 consultation from the U.S. Fish and Wildlife Service (1-6-00-F-743.1), a Section 401 Water Quality Certification from the RWQCB, and a Section 1600 Streambed Alteration Agreement from the CDFG. OCWD began construction but due to excessive flooding abandoned its project.

While the proposed dry weather diversion is less than OCWD's project and the impacts to vegetation are less than significant, the following mitigation measure is included to further reduce potential impacts and ensure potential impacts are less than significant.

BIO-10: Mill Creek Functional Assessment

- **a. The project biologist shall conduct a California Rapid Assessment Method (CRAM) or a Hydrogeomorphic (HGM) assessment to determine any effects of the dry weather diversion.. The project biologist should determine an appropriate CRAM or HGM methodology based on an assessment of the site, including, but not limited to the following:**
  - **a.1 The methodology should at minimum include metrics relating to biotic structure (for example interspersion/zonation, plant layers, native species composition, and vertical biotic structure).**
  - **a.2 The CRAM or HGM shall be conducted in the vegetated portion of Mill Creek between the diversion structure and the outlet channel prior to construction to establish a baseline condition, and then annually for three years following the dry weather diversion of 15 cfs, which is the typical period of time agencies accept for demonstrating habitats are self-sustaining.**
  - **a.3 The assessments should be conducted at the same time each year under similar weather conditions, where possible. If this is not possible, any differences in weather conditions (such as unusually dry or wet years) should be noted and may need to be accounted for in the assessment.**
  - **a.4 The baseline condition shall be compared with the annual assessments to determine any change in the function of Mill Creek. If the average metric scores demonstrate a substantial decline from the baseline condition, the biologist should assess each metric score individually and determine if the decline is due to natural variability such as a storm event or unusual weather conditions. If the biologist determines the decline is associated with the dry weather flow diversion of 15 cfs and not natural events, the dry weather diversion shall be reduced to an appropriate level recommended by the project biologist, and annual assessments shall be conducted until such time**

three consecutive annual assessments determine the dry weather diversion does not adversely affect the function of Mill Creek.

a.5 Should the dry weather diversion of 15 cfs not cause any adverse affects to the function of Mill Creek after three years of annual assessments, the project applicant may propose to increase the dry weather diversion to 23 cfs, which maintains 12 cfs of flow during the dry weather condition. The additional diversion may require additional analysis pursuant to CEQA and three additional years of annual functional assessments of the increased diversion.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Demonstration Project will result in impacts to jurisdictional Waters of the U.S. and Waters of the State. The Demonstration Project will not impact wetlands as defined by the Clean Water Act. Please see the response to question (b) for a discussion and mitigation on impacts to riparian habitat.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Demonstration Project has the potential to cause impacts to migratory birds and raptors that nest within the study area due to the presence of suitable habitat including trees. With implementation of the following mitigation measure, potential impacts to migratory nesting birds would be reduced to a less than significant level.

BIO-11: Migratory Birds

a. Grading and construction of the Demonstration Project within 250 feet of suitable nesting bird habitat shall occur outside of the nesting season (March 15 to September 15) unless the following measures are implemented:

b. A qualified biologist will conduct a pre-construction survey for nesting migratory birds within 7 days of vegetation clearing or grading in suitable habitat or within 250 feet of suitable habitat during the breeding season (March 15 to September 15). If active nests are found, the following measures will be adopted:

b.1 Construction will not occur within 250 feet of active nests during the breeding season to the greatest extent feasible.

b.2 If construction is required within 250 feet of active nest(s) during the breeding season, a qualified biologist will monitor the nest and the behavior of the birds to ensure no disruption to normal breeding activities. The biologist will halt construction activities if normal breeding activities are being disrupted.

b.3 Orange fencing will be used to clearly mark the avoidance area and all construction personnel will be notified.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Only a small portion of the Demonstration Project is located on privately owned land regulated by the City of Chino. The City of Chino does not have any local policies or ordinances protecting biological resources. Therefore, no impacts are anticipated.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan?

The Demonstration Project is not located in an area governed by a HCP or NCCP. Furthermore, the Demonstration Project is consistent with other laws, ordinances, regulations, and standards applicable to the project site. Table 12 of the Biological Resource Assessment analyzes the Demonstration Project pursuant to other applicable regulations, including but not limited to, federal and state law, local ordinances such as the Chino Preserve Specific Plan and the County of San Bernardino General Plan. Therefore, no impacts are anticipated.

4.5 CULTURAL RESOURCES

This chapter analyzes the potential impacts to cultural resources from the Demonstration Project.

4.5.1 Background

A Cultural Resource Inventory was prepared by Stantec Consulting (Stantec) on November 20, 2008 and included as Appendix E. The purpose of the study is to determine whether the Demonstration Project would have an adverse effect on significant historical, archaeological, and paleontological resources and to make recommendations for the conservation of such resources, and to recommend measures to mitigate any potential adverse effects associated with the Demonstration Project.

The project site has had numerous prior studies, including most recently The Chino Preserve 2003 EIR. In addition to The Chino Preserve 2003 EIR, twenty-six (26) cultural resource investigations have been completed in study area between 1975 and 2005. These studies consisted of a variety of investigations including field surveys, test excavations, and overview reports. The most comprehensive study of the area is an archaeological investigation by Langenwalter and Brock (1985) conducted prior to establishment of the Prado Flood Control Basin. Their investigation covered the project site and a much larger area within the Prado Basin in 10 meter transects and specific sites were tested and evaluated for National Register of Historic Places (NRHP) eligibility.

4.5.2 Methodology

The Cultural Resource Inventory included the following analysis:

- A search of California Historical Resources Information System (CHRIS) maps, records, and reports.

- A Historical Resources Information System records search conducted by the Archeological Information Center (AIC), San Bernardino County Museum. The AIC is the official cultural resource records repository for San Bernardino County and part of the California Historical Resource Information System.

- A Native American Heritage Commission (NAHC) Sacred Lands Inventory file check.

- Consultation with Native American contacts identified by NAHC.

- A review of historical U.S. General Land Office (GLO) and U.S. Geological Survey (USGS) maps.
- A search of historical GLO land patents.
- Geological and Paleontological reviews of publications, reports, maps, and records were conducted by the San Bernardino County Museum (SBCM) and by the Natural History Museum of Los Angeles County (LACM).
- A systematic on-site pedestrian archaeological field survey of the project site.

4.5.3 Potential Impacts

The Prado Basin has a long history of occupation. The prominent Native American occupants of the region were the Gabrielino. Gabrielino peoples were named from the Mission San Gabriel, where many were gathered at the beginning of the Mission Period. The Gabrielino were a hunter-gatherer culture that was not involved in agriculture. The missions had a dramatic effect on the region, primarily by the movement of the Gabrielino to the missions, which resulted in the abandonment of many areas. This movement resulted in a switch to local residents who established ranchos for farming and ranching. The history of farming and ranching is still evident today.

4.5.4 Cultural Resources

The Cultural Resources Inventory identified 16 prehistoric and historic-period archaeological sites within the study area. One of those previously recorded archaeological sites (CA-SBR-2845H) is located within the project site. Another large historic-period site (P871) is located within a one-mile radius of the project site. Figures 4.5-1 and 4.5-2 include Figures 8 and 9 respectively from the Cultural Resource Inventory, which show the location of CA-SBR-285H and P871.

CA-SBR-2845H was originally discovered by S. Hammond in 1978 during a Caltrans survey. Two years later a large cultural resources study conducted for the Serrano Substation to Mira Loma Substation Transmission Route Alternatives Corridor Right-of-Way (Foster and Greenwood 1980) revisited the site.

In 1985, as part of the Prado Flood Control Basin study, Langenwalter and Brock (1985) conducted an archaeological Phase II test and evaluation program to determine NRHP eligibility of CA-SBR-2845H. During the re-survey of the site, Langenwalter and Brock noted the site had been thoroughly disturbed by long-term plowing and dumping of several tons of manure. Additionally, the western edge of CA-SBR-2845H was found obscured or destroyed by ranch and residential construction. The study included test excavations, which yielded a minimal amount of prehistoric and historic-period artifacts.

Langenwalter and Brock concluded the site offered little to no subsurface cultural resources and the site was not eligible for listing on the NRHP.

The site investigation included an investigation of 75 geotechnical cone penetration test (CPT) and borehole locations. Several of these CPT and borehole locations were situated within and along the boundaries of CA-SBR-2845H. The investigation encountered dense vegetation and as a result, no artifacts or features associated with CA-SBR-2845H were found.

Site P871 is a large historic-period site located within one-mile of the project site. P871 consists of a group of former late 1800s to early 1900s farms and dairies, including the former 1880s Mayhew (later Chino Valley) Grist Mill site from which Mill Creek gets its name and the former Valley School site. This site also included the Arborn (later Raab) house with an associated barn and outbuilding (late 1800s), the Clark Estate house (early 1900s), and the Remington Ranch House. The Langenwalter and Brock study concluded that none of these sites are eligible for listing on the NRHP.

Figures 4.5-1 and 4.5-2
Archaeological Resources Maps

On File With Lead Agency

4.5.5 Paleontological Resources

A review of the paleontological records on file at the San Bernardino County Museum (SBCM) and by the Natural History Museum of Los Angeles County (LACM) concluded no fossil vertebrates are known within the project site (McLeod 2007 and Scott 2007).

Dr. Eric Scott (2007) determined that the geology of the surficial Holocene younger alluvium within the project site should be assigned a low paleontological sensitivity. However, the older Pleistocene deposits at an unknown depth below the surface have a high probability for finding significant vertebrate fossil remains. Small vertebrates and freshwater invertebrate fossil remains were found approximately ½ mile north of the project site in similar geologic material. Similar sediments also produced larger fossil remains including an extinct camel and bison at a site approximately one mile northeast of the project site.

Quaternary alluvial deposits on the project site have similar findings. The shallow younger Quaternary alluvial deposits are not paleontologically sensitive; however the older deposits have a high probability for finding significant fossil remains (McLeod 2007). A fossil specimen of deer was found in older Quaternary deposits southeast of the project site between the cities of Corona and Norco.

4.5.6 Sacred Lands Inventory / Native American Consultation

The Native American Heritage Commission (NAHC) reported that the Sacred Lands Inventory did not include records of cultural resources on the project site. The NAHC did note that the area is in close proximity to the locations of previously discovered prehistoric human burials.

Letters were sent to Native American contacts provided by NAHC. The responses received from the Native American contacts are included in the Cultural Resource Inventory (Appendix E).

4.5.7 Field Survey

A pedestrian field survey of the project site produced negative results for potential cultural resources. Dense vegetation limited ground visibility throughout a majority of the project site. However, a recent fire burned the vegetation in the eastern portion of the site (Ponds 2 and 4) and the eastern portion of site CA-SBR-2845H. The fire allowed for increased visibility of the ground surface, however no evidence of artifacts was found.

4.5.8 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Cultural Resources	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☑	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☑	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

The Cultural Resource Inventory did not identify any historical resources on the project site. No structures are located on the project site and the review of historical records does not indicate any resources on the project site eligible for NRHP listing. Therefore, potential impacts to historical resources are considered less than significant.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

One recorded site, CA-SBR-2845H, is located on the project site. This site was recorded and tested in the 1980s and described as a surface scatter of prehistoric Native American lithic artifacts. No subsurface archaeological deposits were found and the site was determined not eligible for NRHP listing. Current field surveys of the site also did not reveal any artifacts. The eastern portion of the site recently burned providing good ground visibility; however the majority of the site is covered by dense brush, which limits ground visibility. In addition to CA-SBR-2845H, other recorded sites (P871) are located within a one-mile radius of the project site. Given the presence of a recorded archaeological site within the project boundary, other recorded sites in close proximity to the project site, and dense brush obscuring ground visibility, the Demonstration Project could result in potentially significant impacts to archaeological resources. However, implementation of the following mitigation measures would reduce those potential impacts to less than significant.

CUL1: Archaeological Resources

a. **Following clearing and grubbing, and prior to grading, a qualified archaeologist shall conduct a field survey within the previously recorded boundary of CA-SBR-2845H. If artifacts or other archaeological remains are found, archaeological test excavation should be conducted to evaluate significance. If the find is significant, archaeological data recovery shall be conducted to mitigate the adverse effect of the project.**
b. **A qualified archaeological monitor shall be present on the site throughout the grading operations. At a minimum, the monitor shall observe grading operations for a period of not less than ten hours per week; however, if resources are identified, monitoring activities shall increase to not less than 15 to 20 hours per week. The on-site archaeological monitor shall have the authority to temporarily halt or divert grading operations if any significant archaeological or historic resources are uncovered to allow evaluation, avoidance, preservation and/or removal of significant features or specimens. Upon completion of grading operations, a written report shall be submitted to the US Army Corps of Engineers and the City of Ontario documenting the actions of the monitors, quantifying any features or specimens identified, and the locations of the collection, if any.**
c. **If archaeological artifacts are found during grading operations when the archaeological monitor is not present, the grading contractor shall immediately stop all work in the area and contact the archaeological monitor. Work may not resume in the affected area until authorized by the archaeological monitor.**

c) Would the project directly or indirectly destroy a unique paleontological resource or

site or unique geologic feature?

A review of the paleontological records on file at the San Bernardino County Museum (SBCM) and by the Natural History Museum of Los Angeles County (LACM) concluded no fossil vertebrates are known within the project site (McLeod 2007 and Scott 2007).

The geology of the surficial Holocene younger alluvium within the project site has low paleontological sensitivity. However, the older Pleistocene deposits at an unknown depth below the surface have a high probability for finding significant vertebrate fossil remains. Quaternary alluvial deposits on the project site have similar findings. The shallow younger Quaternary alluvial deposits are not paleontologically sensitive; however the older deposits have a high probability for finding significant fossil remains. Therefore, the Demonstration Project could result in potentially significant impacts to paleontological resources. However, implementation of the following mitigation measure would reduce those potential impacts to less than significant.

CUL2: Paleontological Resources

a. **A qualified paleontological monitor shall be present on the site throughout the grading operations. At a minimum, the monitor shall observe grading operations for a period of not less than ten hours per week; however, if resources are identified, monitoring activities shall increase to not less than 15 to 20 hours per week. The on-site paleontological monitor shall have the authority to temporarily halt or divert grading operations if any significant paleontological resources are uncovered to allow evaluation, avoidance, preservation and/or removal of significant features or specimens. Upon completion of grading operations, a written report shall be submitted to the US Army Corps of Engineers and the City of Ontario documenting the actions of the monitors, quantifying any features or specimens identified, and the locations of the collection, if any.**
b. **If paleontological artifacts are found during grading operations when the paleontological monitor is not present, the grading contractor shall immediately stop all work in the area and contact the paleontological monitor. Work may not resume in the affected area until authorized by the paleontological monitor.**

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

The Cultural Resources Inventory did not identify any evidence of human remains located on the project site. Furthermore, the Native American Heritage Commission (NAHC) reported that the Sacred Lands Inventory did not include records of cultural resources on the project site. The NAHC did note that the area is in close proximity to the locations of previously discovered prehistoric human burials. Therefore, the following mitigation measure is included to reduce any potential impact to human remains to a less than significant level.

CUL3: Cultural Resources

a. **If any human remains are encountered during construction, work in the immediate area of the find shall be halted and the San Bernardino County Coroner shall be contacted. California State Health and Safety Code Section 7050.5 dictates that if human remains are unearthed during construction, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to CEQA regulations and Public Resources Code Section 5097.98.**

4.6 GEOLOGY AND SOILS

This chapter analyzes the potential impacts associated geology and soils on the Demonstration Project.

4.6.1 Geologic Investigation

Geosyntec Consultants performed the geotechnical analysis of the proposed Demonstration Project. Appendix F includes the geotechnical report titled, "Geotechnical Report, Mill Creek Wetlands Recreation and Restoration Demonstration Project, December 2008." In addition, Geosyntec prepared a report titled "Existing and Proposed Conditions Related to Scour" dated December, 2008, and included as Appendix O.

The subsurface exploration consisted of:

- 5 hollow stem auger borings to depths of approximately 30 to 50 feet below ground surface
- In-hole Standard Penetration Test (SPT) sounding (at 5-ft intervals) in all of the borings advanced by Geosyntec
- 18 Cone Penetration Test (CPT) soundings to depths ranging from 5 to 50 feet below ground surface
- 3 piezometers (two within the footprint of the wetland ponds and one in the forebay)
- Falling-head infiltration tests in two of the piezometers
- Laboratory testing of soil samples

4.6.2 Geologic Setting

The project site is underlain by late Pleistocene to Holocene-age alluvial deposits. These alluvial deposits fill the western portion of a deep structural depression known as the upper Santa Ana River Valley. The alluvial deposits on site can be divided into two categories: young alluvium and old alluvium.

Young alluvium was deposited along Mill Creek and consists of a mixture of clay, elastic silt, silty sand, poorly graded sand, and clayey sand. The thickness of young alluvium varies from 15 to 25 feet.

Old alluvium underlies the young alluvium at depths ranging from 15 to 25 feet. The old alluvium consists of sands and gravels, which are likely cemented.

Groundwater was encountered in each of the five exploratory borings and encountered during the CPT soundings. Groundwater ranges from an approximate elevation of 516 to 525 feet above MSL, which places groundwater approximately 17 to 32 feet below ground surface. However, groundwater levels can vary depending on a number of factors. Seasonal rainfall, Prado Dam reservoir fluctuations, local irrigation, and groundwater extraction in the vicinity of the project site, can all influence groundwater levels.

4.6.3 Potential Impacts

Grading of the Demonstration Project requires approximately 1.1 million cubic yards of earth movement. The diversion pipe requires approximately 200,000 cubic yards of grading, comprised of approximately 100,000 cubic yards of excavation for the trench and after the pipes have been installed almost 100,000 cubic yards of fill. Construction of the de-silting basin and four wetland/extended detention ponds require approximately 800,000 cubic yards of grading. Finally, the Outlet will require approximately 100,000 cubic yards of earthwork. Of the 1.1 million cubic yards of grading, approximately 900,000 cubic yards will be exported from the Demonstration Project site. The exported material will be transported in scrapers to fill locations adjacent to the Demonstration Project within the City of Chino and compacted to a minimum of 90 percent.

Seismicity

All of Southern California is seismically active; therefore the Demonstration Project could be subject to strong ground motions. The project site is not located within a State of California Fault Zone (formerly referred to as an Alquist-Priolo Special Studies Zone) and no active or potentially active faults are known to underlie the project site. Therefore, there is very low potential for surface rupture.

Furthermore, no structures are proposed on the Demonstration Project site. Grading of the Demonstration Project is almost entirely excavation, with only a small portion of the perimeter berm around the de-silting basin and the wetland ponds occurring above the existing ground surface elevation. The berms are designed with a 3:1 maximum gradient and a minimum of a 10-foot wide crown. The Geotechnical Report prepared by Geosyntec includes design parameters for construction of the berm. Implementation of those design parameters reduces the potential impacts to less than significant.

Expansive Soils

The fill and native soils on the project site are generally characterized as silty sand, clayey sand, and poorly graded sand. The potential for these types of soil to display

expansive behavior is low. Therefore, no significant impacts are anticipated from expansive soils.

Liquefaction

Seismically induced soil liquefaction occurs when loose to medium dense, saturated granular materials are shaken due to a seismic event and lose shear strength. This can result in loss of bearing capacity for foundations, surface settlements, and instability and lateral spreading in embankments and slopes.

Within the footprint of the Demonstration Project and below groundwater elevation, the alluvium is dense and firm. Because of this dense soil condition, the liquefaction potential is low and no significant impacts are anticipated.

Infiltration

Given the classification and density of the soils encountered on site, the potential for infiltration is considered low to moderate.

4.6.4 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Geology and Soils	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☑	☐	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☑	☐	☐

Geology and Soils	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
ii) Strong seismic ground shaking?	☐	☑	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☑	☐	☐
iv) Landslides?	☐	☑	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☑	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☑	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

The Demonstration Project is not located on an active or potentially active fault and is not located within the Alquist-Priolo Earthquake Fault Zone. However, all of Southern California is considered a seismically active area, thus the project site could be subjected to strong ground motion. The risk of liquefaction is also considered low because the cohesionless alluvium located beneath the project site is dense and firm.

No structures, either residential or commercial, are proposed as part of the Demonstration Project. Therefore, the Demonstration Project will not expose people to injury or death due to structure failure. Instead, construction of the Demonstration Project requires excavation of a de-silting basin and four wetland / extended detention ponds. Of the approximately 1.1 million cubic yards of earthwork, approximately 900,000 cubic yards will be transported to a fill site off of the project site within a developable area.

Surrounding the wetland / extended detention ponds is a berm that extends up to approximately 6 feet above the existing ground surface elevation. When the ponds are full, that berm could function as a levee to detain water. Therefore, potentially significant impacts could occur if that berm is not constructed to withstand ground motion or liquefaction from seismic events. In order to reduce the potential impacts to less than significant, the following mitigation measures shall be implemented.

GEO1:

a. **Prior to grading, final construction drawings shall be prepared and shall incorporate the recommendations from Geosyntec's report titled "Geotechnical Report, Mill Creek Wetlands Recreation and Restoration Demonstration Project, December 2008" and "Existing and Proposed Conditions Related to Scour" dated December, 2008. The project's geotechnical engineer shall review the final construction drawings and issue a final geotechnical report.**

b. **Prior to grading, an exploration trench shall be dug along the entire alignment of the berm. The exploration trench shall be at least as deep as the planned height of the berm, and not less than 6 feet deep. The purpose of the exploration trench is to locate seepage paths or other material unsuitable for the berm's foundation. The project's geotechnical engineer shall inspect the exploration trench and include recommendations in the final geotechnical report.**

c. **Construction of the berms surrounding the wetland / extended detention ponds requires benching of fill material. The final design shall include the**

design criteria for benching of compacted fill over natural and over cut found in Figure 2-5 of the Geotechnical Report (Geosyntec 2008).

d. The project's geotechnical engineer shall be on-site during grading activities to inspect and certify construction of the Demonstration Project in accordance with the final plans and final geotechnical report.

b) Would the project result in substantial soil erosion or the loss of topsoil?

The Demonstration Project includes a Native Habitat Plan for the planting of the wetland / extended detention ponds. That vegetation is vital to the function of the basins and will also minimize soil erosion and loss of topsoil. Furthermore, the Hydrology and Water Quality section (Section 4.8) provides more discussion on the potential impacts associated with erosion due to high runoff velocities. While no impacts are anticipated, the following mitigation measure will ensure that impacts due to the loss of top soil are less than significant.

GEO2:

a. Following grading of the de-silting basin and wetland / extended detention ponds, a dust and erosion control plan shall be developed and implemented within 3 months or prior to the rainy season (October 15), whichever occurs earlier, that includes one or a combination of measures such as, the planting of the Native Habitat Plan, mesh or soil fabric/matting, soil binders, waddles and/or hay bales, or other equally effective dust and erosion control measures.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

The geological unit underlying the project site is stable and suitable for construction of the Demonstration Project. As outlined in the response to question (a), mitigation measures must be implemented to ensure long-term stability of the project. Therefore, potential impacts are less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The soils on the project site are generally characterized as silty sand, clayey sand, and poorly graded sand. The potential for significant expansive behavior for these types of soil is considered low. No significant potentially expansive, high plasticity clay or silt layers were identified in the explorations of the project site. Therefore, potential impacts due to expansive soils are considered less than significant.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The Demonstration Project does not include restrooms. Therefore, no septic systems or other waste disposal systems are proposed. No significant impacts will occur.

4.7 HAZARDS AND HAZARDOUS MATERIALS

This chapter analyzes the potential impacts on the Demonstration Project associated with Hazards and Hazardous Materials.

4.7.1 Background

Geosyntec Consultants (Geosyntec) prepared a Phase I Environmental Site Assessment (ESA) for the proposed Demonstration Project. The report, which is included as Appendix G, was prepared in accordance with the American Society Testing and Materials (ASTM) Standard E 1527-05, *Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process*.

The purpose of the ESA is to identify, to the extent feasible, recognized environmental conditions (RECs) in connection with the project site. ASTM provides the following definition of RECs:

> *In defining a standard of good commercial and customary practice for conducting an environmental site assessment of a parcel of property, the goal of the processes established by this practice is to identify recognized environmental conditions. The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.*

4.7.2 Methodology

Preparation of the ESA included a records review, site reconnaissance, and interviews. The records review included a review of the previous environmental reports completed for the site; a database search of federal, state, county, and municipal records; a review of select historical aerial photographs; a review of select historical topographic maps; a review of available historical Sanborn maps; and a review of city directory listings.

4.7.3 Findings

The Demonstration Project site and the surrounding properties appear to have been used for agricultural purposes, dry-land farming, and dairy operations since the 1930s. The historical aerial photographs indicate the first developed use of the site occurred in 1931 when a small structure, which was possibly a residence, was constructed west of Mill Creek and south of Chino Corona Road. That structure seemed to last until the late 1940s and was not observed in the 1953 aerial photograph. Two additional structures were present in the portion of the site north of Chino Corona Road between 1968 and 2005. Those structures are no longer on the site. Currently the project site is undeveloped vacant land.

The database search analyzed properties within a one-mile radius from the project site for known or suspected releases of hazardous substances or petroleum hydrocarbons. The database search identified 40 properties within a one-mile radius of the project site. An additional 21 properties were identified as potentially being in the area, but were not mapped due to poor or inadequate address information. Each listing was reviewed to evaluate its potential to impact the Demonstration Project and to be a REC. The ESA concluded that none of these properties has the potential to significantly impact the project site.

The records search with the San Bernardino County Fire Department did not identify any records pertaining to the project site. However, the record search identified the Liberty Ranch facility located off-site at 8484/8486 Chino Corona Road, which was reported to have expired hazardous material handling and hazardous waste generator permits. Two hazmat incident responses were listed for this facility. Once incident occurred on April 5, 2007 related to unknown chemical substances abandoned in several 55-gallon containers. A second incident was reported on January 17, 2002 related to drug lab chemicals.

Geosyntec performed a site reconnaissance on October 30, 2008 to access the present conditions and note obvious evidence of RECs. Geosyntec made the following observations:

- No evidence of the use of hazardous substances or petroleum products.
- No evidence of hazardous substance containers, with the exception of an empty 55-gallon plastic drum observed north of Chino Corona Road.
- No evidence of underground or aboveground storage tanks or other storage containers.
- One pole-mounted transformer likely containing polychlorinated biphenyls (PCBs) was observed off-site on the south side of Chino Corona Road. No evidence of ground staining was observed.

- No evidence of the use, storage, or mixing of pesticides.
- Debris piles consisting of construction debris and miscellaneous household trash such as wooden pallets, crates, buckets, chairs, a mattress, and plastic sheeting was observed north of Chino Corona Road. An old abandoned vehicle, a television monitor, and miscellaneous trash was observed south of Chino Corona Road.
- No drainage culverts or surface drainage conveyances.
- Three piezometers are located on the project site. They were installed as part of the subsurface geotechnical investigation.
- No evidence of septic tanks.
- No structures.

4.7.4 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Hazards and Hazardous Materials	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☑	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☑	☐	☐

Hazards and Hazardous Materials	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project site?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project site?	☐	☐	☐	☑
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑

Hazards and Hazardous Materials	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The Demonstration Project does not rely on the use or transport of hazardous materials. The Water Quality Plan operates by gravity and through the use of ultraviolet radiation from the sun and absorption from wetland vegetation. No chemicals are associated with the Water Quality Plan. Periodic maintenance of the de-silting basin and wetland ponds will result in the removal of sediment and trash. This material is not anticipated to contain hazardous substances.

Periodic maintenance of the trail and vegetation will occur. Trail maintenance may include the use of power tools, however the release of petroleum products is unlikely. Maintenance of the vegetation may require the use of herbicides during the establishment of native plant material. Given the close proximity to surface waters, the following mitigation measure is required to reduce potential impacts to a less than significant level.

HAZ1:

a. The application of herbicides to control invasive weeds is permitted provided the herbicide is approved for use in an aquatic environment.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The project site was historically used for agricultural activities, dairy operations, and dry-land farming purposes. Additionally, the site reconnaissance identified debris and trash piles on the project site. Therefore, pesticides may exist in the soil, which is considered a REC. The reported manure spreading associated with previous dairy operations has the potential to generate methane gas and may pose construction issues. The potential presence of manure is also considered a REC. Finally, due to the large project site, the

thick vegetation in places, and the presence of debris and trash piles, it is possible that materials may exist on the site that were not identified during the ESA. Implementation of the following mitigation measures will reduce these potential impacts to less than significant.

HAZ2:

a. **Prior to the start of grading, a qualified professional shall conduct random soil sampling to test for the presence of pesticides and methane gas associated with manure spreading. A report shall be prepared that summarizes the findings of the testing and provides recommendations for any necessary remediation.**

b. **During the clearing of the project site, observation of the site by personnel qualified to recognize potential environmental conditions shall occur. If any hazardous debris or trash is observed, the clearing shall be redirected around the affected area and the material of concern shall be disposed of in accordance with applicable regulations.**

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The closest school to the project site is Butterfield Elementary School, which is located approximately 2.5 miles west of the project site. Therefore, no impact is expected.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project site is not included on a list of hazardous materials sites. Therefore, no impact is expected.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project site?

Chino Airport is located approximately 2 miles north of the project site. However, the Demonstration Project does not include any buildings or places for people to work or live. Therefore, no impact is expected.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project site?

Please see the response to (e) above.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The Demonstration Project would not interfere with an emergency response or evacuation plan. The Demonstration Project does not affect any existing roads or create new roads. Therefore, no impact is expected.

h) Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The Demonstration Project does not include any structures that could be affected by wildfire or place people at risk of loss or injury. The Demonstration Project primarily includes wetland vegetation associated with the wetland ponds and extended detention basins. The vegetation around the trail system will be native drought-tolerant plant material. However, this area will receive regular irrigation. Therefore, no impacts are expected.

4.8 HYDROLOGY AND WATER QUALITY

This chapter analyzes the potential impacts on Hydrology and Water Quality from the Demonstration Project.

4.8.1 Background

The Demonstration Project proposes to enhance the recreation and native habitat resources within the Prado Basin white also treating stormwater runoff from the Cucamonga Creek watershed. The multiple goals of the Demonstration Project will be met by the creation of a series of hydraulically connected basins that incorporate wetland and riparian areas, recreational trails, and water treatment components.

4.8.2 Methodology

Four studies were conducted to analyze potential impacts to hydrology and water quality from the proposed Demonstration Project, as follows:

- Geosyntec Consultants prepared a report titled, "Conceptual Hydrologic and Hydraulic Project Design and Function," dated December 12, 2008. This report describes in detail the hydrologic and hydraulic function of the natural treatment system. This report also provides findings from the SWMM modeling documenting that the system will operate as designed. This report is included as Appendix H.

- AECOM prepared a report titled, "Cucamonga Channel/Mill Creek Diversion Flow HEC-RAS Analysis," dated December 11, 2008. This report analyzes the potential hydraulic impacts associated with the diversion and outlet in Mill Creek. Included as part of this report is the HEC-RAS modeling of Mill Creek, documenting the potential impacts to Mill Creek from the diversion and discharge of flow into Mill Creek. This report is included as Appendix I.

- Geosyntec Consultants prepared a report titled, "Existing and Proposed Surface Water Quality," dated December 9, 2008. This report documents the water quality function of the Demonstration Project. This report is included as Appendix J.

- Geosyntec Consultants prepared report titled "Existing and Proposed Conditions Related to Scour" dated December, 2008. This report is included as Appendix O.

4.8.3 Findings

The Demonstration Project is a regional natural treatment facility designed to hold and treat 160 acre-feet of water. This volume translates into treatment of 10 – 18% of all wet-weather runoff in the Cucamonga Channel watershed. In contrast, a single-function water quality project of the same size in an upstream tributary could effectively capture approximately 6% of the total wet-weather runoff from the watershed (Geosyntec, 2008). Thus, the Demonstration Project is an effective means of leveraging water quality benefits for the region.

4.8.4 Water Quality

The existing water quality in Cucamonga / Mill Creek contains pollutants from runoff from existing communities, agricultural operations, dairies, and discharges from the Inland Empire Utilities Agency (IEUA) water reclamation facilities. The Santa Ana Regional Water Quality Control Board (RWQCB) has adopted and periodically amends the 1995 Water Quality Control Plan for the Santa Ana River Basin, which includes Mill Creek. The Water Quality Control Plan establishes beneficial uses and water quality objectives for surface and groundwater bodies. The beneficial uses for Mill Creek are listed in Table 4.8-a:

Table 4.8-a: Beneficial Uses in Mill Creek

REC1	Includes recreational activities that involve body contact with the water, such as swimming, wading, fishing, etc.
REC2	Includes recreational activities in proximity to water, but not involving water contact, such as sunbathing, beach combing, etc.
WARM	Includes water uses that support warm water ecosystems.
WILD	Includes water uses that support wildlife and terrestrial ecosystems
RARE	Includes uses of water that support habitats necessary to support threatened or endangered species.

Source: Regional Water Quality Control Board

When designated beneficial uses of a receiving water body are compromised by water quality, Section 303 (d) of the Clean Water Act requires identifying and listing that water body as impaired. As such, Mill Creek is listed as impaired by nutrients and Total Suspended Solids (TSS), which likely originate from agriculture and dairies. Once a water body is listed as impaired, a Total Maximum Daily Load (TMDL) must be developed for the impairing pollutants. The RWQCB adopted a Basin Plan amendment to incorporate indicator bacteria TMDLs for Mill Creek.

Baseline water sampling has been conducted for the Demonstration Project during the dry weather condition. Geosyntec's water quality report (Appendix J) includes the monitoring data. The data show elevated levels of Total Dissolved Solids (TDS) and nutrients, low in organics and metals, and bacteria data that show both compliance and exceedance of the 30-day water quality objective.

The Demonstration Project does not have any mandates to achieve certain TMDLs or other water quality standards. Instead, the Demonstration Project provides a test to determine the effectiveness of regional natural treatment systems. On-going water quality testing will be conducted as part of the State Water Resources grant funding to determine whether the Demonstration Project has had a demonstrable benefit on the water quality in Mill Creek.

Treatment of the dry weather flows differs from the treatment of the wet weather flows. In the dry weather condition, the normal flow in Cucamonga / Mill Creek is generally 35 cfs, but can vary between 30 – 60 cfs. The Demonstration Project proposes to divert up to 15 cfs during the dry weather condition. The treatment of the dry weather flows will occur in the constructed wetlands by a variety of mechanisms including sedimentation, filtration, transformation, sorption, and uptake. Treatment of the dry weather flows will target pathogen indicators (coliform bacteria), nutrients (nitrate, ammonia, phosphorus), and salinity (TDS) as follows. Other pollutants commonly associated with urban runoff such as Total Suspended Solids (TSS), organic compounds, metals, and trash and debris were not selected for dry weather treatment because these pollutants typically occur at low levels in dry weather flows. If those pollutants happen to be present in dry weather flows, the wetlands would provide some level of treatment.

Pathogen indicators (coliform bacteria) – Coliform bacteria are used as indicator organisms of human pathogens. Domestic animal, wildlife, or human fecal wastes, primarily from urban and agricultural runoff, tend to cause the elevated levels of pathogen indicators.

Bacteria treatment in wetlands primarily occurs by sedimentation of fine particles through filtering and hydraulic slowing by wetland vegetation. Other treatment includes predation, UV degradation, and natural die-off. Treatment of bacteria is anticipated to be good based on performance of the similarly designed San Joaquin Marsh.

Nutrients (nitrate, ammonia, phosphorus) – Nutrients are inorganic forms of nitrogen and phosphorus, which can cause accelerated growth of algae. High levels of nitrate are also a concern for aquifer replenishment in downstream recharge basins. The primary sources of nutrients in dry weather flows include agricultural and urban land uses and discharges from IEUA.

Nitrogen compounds in dry weather flows are mainly in the form of nitrate. Densely vegetated wetlands are very effective at removing nitrate, primarily through microbially facilitated denitrification processes, and to a lesser extent by

uptake into wetland vegetation. Phosphorus is often associated with particulates, which are typically low in dry weather flows. Treatment performance of phosphorus will be dictated by local conditions, however, based on performance at the San Joaquin Marsh (operated by Irvine Ranch Water District), the wetlands should provide moderate levels of treatment of phosphorus.

Salinity (TDS) – TDS is primarily made up of inorganic salts, generally including calcium, sodium, potassium, phosphate, nitrate, and chloride. TDS can potentially impact downstream groundwater beneficial uses. Sources of TDS include runoff from agricultural and dairy areas and IEUA discharges. Treatment of TDS can be difficult. Often treatment of TDS requires advanced technology such as reverse osmosis. Therefore, the TDS levels are not anticipated to substantial change in the wetlands.

Wet weather flows occur during storm events. The highest concentration of pollutants occurs during the initial stages of a storm event, often referred to as the "first flush." The Demonstration Project is designed to divert flows from Cucamonga Creek during the initial stages of storm events. Treatment of wet flows will primarily occur by extended detention and gravitational settling in wetland basins. Wetland vegetation will also provide some treatment by filtration and sorption. Treatment of wet weather flows will target sediment (TSS), pathogen indicators (coliform bacteria), trace metals (copper, lead, zinc), nutrients (nitrate, ammonia, phosphorus), organic compounds (oil and grease, pesticides, etc.) and trash and debris, as follows:

Sediment (TSS) – Sediment in surface waters can impair aquatic habitat and transport other pollutants, such as metals and organic compounds, that tend to absorb to sediment particles. The primary source includes urban runoff, agricultural uses, and construction sites.

The Demonstration Project is expected to provide effective treatment of TSS through gravitational settling in the de-silting basin and gravitational settling and filtration through wetland vegetation.

Pathogen indicators (coliform bacteria) – Coliform bacteria are used as indicator organisms of human pathogens. Domestic animal, wildlife, or human fecal wastes, primarily from urban and agricultural runoff, tend to cause the elevated levels of pathogen indicators.

Bacteria treatment in wetlands primarily occurs by sedimentation of fine particles through filtering and hydraulic slowing by wetland vegetation. Other treatment includes predation, UV degradation, and natural die-off. Treatment of bacteria is anticipated to good based on performance of the similarly designed San Joaquin Marsh.

Trace metals (copper, lead, zinc) – Urban stormwater runoff can be a significant source of metals. Copper, lead, and zinc are the most prevalent, however other

metals such as cadmium, chromium, and mercury can be detected at low levels. Metals can cause potentially toxic effects on aquatic life and impair beneficial uses.

Since metals are associated with particulates, the wetlands are anticipated to provide good reductions in total metal concentrations.

Nutrients (nitrate, ammonia, phosphorus) – Nutrients are inorganic forms of nitrogen and phosphorus, which can cause accelerated growth of algae. High levels of nitrate are also a concern for aquifer replenishment in downstream recharge basins. The primary sources of nutrients in dry weather flows include agricultural and urban land uses and discharges from IEUA.

In wet weather flows, the wetlands are expected to provide limited treatment of nutrients, however the most effective treatment will occur to nutrients associated with particulates.

Organic Compounds (oil and grease, pesticides, etc.) – Studies have shown the presence of a wide variety of organic compounds in Cucamonga Creek in wet weather flows. Organic compounds can potentially impair aquatic habitat and the beneficial uses of the streams. Also, some organic compounds can persist in sediments for extended periods resulting in impacts on the diversity and abundance of benthic communities.

The treatment of organic compounds is compound specific; however many compounds have low solubility and tend to absorb to particulates. These compounds would therefore be subject to treatment by sedimentation. The wetlands are anticipated to provide moderate to good effectiveness for the removal of organic compounds.

Trash and Debris – Trash and debris are common pollutants associated with urban runoff. Trash and debris can have significant impacts on the recreational value of a water body and aquatic habitat. Also, excessive organic matter associated with trash and debris can result in the growth of undesirable organisms and the release of odorous and hazardous compounds such as hydrogen sulfide.

The de-silting basin and wetland ponds will provide an effective method of trapping and removing trash. Accumulated trash and sediments will be removed during routine maintenance.

In summary, the Demonstration Project will provide effective water treatment during the wet and dry season flows resulting in a net benefit to water quality in the Prado Basin. Furthermore, the Demonstration Project will provide treatment of volumes of runoff that could not be attained with conventional water quality best management practices. Therefore, the Demonstration Project will result in a benefit, not degradation. Potential impacts are less than significant.

4.8.5 Hydraulics of the Demonstration Project

Runoff will be diverted from the lined portion of Cucamonga Creek south of the Hellman Bridge and north of Chino Corona Road. A cut-off trench and low-flow orifice will be used to divert the desired dry weather flow. The wet weather diversion will consist of a side-flow weir, spilling to a side-flow channel and connected to a large gravity diversion line. The dry weather flow diversion will be conveyed in a 24-inch reinforced concrete pipe (RCP) and the wet weather will be conveyed in a 9.5-foot by 8-foot reinforced concrete box (RCB). Both diversions flow into a hard lined de-silting basin. From the de-silting basin runoff flows under Chino Corona Road and a flow-splitting structure will split flows equally between to wetland ponds. The entire flow from the diversion through the outlet is by gravity. Figure 4.8-1 provides a schematic drawing of the Demonstration Project.

The Demonstration Project includes four combined wetland / extended detention ponds. Table 4.8-b lists the wetland ponds' volume capacities:

Table 4.8-b: Wetland Pond Volume Capacities	
Pond 1	41 acre-feet
Pond 2	45 acre-feet
Pond 3	34 acre-feet
Pond 4	32 acre-feet
Source: Geosyntec 2008	

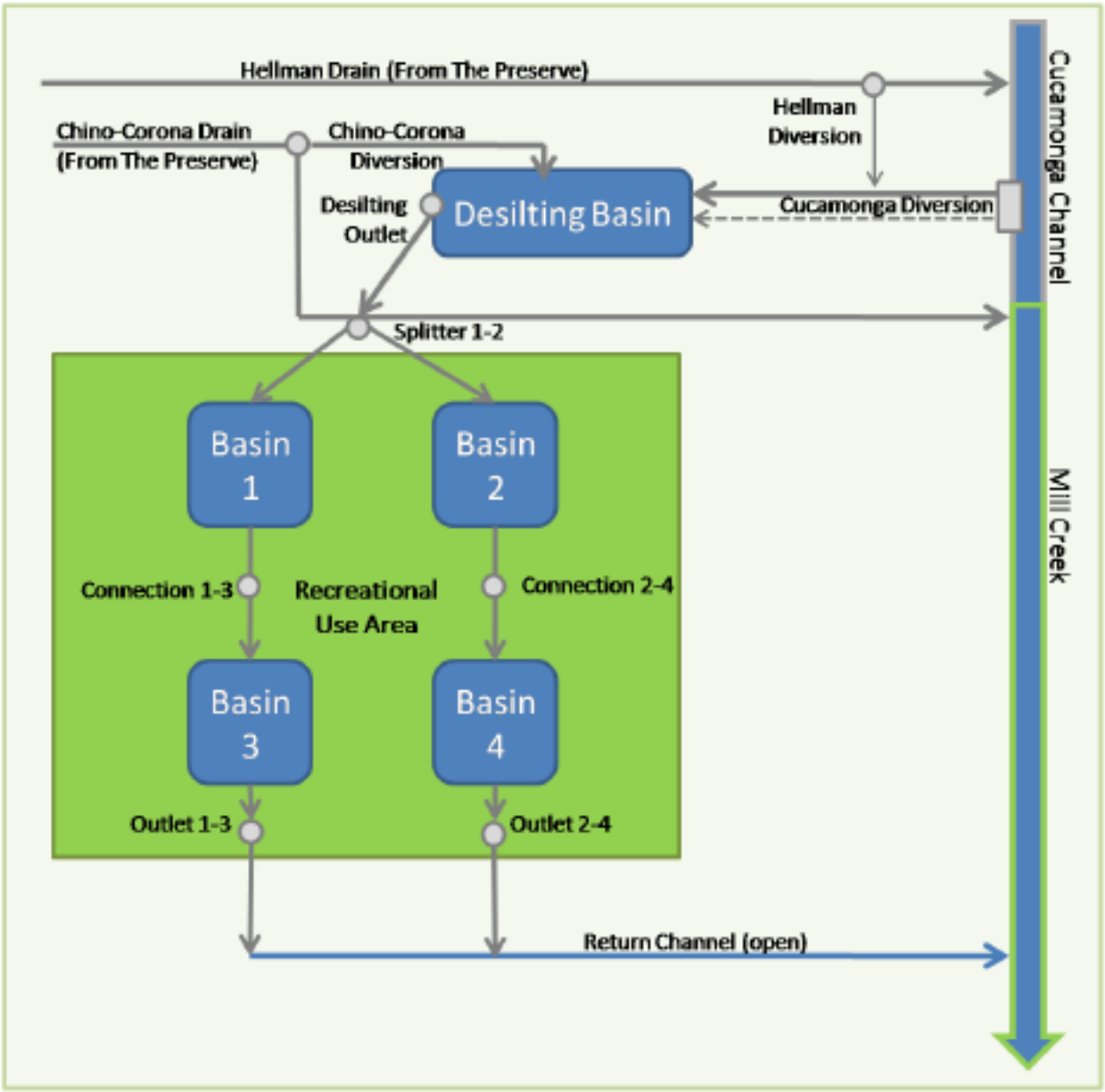
Due to a sloping groundwater table, the design of Ponds 1 and 2 include a 3-foot drop in the invert elevation within the basin.

Key hydraulic control will be provided at two inter-basin control structures located between Ponds 1 and 3 and Ponds 2 and 4. The hydraulic controls include a low flow drain, normal flow orifice, and overflow structures, as follows:

Low flow drain – A drain at the invert of the wetland permanent pool will allow the basins to be completely dewatered if necessary for maintenance purposes. The draw down time is one day.

Normal flow orifice – An orifice/box weir will govern dry weather waster surface and restrict flow between basins during wet weather operations. Under normal flow conditions, the orifice will restrict flow to promote the specified residence time. Also, during normal flow, it is the intent of the design to maintain a drop in water surface elevation between the upstream and downstream basins, thereby maximizing active storage volume of the system. Normal flow orifices will be designed to maintain 2 feet of differential head between the upstream and downstream ponds.

Figure 4.8-1
Plan View Schematic of Processes



Overflow structure – When incoming flows are greater than the flow rate through the normal flow orifice, or if there is a clog in the system, the water surface will rise in the upstream basin until it reaches the crest elevation of an overflow riser or spillway. Above this elevation, the overflow structure will convey flows between basins. The overflow structures will be designed to pass half of the maximum flow in less than 1 foot of head over the riser crest.

Following the wetland ponds, the outlet structures provide the final hydraulic control. Similar to the wetland ponds, the outlet structure will include three hydraulic controls: low flow drain, normal flow drain, and outlet flow spillway. The normal flow orifices will be designed to ensure drawdown of the basin chain in approximately 48 hours assuming only design dry-weather inflow following a storm event.

The outlet channel conveys flows from the outlet structures back to Mill Creek. The outlet channel is designed as an open channel with grade control structures and bank/bed stabilization.

Throughout the Demonstration Project sluice gates will be used to restrict flow and isolate facility components. The sluice gates provide important controls for emergency conditions, maintenance activities, and operational flexibility. Sluice gates at the diversion structure will allow for the system to be shut off during emergency conditions where longer duration storm or runoff events will continue to push high flows into the system causing overtopping conditions. Sluice gates will also be incorporated at the inlets to Ponds 1 and 2 allowing one side of the system to be shut down for maintenance. Finally, sluice gates can be partially operated allowing flexibility in the operation of the facility through control of flows.

Diversion into the wetland chain includes dry weather flows, wet weather flows and diversion from The Chino Preserve. Table 4.8-c summarizes the proposed diversion rates:

Table 4.8-c: Proposed Diversion Rates (cubic feet per second)

Diversion	Rate (cfs)
Dry weather flows	15 cfs
Diversion during 100 yr Q in Cucamonga Creek (with ponds full)	269 cfs
Diversion during 100 yr Q in Cucamonga Creek (with ponds empty)	249 cfs
The Chino Preserve - Hellman Avenue Diversion – peak flow	50 cfs
The Chino Preserve – Chino Corona Road Diversion – peak flow	85 cfs
Source: Geosyntec 2008	

Therefore, the total design peak flows through the wetland chain is 384 cfs when the wetlands are full and 404 cfs when the wetlands are empty. When the ponds are full the

maximum diverted flow is less than when the ponds are empty. This condition occurs because the full ponds provide resistance for incoming flows. That resistance to incoming flows is not present when the ponds are empty, resulting in higher diversion flows. It should also be noted that in Table 2.7-a, the dry weather diversion of 15 cfs is included in the diversion rates during the 100-year condition. Therefore, the dry weather diversion is not included in the calculation of the total peak design flows.

Geosyntec modeled the wetland chain using the SWMM model. The results of the modeling confirm the operation of the wetland chain as designed.

The plans for the Demonstration Project were sent to the California Department of Safety of Dams (DSOD) for review. DSOD replied that the wetland ponds do not meet the criteria for DSOD review. Therefore, the Demonstration Project is not subject to DSOD jurisdiction. Appendix K includes the letter from DSOD.

4.8.6 Hydraulics of Mill Creek

According to a USACE report titled, "General Design for Flood Control and Recreation – Cucamonga Creek" dated June 1973, the maximum probable flood event in Mill Creek is 52,000 cfs. The 100-year flow event is modeled at 32,000 cfs. The highest observed stream gage data in the last 20 years was 17,300 cfs (USGS, October 2004).

During a 100-year flood event, water surface elevations in Mill Creek will vary from 544 to 548 feet MSL. It is anticipated that during the 100-year event, portions of the wetland ponds, including Pond 4, will be inundated by floodwaters.

It is possible that during a very wet season the Prado Dam might fill to its 100-year flood elevation of 552 feet MSL. In that case, all of the ponds in the Demonstration Project would be flooded since the lowest berm elevation around the ponds is set at an elevation of 540 feet MSL. During a 200-year plus event, the Prado Dam may fill to an elevation of 566 feet MSL, which is the current weir elevation of the dam, also inundating the entire Demonstration Project.

The diversion of flow from Cucamonga Creek and the outlet of flows back into Mill Creek both have the potential to impact existing hydraulics. Therefore, the analysis conducted by AECOM used a HEC-RAS model to determine potential impacts in both situations.

In the dry flow condition Cucamonga Creek typically flows at 35 cfs. However, this flow can range from 30 to 60 cfs according to historic data. The primary source of dry weather flow is IEUA's wastewater treatment facility. Using the HEC-RAS software, channel flow was developed for a variety of dry weather conditions and characteristics such as flow rate, water surface elevation, and top width of the water flow were evaluated for each condition. The Demonstration Project proposes to divert 15 cfs in the dry weather condition. Table 4.8-c summarizes changes to flow rate, water surface elevation.

Hydraulically, these changes do not impact Mill Creek. The potential biological impacts associated with the diversion are analyzed in Section 4.4.

***Table 4.8-d*:**
Summary of HEC-RAS Parameter Value Differences Between 35 cfs and 20 cfs

X-Section No.	Q Total (cfs)	Change in Water Depth (in)	Change in Width of Flow (ft)	Channel Velocity (ft/s)
13-Diversion	20	(0.7)	(7.3)	(1.9)
12	20	(3.4)	(11.7)	(2.1)
11	20	(2.4)	(1.0)	(0.4)
10	20	(1.1)	(14.1)	(2.3)
9	20	(2.4)	(1.6)	(0.4)
8.5	Culvert-Chino-Corona Road			
8	20	(1.8)	(1.6)	(3.2)
7	20	(3.5)	(1.3)	(0.8)
6	20	(3.0)	(1.7)	(0.6)
5	20	(3.4)	(8.0)	(1.6)
4	20	(3.5)	(1.4)	(0.6)
3-Discharge	20	(2.9)	(0.7)	(1.5)

The changes to Mill Creek identified in Table 4.8-d due to the dry weather diversion highlight the varied nature of the Creek. For example, Mill Creek has areas of deep pools, such as the area surrounding Cross Section 7. In this area the diversion of 15 cfs results in almost a four-inch drop in water surface elevation, yet only a 1.7-foot reduction in flow width. In contrast, Mill Creek also has wider and shallower sections, such as Cross Section 10. In this area the diversion of 15 cfs results in a 14-foot reduction in top flow width, but only a 1.1-inch reduction in water depth.

The maximum peak design capacity from the wetland ponds is 404 cfs, which must be accommodated in the outlet channel. The channel is designed with a series of drops to reduce velocity and reach the elevation of the invert of Mill Creek. As the outlet channel approaches its confluence with Mill Creek the channel will include rip rap to reduce velocities.

The maximum peak flow through the wetland ponds is 404 cfs; however that is not the critical design flow. During the maximum peak flow, the water surface elevation will be at or near the 100-year storm water surface elevation in Mill Creek. Therefore, the flows of Mill Creek will be at or overtopping the outlet structure. A more critical condition will occur during smaller storm events, such as the 2-year storm (Q_2) and the 5-year storm

(Q_5). During these smaller events, the outflow channel will flow into a lower water surface within Mill Creek resulting in potentially higher velocities and higher erosion potential. Based on the channel design, including channel width and rip rap, Table 4.8-d summarizes the conditions in the outlet channel.

***Table 4.8-e*: Mill Creek Wetlands Outlet Velocities for Q2 and Q5 Design Storms**

Design Storm	Flow in Mill Creek	Water Surface Elevation in Cucamonga Creek at Diversion	Flow Diverted	Water Surface Elevation in Mill Creek at Confluence with Outflow Channel	Velocity of Outflow Channel into Mill Creek	Flow Velocity in Mill Creek at Discharge
Q_2	1351 cfs	542.52 ft	105 cfs	524.52 ft	0.45 fps	5.05 fps
Q_5	4509 cfs	544.56 ft	145 cfs	527.71 ft	0.29 fps	3.30 fps

Source: AECOM (2008)

During the Q2 and Q5 events the velocity of the discharge in the outlet channel will be non-erosive and substantially less than the velocity in Mill Creek. Therefore, potential impacts associated with the confluence of the outlet channel into Mill Creek are less than significant.

4.8.7 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Hydrology and Water Quality	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Violate any water quality standards or waste discharge requirements?	☐	☑	☐	☐

Hydrology and Water Quality	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☑
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☑	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☑	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☑

Hydrology and Water Quality	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☑	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☑	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

a) Would the project violate any water quality standards or waste discharge requirements?

The Demonstration Project proposes to construct a regional natural treatment system to treat the runoff from an approximately 76.7 square mile watershed. The natural treatment system includes a de-silting basin and a chain of four wetland / extended detention ponds. The wetland / extended detention ponds will contain areas of open water and wetland vegetation. The Demonstration Project will divert both dry weather low flows and wet weather storm flows.

The Demonstration Project is designed to hold and treat 160 acre-feet of water. This volume translates into treatment of 10 – 18% of all wet-weather runoff in the Cucamonga Channel watershed. In contrast a single-function water quality project of the same size in an upstream tributary could effectively capture approximately 6% of the total wet-weather runoff from the watershed (Geosyntec, 2008). Thus, the Demonstration Project is an effective means of leveraging water quality benefits for the region.

The treatment of the dry weather flows will occur in the constructed wetlands by a variety of mechanisms including sedimentation, filtration, transformation, sorption, and uptake. Treatment of the dry weather flows will target pathogen indicators (coliform

bacteria), nutrients (nitrate, ammonia, phosphorus), and salinity (TDS).

The Demonstration Project will also divert flows from Cucamonga Creek during the initial stages of storm events, which are often referred to as the "first flush." Treatment of wet flows will primarily occur by extended detention and gravitational settling in wetland basins. Wetland vegetation will also provide some treatment by filtration and sorption. Treatment of wet weather flows will target sediment (TSS), pathogen indicators (coliform bacteria), trace metals (copper, lead, zinc), nutrients (nitrate, ammonia, phosphorus), organic compounds (oil and grease, pesticides, etc.) and trash and debris.

An Integrated Watershed Management Grant obtained through the State Water Resources Control Board has partially funded the Demonstration Project. The grant requires a demonstrable water quality improvement before the end of 2010. Current water sampling provides a baseline condition. Following construction of the ponds and planting, water quality sampling will occur prior to the end of 2010.

Based on research data and data from other similar treatment systems, the Demonstration Project is expected to provide a highly effective system of removing pollutants. Therefore, the Demonstration Project will benefit, not impact, water quality.

The construction of the Demonstration Project could result in short-term increases in silt and sediment transport or other water quality impacts. The Regional Water Quality Control Board regulates these types of short-term construction impacts through the National Pollutant Elimination Discharge System (NPDES) program. Therefore, implementation of the following mitigation measure will reduce potential construction-related water quality impacts to less than significant.

HYD1: Water Quality

a. **Prior to grading, the project applicant shall submit a notice of intent (NOI) with the State Water Resources Control Board and prepare a Storm Water Pollution Prevention Plan (SWPPP) consistent with the City's municipal storm water permit. The SWPPP shall include construction best management practices (BMPs) to manage water quality during construction.**

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

The Geotechnical Investigation included in Section 4.6 describes the underlying geology of the project site, including the depth to groundwater. Groundwater ranges from approximately 17 to 32 feet below existing ground surface. Just above groundwater levels there appears to be a layer of cemented alluvium, also referred to as caliche. Given

the density of this layer of cemented alluvium, the infiltration rate on the project site is considered low.

The Demonstration Project includes a series of wetland / extended detention ponds that will accept runoff from Cucamonga Creek. The bottom of those ponds will be located approximately +/- 5 feet above the existing groundwater level. The wetland ponds will include a "permanent pool" of open water approximately 4 feet deep. Runoff into the permanent pools will have a residence time of approximately 3 to 6 days.

No depletion of groundwater supplies or interference with groundwater recharge will occur. Instead, the Demonstration Project provides an opportunity to enhance groundwater recharge. However, the geology of the site indicates that infiltration rates will be low. Therefore, no impacts are anticipated to groundwater supplies.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Cucamonga Creek is a concrete flood control channel constructed by the USACE in the 1970's. This channel drains a watershed of approximately 76.7 square miles. Downstream of Hellman Avenue and upstream of Chino Corona Road, the concrete flood control channel transitions to a grouted rip-rap channel before it discharges into Mill Creek. Mill Creek continues downstream of Chino Corona Road as a natural earthen and vegetated channel.

The Demonstration Project will not alter, realign, or change the configuration of Cucamonga / Mill Creek in anyway. Instead, the Demonstration Project will provide an "off-line" natural treatment system consisting of a series of wetland / extended detention ponds. Dry weather and wet weather flows will be diverted from the concrete lined portion of Cucamonga Creek. The diversion consists of a cut-off trench in the invert of Cucamonga Creek and a low flow orifice to divert dry weather flows. A side flow weir will divert wet season flows. After flowing through the series of wetland ponds, the runoff will outlet back into Mill Creek.

The outlet channel is designed with a series of drops to reduce velocity while bridging the gap in elevation between the outlet structures and Mill Creek. As the outlet channel approaches its confluence with Mill Creek the channel will include rip rap to reduce velocities.

In the dry flow condition Cucamonga Creek typically flows at 35 cfs. However, this flow can range from 30 to 60 cfs according to historic data. The primary source of dry weather flow is IEUA's wastewater treatment facility. Using the HEC-RAS software, channel flow was developed for a variety of dry weather conditions and characteristics such as flow rate, water surface elevation, and top width of the water flow were evaluated for each condition. The Demonstration Project proposes to divert 15 cfs in the dry weather condition, resulting in a maximum drop in water surface elevation of 4 inches,

reduction in top flow width of 14 feet, and reduction of channel velocity of 3.2 cfs. Hydraulically, these changes are minor and do not impact the function of Mill Creek.

In the wet weather condition, the maximum peak flow through the wetland ponds is 404 cfs; however that is not the critical design flow. During the maximum peak flow, the water surface elevation will be at or near the 100-year storm water surface elevation in Mill Creek. Therefore, the flows of Mill Creek will be at or overtopping the outlet structure. A more critical condition will occur during smaller storm events, such as the 2-year storm (Q_2) and the 5-year storm (Q_5). During these smaller events, the outflow channel will flow into a lower water surface within Mill Creek resulting in potentially higher velocities and higher erosion potential. Based on the channel design, including channel width and rip rap, Table 4.8-e summarizes the conditions in the outlet channel.

***Table 4.8-e*: Mill Creek Wetlands Outlet Velocities for Q2 and Q5 Design Storms**

Design Storm	Flow in Mill Creek	Water Surface Elevation in Cucamonga Creek at Diversion	Flow Diverted	Water Surface Elevation in Mill Creek at Confluence with Outflow Channel	Velocity of Outflow Channel into Mill Creek	Flow Velocity in Mill Creek at Discharge
Q_2	1351 cfs	542.52 ft	105 cfs	524.52 ft	0.45 fps	5.05 fps
Q_5	4509 cfs	544.56 ft	145 cfs	527.71 ft	0.29 fps	3.30 fps

Source: AECOM (2008)

During the Q2 and Q5 events the velocity of the discharge in the outlet channel will be non-erosive and substantially less than the velocity in Mill Creek.

Therefore, the Demonstration Project proposes to alter Cucamonga / Mill Creek by diverting dry and wet weather flows. The proposed diversions will not change the alignment, operation, or function of Cucamonga / Mill Creek. Furthermore, where the outlet channel from the Demonstration Project converges with Mill Creek, the velocities have been reduced to a level below the velocities in Mill Creek, thereby avoiding an erosive condition. Therefore, the Demonstration Project will have less than significant impacts associated with altering existing flows in Cucamonga / Mill Creek. Please also see the response to question (i) for more analysis.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Please also see the response to question (c) regarding the potential impacts associated with altering an existing drainage pattern.

In the existing condition, surface flows cross the project site on a path to Cucamonga Creek / Mill Creek. Runoff originates from surrounding agricultural properties, neighboring open space, and Chino Corona Road. In certain cases the runoff is

substantial enough that the design of the Demonstration Project must accommodate the flow. On example is the agricultural property adjacent to the project site to the west. Drainage from this approximately 10-acre farm currently crosses the project site. In the developed condition, the runoff from this farm will be collected in the wetland / extended detention ponds prior to discharge into Mill Creek.

Furthermore, the Demonstration Project will not substantially increase the amount of surface runoff from the project site. The only potential impervious surface on the project site includes two small parking lots for the recreation trails. The proposed parking off Chino Corona Road includes 8 parking spaces and the future lot off of Comet includes 5 spaces. Otherwise, the Demonstration Project includes pervious surfaces and will therefore, not increase surface runoff. Potential impacts are considered less than significant.

During construction of the diversion structure and the outlet channel, runoff in Cucamonga / Mill Creek may require diversion. Additionally, construction of the outlet channel includes placement of sheet piles at the water's edge and removal of the material behind the sheet piles. This operation may require the de-watering of the area behind the sheet piles. The diversion and/or de-watering associated with construction activities has the potential to impact Cucamonga / Mill Creek. Potential biological impacts associated with diversion of existing flows is mitigated to a less than significant level by measure Bio-4. Implementation of the following mitigation measure will mitigate potential impacts associated with de-watering to a less than significant level.

HYD2: De-Watering

a. Prior to initiating construction of the outlet channel, the contractor shall prepare a de-watering plan. The de-watering plan shall detail the methods proposed for de-watering and the methods proposed to avoid downstream impacts. Water removed from the construction area may be used for dust control on the project site. If water removed from the construction area will be placed directly into Mill Creek, a de-watering permit from the Regional Water Quality Control Board may be required and the de-watering plan must include measures, such as de-silting basins or Baker Tanks, to effectively minimize discharging silt into Mill Creek.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

As discussed in the response to question (d), the Demonstration Project will not substantially increase the amount of runoff from the project site. Furthermore, as discussed in the response to question (c), the Demonstration Project will release the water diverted from Cucamonga / Mill Creek back into Mill Creek with low velocities and flow rates such that the Mill Creek can accommodate the runoff without impacts. Therefore, the potential impacts are considered less than significant.

f) Would the project otherwise substantially degrade water quality?

The Demonstration Project is a regional natural treatment facility that will improve the water quality in Cucamonga / Mill Creek as described in response to question (a). Therefore, no impacts will occur to water quality.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Portions of the Demonstration Project are located within the 100-year flood boundary of Cucamonga / Mill Creek and during such an event floodwaters will inundate the project site. However, the Demonstration Project does not include housing or any other structures. Furthermore, during storm events the facility will be locked to prevent public access. Therefore, no impacts are anticipated.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Construction of the Demonstration Project will require the removal of approximately 900,000 cubic yards of earth to create the series of wetland / extended detention ponds. Almost the entire portion of the ponds will be located below the existing ground surface elevation. A portion of the berms along the east side of the ponds will extend approximately 3 to 6 feet above the existing ground surface elevation.

The berms along the eastern portion of the wetland / extended detention ponds will encroach into the 100-year floodplain in certain locations. This encroachment has the potential to both reduce and increase incremental flood storage volume depending on location. The Scour Report, included in Appendix O, identifies four cross-sections at different locations across the floodplain as shown on Figure 4.8-2. The following provides examples of the dynamic nature of the floodplain and how storage volume can increase and decrease depending on location.

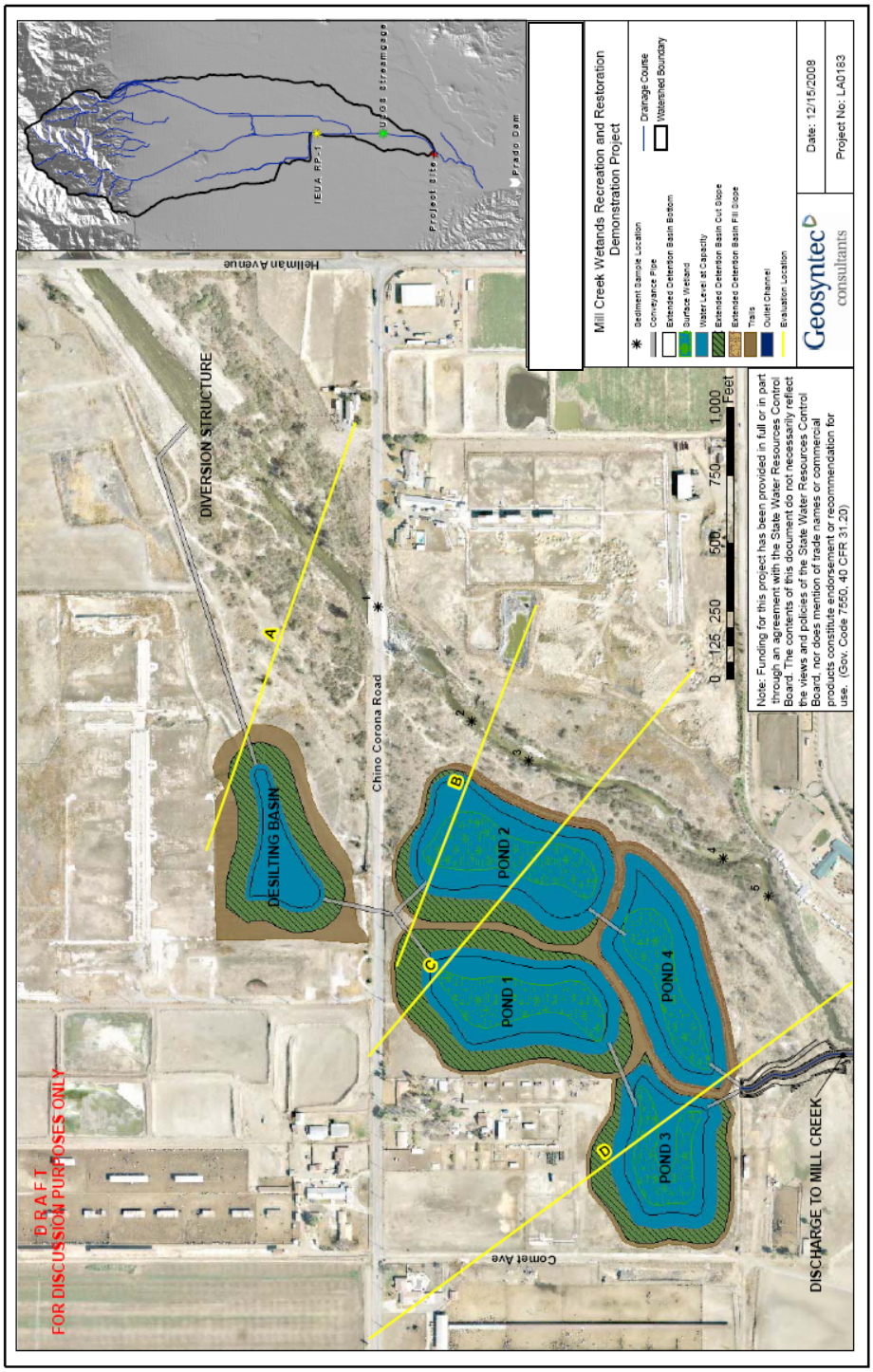
- Section A, located upstream of Chino Corona Road, shows an encroachment into the floodplain during flows greater than 30,000 cfs.

- Section B, located just downstream of Chino Corona Road, increases floodplain storage for flows between 11,000 and 15,000 cfs.

- Section C, located half way down the length of the Demonstration Project in Mill Creek, increases floodplain storage for discharges greater than 15,000 cfs.

- Section D, located close to the outlet, results in minor floodplain storage losses.

Figure 4.8-2
Cross Section Locations



During early consultation with the USACE, the USACE stated that potential storage losses must be analyzed at one-foot intervals throughout the floodplain. That analysis requires final design plans, which is beyond the scope of this CEQA analysis. However, the Scour Report has identified that the potential exists for a reduction of flood storage capacity. Therefore, in order to reduce that potentially significant impact to a less than significant level, the following mitigation measure must be implemented.

HYD3: Flood Storage Capacity

a. **The Demonstration Project shall not reduce flood storage capacity at any one-foot interval below the flood storage limit of 566 feet MSL unless otherwise approved by USACE. Therefore, prior to grading, the project applicant shall conduct a flood storage volume study based on the final design plans. Should that study determine that the final design of the Demonstration Project causes a reduction of flood storage volume, either (i) the Demonstration Project shall be redesigned to reduce the height of the proposed berms or make equivalent design changes to eliminate the reduction in flood storage capacity, or (ii) the Demonstration Project shall provide a flood offset of equal or greater capacity than the loss of flood storage volume at the appropriate elevation. If a flood offset is proposed, the location and design of that offset may be subject to additional CEQA analysis to determine if the flood offset causes any new impacts to environmental resources including, but not limited to, air quality, biology, and cultural resources.**

The Demonstration Project will cause less than significant impacts associated with 100-year flood hazards.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

The California Department of Safety of Dams (DSOD) reviewed the Demonstration Project plans and determined that the wetland / extended detention ponds do not meet DSOD's criteria for regulation because of the storage volume of each pond, the height of the berms, and the ability to shut off the diversion into the system. By virtue of not meeting DSOD criteria for regulation, the risk of failure is considered low.

However, the Demonstration Project is located adjacent to the banks of Mill Creek, which is a dynamic floodway and subject to erosion due to scour. In conjunction with the Geotechnical Analysis (Appendix F), the Scour Report analyzed the potential impacts to the stability of the berms along the eastern edge of the wetland / extended detention ponds.

The Scour Report analyzed the changes in shear stresses and velocities at various flows for the cross sections identified in Figure 4.8-2. Given the dynamic nature of Mill Creek,

the velocities and shear stresses vary for each cross-section. The following provides a brief summary of the findings for conditions along the right overbank, which is the project side of Mill Creek.

- Section A – shear stresses and velocities for flows under 24,000 cfs do not change and slightly increase for flows over 24,000 cfs.

- Section B – shear stresses and velocities remain relatively unchanged or slightly decrease for all discharges.

- Section C – shear stresses and velocities remain relatively unchanged for discharges under 15,000 cfs and decrease for flows greater than 15,000 cfs.

- Section D - shear stresses and velocities increase for discharges between 10,000 and 38,000 cfs and decrease for flows greater than 38,000 cfs.

Therefore, depending on location and flow, the berms associated with the Demonstration Project could be subjected to either an increase or decrease in shear stress and velocity. Therefore, to maintain the stability of the berms and reduce the threat of failure to a less than significant level, the following mitigation measure shall be implemented.

HYD4: Bank Stabilization

a. **Prior to grading, the final design plans for the Demonstration Project shall include bank stabilization measures for the proposed berm along the eastern project boundary designed to withstand the projected velocities and shear stresses. Additionally, the bank stabilization measures shall be designed in accordance with Mitigation Measure GEO1 and shall incorporate the levee toe-down depths identified in Table 2 of the Scour Report. Table 3 of the Scour Report provides guidance on appropriate bank stabilization measures for various velocities and shear stresses. The bank stabilization strategy chosen for the final design shall be effective to protect against the maximum velocity and shear stress found at any point along the berm.**

The addition of bank stabilization measures to one side of Mill Creek, as well as the encroachment into the floodplain, has the potential to impact the other side (left overbank) of Mill Creek. Final analysis of this potential impact at this stage in the design of the Demonstration Project is difficult because several key design issues must first be resolved, such as the disposition of the berm height related to flood storage volume (Hydro 3) and the type of bank stabilization selected for the berm (Hydro 4).

However, the analysis included in the Scour Report provides an initial screening of the potential impacts. The Scour Report determined that the potential increase in shear stress

and velocity was low for the left overbank, and in some locations there was a decrease in shear stress and velocity with the proposed Demonstration Project. However, the potential still exists for significant impacts to the left overbank with final design. Therefore, the following mitigation measure shall be implemented to reduce the potentially significant impact to less than significant.

HYD5: Bank Stabilization

a. Prior to grading, the project applicant shall analyze the potential increase in shear stress and velocity on the left overbank. This analysis shall be based on the final design of the berm, including bank stabilization measures. Should the analysis determine that the left overbank would be subjected to an increase in velocity of 2.0 fps or shear stress of 0.35 lb/ft^2, which is the threshold for bank protection from natural vegetation and therefore non-erosive, due to encroachment and stabilization of the berm, the following measures shall take place:

a.1 The Demonstration Project, including but not limited to, the berm height and/or location shall be redesigned to minimize encroachment into the floodplain thereby reducing the increase in velocity and shear stress on the left overbank to less than 2.0 fps and 0.35 lb/ft^2, respectively; or

a.2 The left overbank shall be modified to include stabilization measures commensurate with the velocity and shear stresses occurring during a 100-year event. In the event the left overbank requires stabilization, the action of stabilizing the left overbank may be subject to additional CEQA analysis to determine if the stabilization causes any new impacts to environmental resources including, but not limited to, biology, and cultural resources.

Finally, while the threat of levee failure has been reduced to a less than significant level with incorporation of mitigation, if the berm along the eastern boundary of the Demonstration Project were to fail, the area downstream of the project site consists of agricultural uses and open space, with limited structures and exposure to people. The majority of the area is open space located within the 566-foot contour, which represents

the weir elevation of Prado Dam and therefore the elevation for flood storage behind Prado Dam. If the wetland ponds were to experience a catastrophic failure, water would flow into Mill Creek toward the Prado Basin. If the failure occurred during the dry season or during a small storm event, the amount of water released would equal the volume of the permanent pool plus the amount captured from the storm event. In this case the wetland ponds would not be full. The discharge would be released into Mill Creek, likely causing erosion. However, it is unlikely this discharge would cause significant damage to people or structures because the area only consists of a few farms and open space. Catastrophic failure in this condition would be highly unlikely because the volume in the ponds would be low, well below the elevation of the berms, and the ponds would not be subjected to large storm forces that could test the system.

If the wetland ponds were to experience catastrophic failure during a very large storm event, such as 100-year or greater, when the ponds were completely full, the Prado Dam would likely be impounding runoff, raising the water surface elevation of the storage volume behind the dam. This backwatering effect would also cause a rise in the water surface elevation of Mill Creek. During the 100-year event, runoff in Mill Creek would be overtopping the berms of the wetland ponds, inundating the area. Therefore, catastrophic failure of the ponds in this situation would release runoff into an already inundated state, which would not likely cause significant damage to downstream people or structures.

Therefore, the potential impacts from the failure of a levee are considered less than significant.

j) Would the project result in inundation by seiche, tsunami, or mudflow?

The Demonstration Project is located too far away from the Pacific Ocean or a large water body to be subjected to inundation by seiche or tsunami. The surrounding area is relatively flat and therefore, there is limited threat of inundation by mudflow. However, if the Demonstration Project were inundated, no significant impacts would occur since the Demonstration Project does not contain structures or residents. No impacts are anticipated.

4.9 LAND USE AND PLANNING

This chapter analyzes the potential impacts from the Demonstration Project on land use and planning.

4.9.1 Background

The USACE recently initiated a Feasibility Study to evaluate habitat enhancement and recreation opportunities, as well as improvements to water quality, over a 300-acre area within Prado Basin. Detailed elements include identification of potential locations for habitat restoration along Mill Creek and Chino Creek, expansion of the recreational components of the Prado Regional Park, expansion of the regional trail system within the local communities as well as the Coast to Crest inter-county trail system, and opportunities to create natural water quality treatment ponds.

In an effort to evaluate more detailed design concepts for the Feasibility Study, the City of Ontario, as project sponsor, has taken the lead in conjunction with the USACE to develop and implement the proposed Demonstration Project.

The Demonstration Project is located primarily on land owned by the USACE and a portion of the de-silting basin and outlet are located on private land. The Demonstration Project falls entirely within the boundaries of the City of Chino, more specifically within The Chino Preserve Specific Plan (2003). Although projects on Federal Land are not subject to local land use regulations, this section analyzes the Demonstration Project's consistency with the City of Chino's land use regulations, which consist of The Chino Preserve Specific Plan.

4.9.2 Existing Conditions

The project site is currently vacant undeveloped land and the area's history as farmland is still evident today. The northern portion of the project site has evidence of a former dairy farm, including concrete wash/feed pads, manure spreading grounds, and fencing. The southern portion of the project site also includes fencing, unimproved roads/trails and scattered debris piles.

The project vicinity is generally slightly sloped with undulating topography. The overall topography tends to be higher in the north and western portions of the project site and slopes toward the south and east as it approaches Cucamonga / Mill Creek.

In the northern portion of the project site, north of Chino Corona Road, the existing ground surface elevation is approximately 575 feet MSL in the northwestern corner. The elevation slopes gradually to a plateau at an approximate elevation of 545 feet MSL

before sloping more rapidly to the invert of Cucamonga Creek, at an approximate elevation of 525 feet MSL.

The southern portion of the project site is similar in character, however the natural channel of Mill Creek is more deeply incised than it is north of Chino Corona Road. Adjacent to Chino Corona Road, the project site has an existing ground surface elevation of approximately 560 feet MSL and undulates slowly as it reaches a plateau at an approximate elevation of 540 feet MSL adjacent to Mill Creek. Mill Creek is steeply incised with an invert elevation of approximately 520 feet MSL.

South of Chino Corona Road electrical transmission lines run north/south in the eastern portion of the site. The 66kv lines include poles approximately 40 feet high.

The existing vegetation on the project site differs greatly between the west and center portion of the site and the eastern portion of the site along Cucamonga/Mill Creek both north and south of Chino Corona Road. The west and center portions of the project site include disturbed and ruderal non-native vegetation. The eastern portion of the site includes patches of black willow scrub and riparian scrub native vegetation. Closer to Cucamonga/Mill Creek the vegetation becomes higher quality and more dense. Dense riparian vegetation covers the banks of Cucamonga/Mill Creek.

4.9.3 Preserve Specific Plan

The Chino Preserve Specific Plan, adopted by the City of Chino in 2003, covers an area of approximately 5,435 acres of former dairy and agricultural lands. The Chino Preserve Specific Plan provides the framework for the development of a dynamic and diverse community that includes a mixture of residential neighborhoods focused around a community core and regional commercial center, and interconnected with a multi-purpose open space feature by a series of paseos and trails.

As part of its adoption of The Chino Preserve Specific Plan, the City of Chino amended its General Plan and Zoning Code to maintain consistency with the land uses and policies established in The Chino Preserve Specific Plan. Therefore, consistency with The Chino Preserve Specific Plan also constitutes consistency with the City's General Plan and Zoning Code.

The Chino Preserve Specific Plan designates the project site as Open Space-Recreation (OS-R), Agriculture/Open Space-Natural (AG/OS-N) and Open Space-Natural (OS-N) as shown on Figure 4.9-1. Those land use designations have the following intended character and purpose.

AG/OS-N: The Agricultural/Open Space-Natural Land Use Designation is intended to provide for limited agricultural and open space uses, including passive recreation, trails, crop farming, and open space. It is also intended to protect important biological resources found

within lands designated AG/OS-N from incompatible land uses that could damage these resources. Land uses in AG/OS-N designated areas must be compatible and coordinated with the Resource Management Plan, which provides for the protection and enhancement of biological resources. They must also comply with the requirements of Dam Inundation Overlay.

OS-R: The Open Space- Recreation Land Use Designation is intended to establish open space areas for active and passive recreation and to provide protection from environmental hazards.

OS-N: The Open Space-Natural Land Use Designation is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats. This designation also permits the use of open space areas for crop farming, passive outdoor recreational uses and other low intensity recreational uses in some instances.

Table 4.9-a summarizes the land use regulations established by The Chino Preserve Specific Plan for each of the land use classifications on the project site:

***Table 4.9-a*: OPEN SPACE USES**

Open Space Designations	Intended Character	Allowable Land Uses	Uses Subject to Conditional Use Permit	Administratively Permitted/Incidental Uses	Prohibited Uses
Agricultural/ Open Space-Natural (AG/OS-N)	The Agricultural/Open Space-Natural Land Use Designation is intended to provide for limited agricultural and open space uses, including passive recreation, trails, crop farming, and open space. It is also intended to protect important biological resources found within lands designated AG/OSN from incompatible land uses that could damage these resources. Land uses in AG/OSN designated areas must be compatible and coordinated with the Resource Management Plan, which provides for the protection and enhancement of biological resources. They must also comply with the requirements of Dam Inundation Overlay.	a. Commercial row, field, tree and nursery crops cultivation in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance, except that expansions of such crop farming to areas that have not been farmed within the previous 5 years are subject to an Administrative Approval. b. Continuation of grazing where grazing has occurred within the previous 5 years. Areas where grazing has not occurred within the past 5 years require an Administrative Approval. The Administrative Approval must also comply with any applicable requirements or standards of the Resource Management Plan. c. Conservation Areas (wildlife/natural habitats and sanctuaries and habitat enhancement areas). d. Trails. e. Public infrastructure facilities including but not limited to those necessary for; drainage and flood control including the retention or detention of flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public	a. Interpretive Facilities. b. Low-intensity public parks and other passive recreation uses provided that they do not negatively impact wildlife and other biological resources. c. Major Communications Facilities as defined by the Chino Zoning Ordinance and in compliance with section 20.09.050.D.9 of the Zoning Ordinance. d. Utility stations and associated equipment buildings. e. Apiaries. f. Public recreational facilities owned or controlled by a public agency. Examples of such facilities include but are not limited to: historic and monument sites; recreational or organizational camps; botanical gardens and arboretums; hunting and fishing clubs. Development shall be subject to the criteria listed below: (i) Landscaping plans should minimize any impact on existing native species especially those species that are of high biological value. In addition, restorative landscaping should incorporate indigenous plant materials as a means of mitigating visual impacts associated with the construction of new buildings,	a. As allowed by the OS Zone, Section 20.11.030 of the Zoning Ordinance.	a. Expansions or new diaries, calf nurseries, and other similar intense animal uses. b. Cemeteries. c. Athletic fields. d. Auditoriums, Stadiums, and other similar facilities. e. Golf Courses and miniature golf. f. Tennis and swimming clubs. g. All off-road vehicles and motorcycles.

***Table 4.9-a*: OPEN SPACE USES (Cont.)**

Open Space Designations	Intended Character	Allowable Land Uses	Uses Subject to Conditional Use Permit	Administratively Permitted/Incidental Uses	Prohibited Uses
		safety or health.	structures or other improvements within the zone. (ii) Buildings, structures and improvements should incorporate designs in which scale, mass, and height respect the undisturbed character of the area, Designs should follow existing topography, blend in with the natural landscape and otherwise minimize their visual prominence. (iii) The use of herbicides to control or kill vegetation is not permitted. g. Expansions to the Prado Regional Park facility in areas adjacent to the developed or improved portions of the facility. Such expansion must also comply with any applicable requirements or standards of the Resource Management Plan.		
Open Space-Recreation (OS-R)	The Open Space-Recreation Land Use Designation is intended to establish open space areas for active and passive recreation and to provide protection from environmental hazards.	a. Caretaker quarters. b. Child daycare associated with a public facility (community center, public park, etc.). c. Commercial row, field, tree and nursery crops cultivation in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance. d. Conservation areas (wildlife/natural habitats,	a. Major Communications Facilities as defined by the Chino Zoning Ordinance and in compliance with Section 20.09.050.D.9 of the Zoning Ordinance. b. Eating places in conjunction with and incidental to permitted or conditionally permitted recreational uses. (Includes restaurants,	a. As allowed by the OS Zone, Section 20.0110.30 of the Zoning Ordinance. b. Incidental processing drying & packing of agricultural commodities produced on site. c. Incidental, seasonal sales stands for row,	a. Expansions or new dairies, calf nurseries, and other similar intense animal uses.

***Table 4.9-a*: OPEN SPACE USES (Cont.)**

Open Space Designations	Intended Character	Allowable Land Uses	Uses Subject to Conditional Use Permit	Administratively Permitted/Incidental Uses	Prohibited Uses
		habitat enhancement areas and sanctuaries). e. Equestrian facilities. f. Minor Communications Facilities subject to an Administrative Approval as provided in the Chino Zoning Ordinance and in compliance with Section 20.09.050.D.9 of the Zoning Ordinance. g. Public parks and related facilities (community centers, senior centers, and other community buildings/structures, etc.) h. Temporary Facilities subject to an Administrative Approval as provided in the Chino Zoning Ordinance and in compliance with Section 20.11.040.B.29 of the Zoning Ordinance. (Includes facilities which do not require the construction/installation of any structures). i. Public infrastructure facilities including but not limited to those necessary for; drainage and flood control including the retention or detention of flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public safety or health.	convenience foods and specialty foods). Alcoholic beverage sales in conjunction with and incidental to eating places may be permitted subject to approval of a Special Conditional use Permit and in compliance with Section 20.11.040.B.22 of the Zoning Ordinance. c. Sporting and Recreational Camps. d. Trailer Parks and Campsites. e. RV Storage above the 566' Dam Inundation Elevation. f. Athletic Fields (For commercial uses, only. Does not include those provided as part of a public park). g. Regulation Golf Courses (includes incidental retail activities supporting golf course operations, such as pro shops and eating establishments). h. Live entertainment incidental to and in conjunction with another permitted or conditionally permitted use. i. Skating rinks. j. Sports and Recreation Centers (private and commercial facilities). k. Tennis and swimming clubs. l. Employer provided on-site daycare. m. Utility stations and associated equipment buildings. n. Apiaries.	field, trees & nursery crops produced on site.	

***Table 4.9-a*: OPEN SPACE USES (Cont.)**

Open Space Designations	Intended Character	Allowable Land Uses	Uses Subject to Conditional Use Permit	Administratively Permitted/Incidental Uses	Prohibited Uses
			o. Cemeteries		
Open Space-Natural (OS-N)	The Open Space-Natural Land Use Designation is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats. This designation also permits the use of open space areas for crop farming, passive outdoor recreational uses and other low intensity recreational uses in some instances.	a. Conservation Area (wildlife/natural habitats and sanctuaries and habitat enhancement areas). b. Trails. c. Commercial row, field, tree and nursery crops cultivation in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance is permitted for: 1. Land currently under cultivation 2. Land that has been under cultivation within the previous five years. 3. Lands that have been used for agricultural uses other than cultivation within the previous five years (e.g. dairies, livestock raising, etc.) d. Continuation of grazing on kinds where grazing has occurred within the previous 5 years. Areas where grazing has not occurred within the previous 5 years require an Administrative Approval must also comply with any applicable requirements or standards of the Resource Management Plan. e. Public infrastructure facilities including but not limited to those necessary for: drainage and flood control, including the retention or detention of	a. Low intensity public parks and passive recreation uses provided that they do not negatively impact biological resources. b. Interpretive facilities and outdoor exhibits. c. Limited access roads servicing permitted facilities. d. Expansions of commercial row, field, tree and nursery crops cultivation, in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance, if such expansion does not meet any of the conditions specified in section OSN2(c), above. Such expansion must also comply with any applicable requirements or standard of the Resource Management Plan. e. Public recreational facilities owned or controlled by a public agency. Examples of such facilities include but are not limited to: historic and monument sites; recreational or organizational camps; botanical gardens and arboretums; hunting and fishing clubs. Development shall be subject to criteria listed below: 1.) The use of herbicides to control or kill vegetation is not	a. As allowed by the GS Zone Section 20.11.030 of the Zoning Ordinance. b. Administratively permitted agricultural uses referenced under Section OSN 2.	a. Expansions or new diaries, calf nurseries, and other similar intense animal uses. b. Cemeteries. c. Athletic fields. d. Auditoriums, Stadiums, and other similar facilities. e. Golf Courses and miniature golf. f. Tennis and swimming clubs. g. All off-road vehicles and motorcycles.

***Table 4.9-a*: OPEN SPACE USES (Cont.)**

Open Space Designations	Intended Character	Allowable Land Uses	Uses Subject to Conditional Use Permit	Administratively Permitted/Incidental Uses	Prohibited Uses
		flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public safety or health.	permitted. 2.) Landscaping plans should minimize any impact on existing native species especially those species that are of high biological value. In addition, restorative landscaping should incorporate indigenous plant materials as a means of mitigating visual impacts associated with the construction of new buildings. 3.) Buildings, structures and improvements should incorporate designs in which scale, mass, and height respect the undisturbed character of the area. Designs should follow existing topography, blend in with the natural landscape and otherwise minimize their visual prominence. f. Expansions to the Prado Regional Park facility in areas adjacent to the developed or improved portions of the facility. Such expansion must also comply with any applicable requirements or standards of the Resource Management Plan.		

In addition to the land use designations, The Chino Preserve Specific Plan also established other planned uses on and in the vicinity of the project site. As shown on Figure 4.9-2, the Chino Preserve Specific Plan planned for future wetland sites. The graphic does not represent an exact location of the wetland sites. Instead, the graphic documents the intent to establish wetlands in those general vicinities. The site designated "8" is located very close to the proposed de-silting basin and the site designated "7" is located very close to the proposed wetland/extended detention ponds.

The Chino Preserve Specific Plan also includes a Bicycle Plan and Equestrian Plan that identify future trails and connections. The graphics, which are included as Figures 4.9-3 and 4.9-4 (Figures 13 and 14 from The Chino Preserve Specific Plan) provide the conceptual location of these trails and connections.

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan. These proposed land uses are consistent with the allowable land uses established for each of the land use designations on the project site. Furthermore, the Demonstration Project is consistent with the conceptual wetlands locations, bicycle plan, and equestrian plan that are included in The Chino Preserve Specific Plan.

Figure 4.9-1
Land Classification Plan

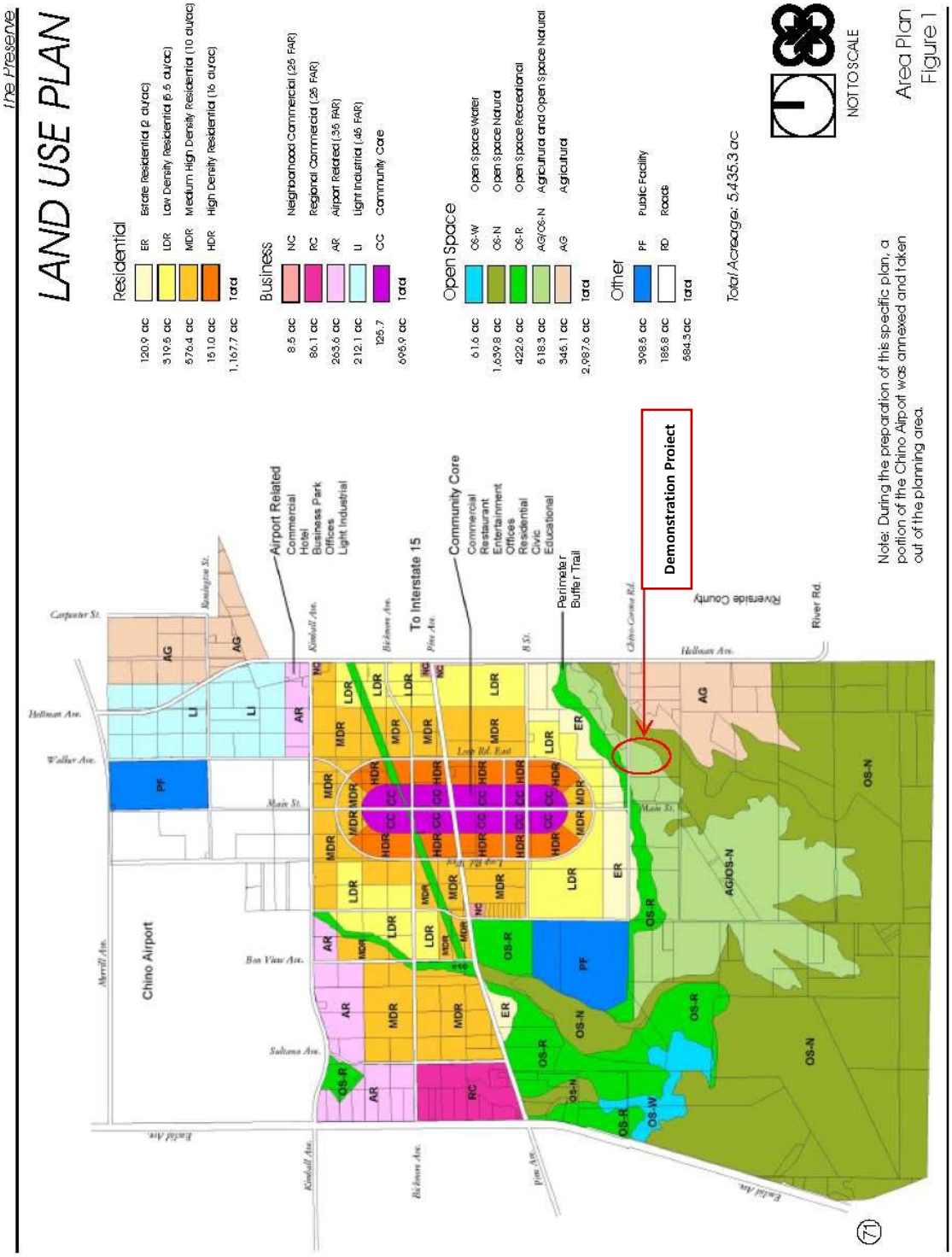
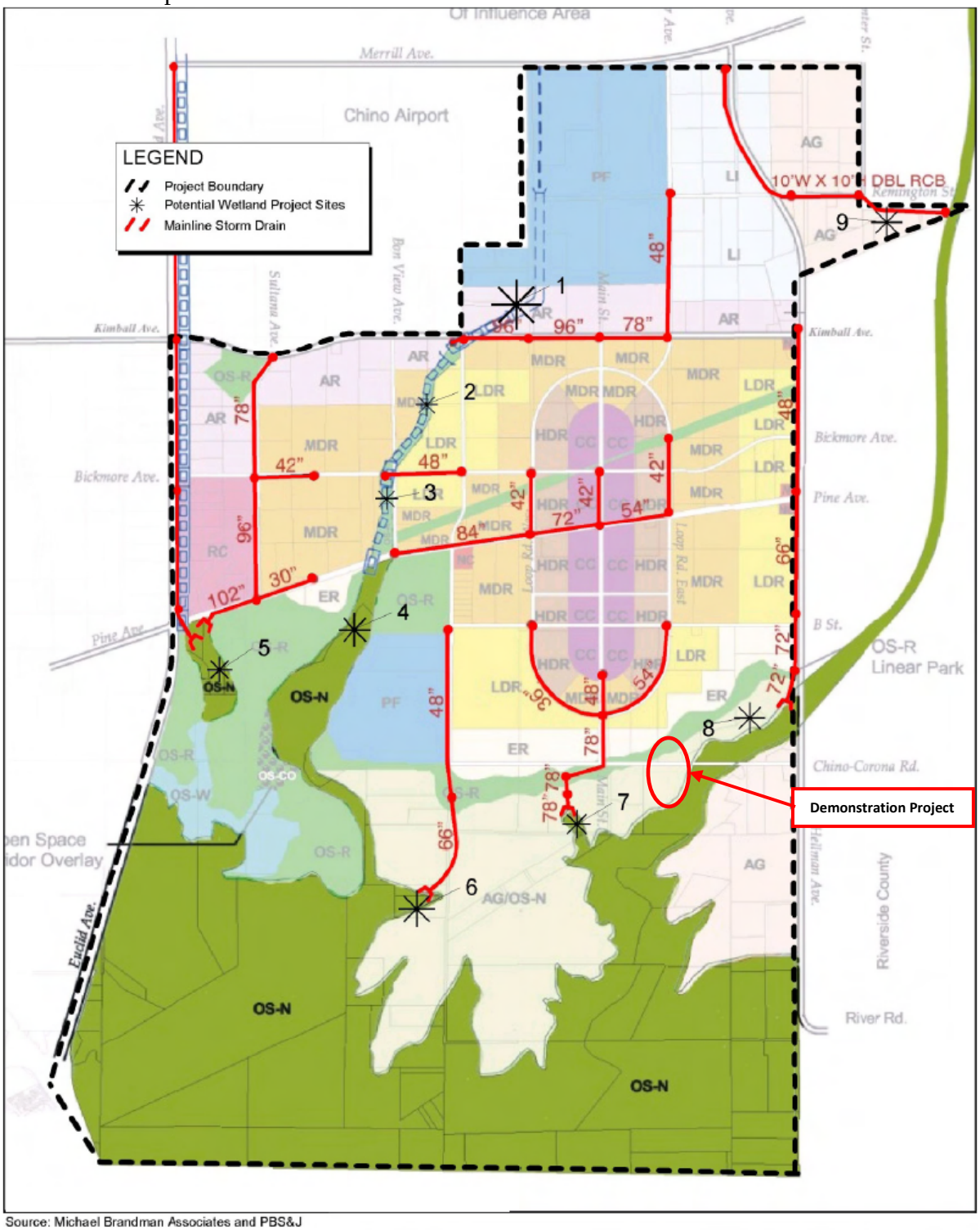


Figure 4.9-2
Land Use – Proposed Wetland Sites



Source: Michael Brandman Associates and PBS&J

Figure 4.9-3
The Chino Preserve Specific Plan – Bicycle Plan

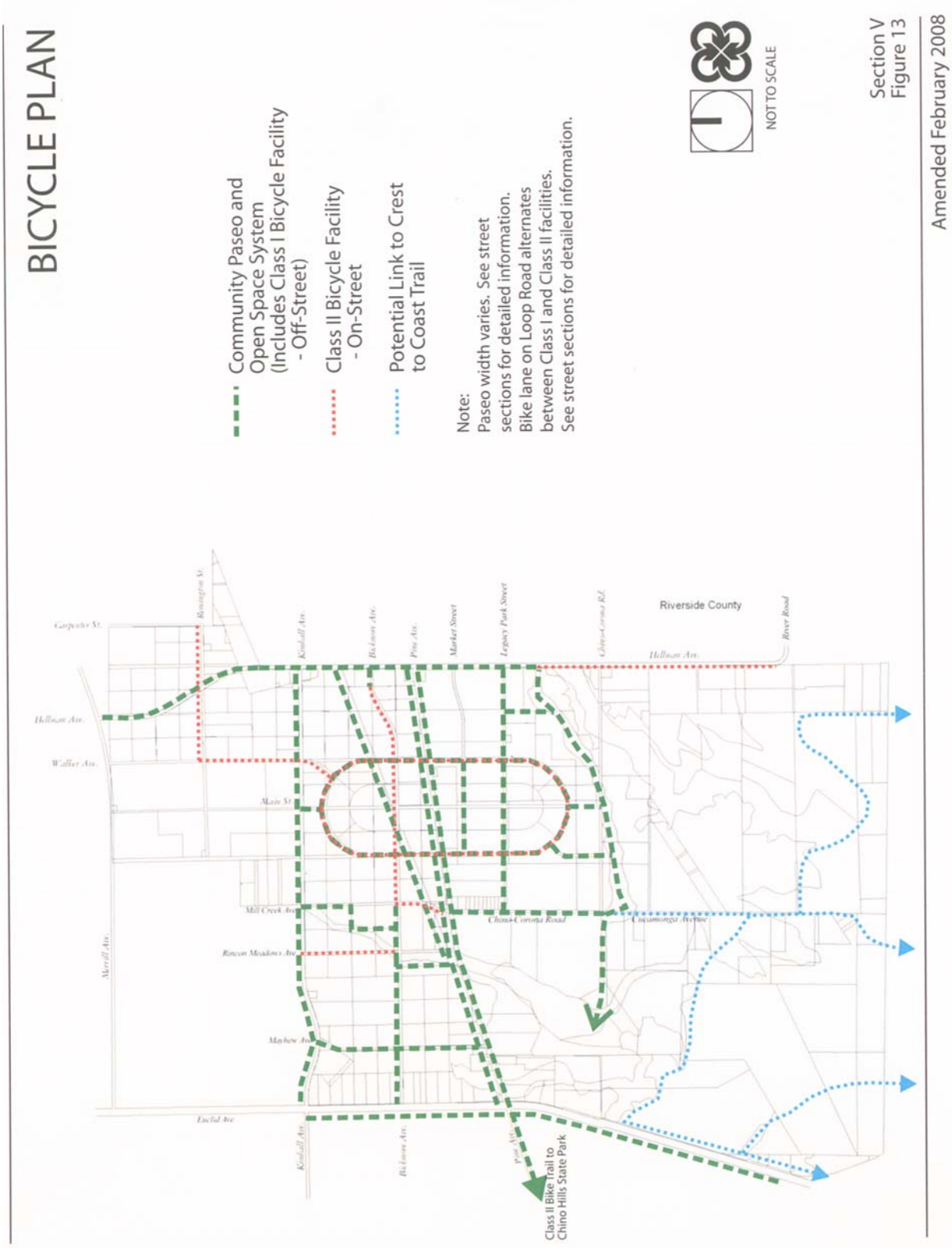
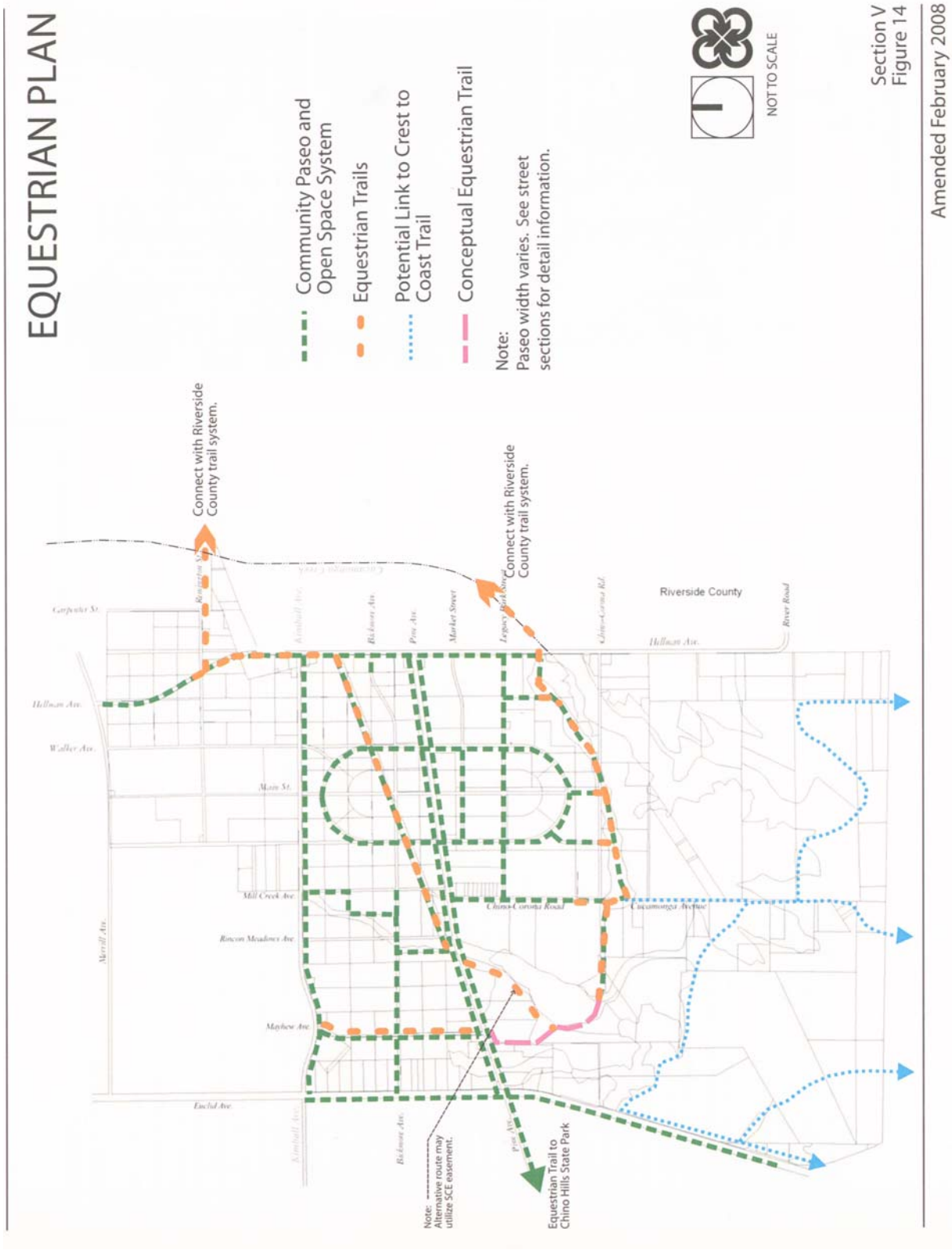


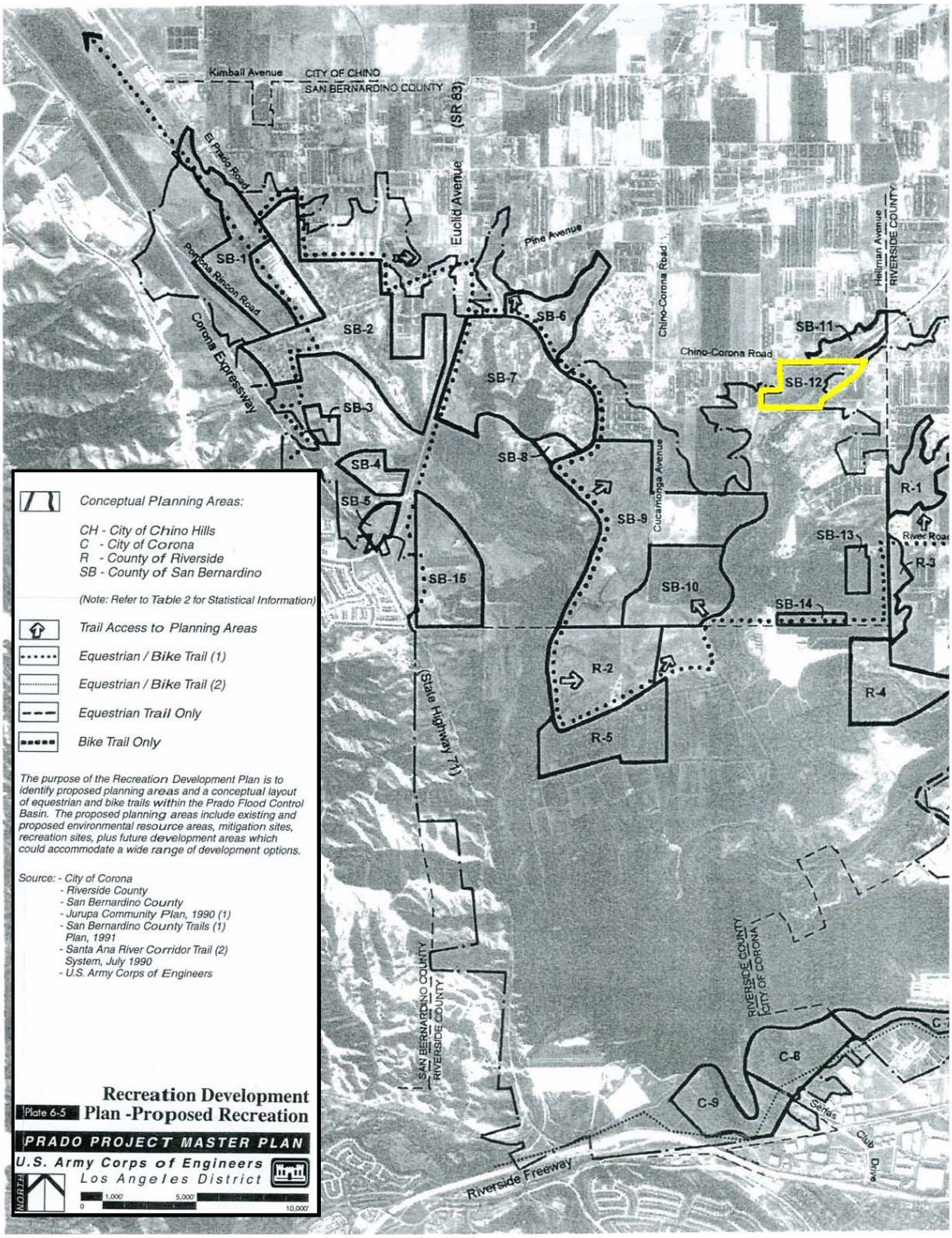
Figure 4.9-4
The Chino Preserve Specific Plan – Equestrian Plan



4.9.4 Prado Basin Master Plan

The USACE Prado Basin Master Plan includes a Land Classification Plan for the Prado Basin that classifies the portion of the project site south of Chino Corona Road as "Proposed Recreation Development" (Figure 4.9-5). This area includes land currently leased to San Bernardino County Regional Parks Department, as well as private ownerships subject to acquired flood easements. The Proposed Recreation Development classification includes areas designated for future recreation development consistent with multiple resource management objectives. The land adjacent to the east of the project site is designated as an "Extreme Resource Area". Areas of high biological sensitivity within the Mill Creek floodways are included within this extreme resource area. These areas are located to the east of the project site and include critical habitat areas identified as suitable only for extremely low intensity use, which will not be affected or disturbed by this project. As a result, the Demonstration Project is consistent with the Prado Basin Master Plan.

Figure 4.9-5
Prado Basin Master Plan – Proposed Recreation Development



4.9.5 Prado Dam

The Demonstration Project is located within the highwater inundation limits created by the approved raising of the Prado Dam and spillway. The highwater inundation limits affect properties falling below an elevation of 566 feet MSL. The USACE has determined that appropriate land uses within the inundation area shall not adversely affect the area's flood capacity or facilities. Property below the elevation of 566 feet MSL must be reserved in an open manner to provide for conveyance of the design flood. Furthermore, land uses within the highwater inundation area cannot reduce the storage capacity behind Prado Dam at any elevation.

The Demonstration Project proposes land uses that are consistent with the requirements of the highwater inundation limits established for Prado Dam. Furthermore, the Demonstration Project proposes to create wetland and extended detention ponds that require the excavation of approximately 900,000 cubic yards of material. This excavation will increase the flood storage capacity behind Prado Dam.

4.9.6 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Land Use and Planning	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Physically divide an established community?	☐	☐	☐	☑

Land Use and Planning	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☑	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

a) Would the project physically divide an established community?

Prado Basin provides many benefits, both locally and regionally, including water conservation benefits through the recharge of the groundwater water aquifer and preservation of native habitat for endangered species. Through joint planning with local and regional agencies, recreational and community opportunities have grown and continue to be planned. One notable success is the development of the Prado Regional Park by San Bernardino County Parks and Recreation Department which continues to explore opportunities with local, regional, state and federal partnerships to open the Prado Basin for recreational, community, habitat restoration, and educational opportunities.

The USACE recently initiated a Feasibility Study to evaluate habitat enhancement and recreation opportunities, as well as improvements to water quality, over a 300-acre area within Prado Basin. Detailed elements include identification of potential locations for habitat restoration along Mill Creek and Chino Creek, expansion of the recreational components of the Prado Regional Park, expansion of the regional trail system within the local communities as well as the Coast to Crest inter-county trail system, and opportunities to create natural water quality treatment ponds.

In an effort to evaluate more detailed design concepts for the Feasibility Study, the City of Ontario, as project sponsor, has taken the lead in conjunction with the USACE to develop and implement the proposed Demonstration Project. In addition to the City of Ontario, the City of Chino, The County of San Bernardino, the Inland Empire Utilities Agencies (IEUA), the Orange County Water District (OCWD), and the USACE all support the Demonstration Project.

Therefore, the Demonstration Project will not divide the existing community. No impacts are anticipated.

The Demonstration Project is primarily located on land owned by the USACE. However, portions of the de-silting basin and outlet channel cross privately owned land. Therefore, the following mitigation measure is included to reduce potential impacts associated with land ownership conflicts to a less than significant level.

LND1: Land Ownership

a. **Prior to grading, the project applicant shall obtain either an easement or fee ownership of the private land necessary to construct the de-silting basin and outlet channel.**
b. **Prior to grading, the project applicant shall obtain a lease or easement from the U.S. Army Corps of Engineers authorizing construction of the Demonstration Project on USACE land.**

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The Demonstration Project is located primarily on land owned by the USACE and a portion of the de-silting basin and outlet are located on private land. The Demonstration Project falls entirely within the boundaries of the City of Chino, more specifically within The Chino Preserve Specific Plan (2003). Although projects on Federal Land are not subject to local land use regulations, the Demonstration Project was analyzed for consistency with the City of Chino's land use regulations, which consist of The Chino Preserve Specific Plan. Additionally, the Demonstration Project is located within the Prado Basin and subject to the USACE Prado Basin Master Plan.

The Chino Preserve Specific Plan designates the project site as Open Space-Recreation (OS-R), Agriculture/Open Space-Natural (AG/OS-N) and Open Space-Natural (OS-N). Each of three land use designations permits as allowable uses; trails, wildlife / natural habitats, and public infrastructure facilities to reduce water runoff pollutants. Therefore, the Demonstration Project includes uses consistent with the three land use designations.

The Chino Preserve Specific Plan also includes plans for future wetland sites, and bicycle and equestrian trails. The proposed Demonstration Project is consistent with these plans.

The USACE Prado Basin Master Plan includes a Land Classification Plan for the Prado Basin that classifies the portion of the Project site south of Chino Corona Road as "Proposed Recreation Development." The proposed Demonstration Project is consistent with this classification. Additionally, the project site is located within the highwater inundation limits created by the approved raising of the Prado Dam and spillway. The proposed uses associated with the Demonstration Project are consistent with the highwater inundation limits. Furthermore, the Demonstration Project is consistent with the requirement that land uses within the highwater inundation area cannot reduce the storage capacity behind Prado Dam at any elevation.

Therefore, the Demonstration Project is consistent with adopted plans and policies, and the potential impacts are considered less than significant.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

The Demonstration Project site is not subject to a habitat conservation plan or natural community conservation plan. Therefore, no impacts are anticipated.

4.10 MINERAL RESOURCES

This chapter analyzes the potential impacts to mineral resources associated with the Demonstration Project.

4.10.1 Background

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires classification of land into Mineral Resource Zones (MRZs). This is done in accordance to the known or inferred mineral potential of the area. The primary goal of the mineral land classification is to ensure that the mineral potential of the land is recognized by local government decision-makers and considered before making land use decisions that could preclude mining. The four zones are as follows:

MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2 are areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ-3 are areas containing mineral deposits, the significance of which cannot be evaluated.

MRZ-4 are areas where available information is inadequate for assignment to any other MRZ zone.

4.10.2 Potential Impacts

The California Division of Mines and Geology performed a mineral land classification on the San Bernardino Valley area. The City of Chino is located within the Claremont-Upland Production-Consumption (P-C) Region of the greater Los Angeles Metropolitan area. It is located within two Mineral Resource Zones: MRZ-1 and MRZ-3. MRZ-1 is an area in which information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. The rocks located in this zone are unsuitable for aggregate. Mineral deposits in MRZ-3 cannot be evaluated from existing data.

The City of Chino General Plan designates the project site as OS-R, OS-N and AG/OS-N. These classifications prohibit any mining activity on the land and therefore any known mineral resource (sand and gravel) in the area is of no value to the region and residents of

the state. The City of Chino General Plan land use designations compliment the MRZ-1 and MRZ-3 zones for land use. The aggregate is of no value, and therefore potential impacts are less than significant.

4.10.3 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Mineral Resources	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☑	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☑	☐

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The proposed Demonstration Project is not located within a significant State-classified mineral resource zone. Furthermore, due to the zoning of the project site, mining activities are precluded. Therefore, potential impacts to mineral resources are less than significant.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Please see the response to a) above.

4.11 NOISE

This chapter analyzes the potential noise impacts associated with the Demonstration Project.

4.11.1 Measurement of Sound

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel," abbreviated dBA.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence and the resultant fluctuations. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the effective perceived noise levels.

4.11.2 The Basis of Noise Criteria

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. This criteria is based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance.

Each of these potential noise impacts on people are briefly discussed in the following narratives:

HEARING LOSS is not a concern in community noise situations of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

SPEECH INTERFERENCE is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

SLEEP INTERFERENCE is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

PHYSIOLOGICAL RESPONSES are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are sign of harm.

ANNOYANCE is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

The description, analysis and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response.

Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies. The A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of sounds from distant sources that create a relatively steady background noise in which no particular source is identifiable. For this type of noise, a single descriptor called the Leq (or equivalent sound level) is used. Leq is the energy-mean A-weighted sound level during a measured time interval. It is the ‘equivalent’ constant sound level that would have to be produced by a given source to equal the average of the fluctuating level measured.

For most acoustical studies, the study interval is generally taken as one-hour and is abbreviated Leq-h; however, other time intervals are utilized depending on the jurisdictional preference. To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. They are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of a stated time. Sound levels associated with the L10 typically describe transient or short-term events, while levels associated with the L90 describe the steady state (or most prevalent) noise conditions. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum and minimum measured sound level (Lmax and Lmin) indicators. The Lmin value obtained for a particular monitoring location is often called the acoustic floor for that location. Finally, a sound measure employed by the State of California (and adopted by the County of Riverside) is known as the Community Noise Equivalence Level (or CNEL) is defined as the "A" weighted average sound level for a 24-hour day. It is calculated by adding a 5-decibel penalty to sound levels in the evening (7:00 p.m. to 10:00 p.m.), and a 10-decibel penalty to sound levels in the night (10:00 p.m. to 7:00 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours.

4.11.3 Existing Conditions

The Demonstration Project is located in a rural setting dominated by agricultural uses. The zoning on the project site includes AG/OS-N (Agricultural and Open Space Natural), and OS-N (Open Space Natural) and OS-R (Open Space Recreation). Ambient noise sources include agricultural activities, road noise from Chino Corona Road, and aircraft noise from nearby Chino Airport and Ontario International Airport.

Noise measurements were conducted in April 2000 for The Chino Preserve Master Plan EIR. Table 4.11-a is an excerpt from The Chino Preserve Master Plan EIR that generally describes the noise environment.

Table 4.11-a: ON-SITE NOISE MONITORING SURVEY

	LEQ	***LMax***	***LMin***	***L10***	***L50***	***L90***
Correctional Institution for Women	*68*	*75*	*49*	*72*	*58*	*50*
Kimball Avenue/Sultana	*66*	*82*	*50*	*68*	*62*	*56*
Bickmore/Grove	*64*	*80*	*50*	*62*	*54*	*52*
Pine/Hellman	*58*	*74*	*50*	*64*	*52*	*49*

Source: Larsen-Davis Labs Model 700B Noise Dosimeter; April 25, 2000, 1430-1635 (20 minutes/site)

The noise measurements were conducted in April, 2000. Although close to two years has passed since the measurements were taken, no substantial growth has occurred during that time that would have measurably changed the existing noise environment. Noise is logarithmically proportional to source activity (cars, airplanes, etc.). A clearly perceptible noise increase for humans is around +3 dB. It requires a doubling of noise generators to create a +3 dB increase. There

> *has been no development activity that would have caused such a doubling since the noise data were taken.*

Since April 2000, there has been very little development activity in the area. Definitely not a doubling of the noise generators, which is the threshold suggested by The Chino Preserve Master Plan EIR to create a perceptible increase in noise. Even though the data from The Chino Preserve Master Plan EIR are old, they confirm that the existing noise environment is a rural, agricultural setting with relatively low ambient noise levels.

4.11.4 Regulatory Setting

The City of Chino General Plan classifies construction noise as a stationary source and defers the impact thresholds to the City's Noise Ordinance found in City of Chino Municipal Code Section 9.40. The City's noise ordinance, permitted by the State of California Health and Safety Code, provides a basis for controlling excessive and annoying noise from stationary sources such as construction activity, industrial plants, pumps, compressors, refrigeration units, etc. The ordinance provides specific standards to be applied for various land uses for both daytime and nighttime hours, prohibits certain noise sources, and describes the manner in which the noise standards are to be enforced.

The City of Chino Noise Ordinance applies to certain designated noise zones within the City as detailed in Section 9.40.030 'Designated Noise Zones':

> *The properties hereinafter described are assigned to the following noise zones:*
> *Noise Zone I: All single-, double- and multiple-family residential properties.*
> *Noise Zone II: All commercial properties.*
> *Noise Zone III: All manufacturing or industrial properties. (Ord 95-10 § 1 (part), 1995.)*

The City of Chino Noise Ordinance, Municipal Code Section 9.40.060(D) 'Special provisions', states,

> *D. Noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided said activities do not take place outside the hours for construction as defined in Section 15.44.030 of this code, and provided the noise standard of sixty-five dBA plus the limits specified in Section 9.40.040(B) as measured on residential property and any vibration created does not endanger the public health, welfare and safety.*

The applicable hours of operation from Section 15.44.030 are,

> *A. Construction shall occur only between the hours of seven a.m. and eight p.m. Monday through Saturday, with no construction allowed on Sundays and Federal holidays. For the purposes of this section, construction shall mean any manmade*

change to improved or unimproved real estate, including but not limited to buildings or other structures, streets and other paving, utilities, filling, grading, excavation, mining, dredging, drilling operations, or pile driving.

B. The director of community development may approve exceptions to the hours of construction noted in subsection A of this section, provided that the change in hours does not adversely impact the adjacent neighborhood. (Ord. 2004-23 § 58, 2004.)

4.11.5 Construction Noise Impacts

Temporary demolition and construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used, which changes during the course of the project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. As shown in Table 4.11-b heavy equipment noise can exceed 90 dB(A) and averages about 85 dB(A) at 50 feet from the source when the equipment is operating at typical loads. Most heavy equipment operates with varying load cycles over any extended period of time. The upper end of the noise generation range shown in Table 4.11-b represents short-term effects, while the longer-term averages are most representative of the lower end of the indicated noise curves.

Table 4.11-b: Maximum Noise Levels of Common Construction Machinery

Noise Source	Noise level (dBA) /a/	
	50 Feet	100 Feet
Paving Breaker	82	76
Jackhammer	82	76
Steamroller	83	77
Street Paver	80	74
Backhoe	83	77
Street Compressor	67	61
Front-End Loader	79	73
Street Cleaner	70	64
Idling Haul Truck	72	66
Cement Mixer	72	66

/a/ Assumes a 6 dBA drop-of rate for noise generated by a "point source" and traveling over hard surfaces. Actual measured noise levels of the equipment listed in this table were taken at distances of 10 feet and 30 feet from the source.
SOURCE: Cowan, James P., 1994. Handbook of Environmental Acoustics, p. 230.

Construction noise sources are not strictly relatable to a 24-hour community noise standard because they occur only during selected times and the source strength varies sharply with time. Construction activities are also treated separately in the City noise ordinances because they do not represent a chronic, permanent noise source.

The Demonstration Project is not located in one of the designated noise zones established by Section 9.40.030. Therefore the construction noise limits established in Section 9.40.060(D) 'Special provisions' do not apply. However, to abate the potential nuisance from construction noise, the City of Chino Noise Ordinance Section 15.44.030 limits the hours of construction activities from 7:00 a.m. to 8:00 p.m. on Monday through Saturday and no construction on Sundays and Federal holidays. Normally, most construction activities end around 3:30 p.m. with very limited Saturday work. Compliance with the City's ordinance confining activities to hours of least noise sensitivity and reasonable source/receiver separation results in a less than significant construction activity noise impact.

4.11.6 Operational Noise Impacts

The Demonstration Project has the potential to generate operational noise from two sources. One source is from additional traffic generated by the hikers and equestrians using the trail system included in the Recreation Plan. The other potential source of operational noise includes maintenance activities. The de-silting basin will be actively maintained annually and will rely on machinery to remove silt and debris. The ponds and trail will also be maintained, however the majority of this maintenance will be performed by hand or small equipment.

The Traffic Study (Section 4.15 and Appendix L) projects an increase of 128 average daily vehicle trips associated with trail users. That increase includes 5 additional AM peak hour trips and 10 PM peak hour trips. The increase in vehicle trips is so minor that there will not be a perceptible increase in noise. One parking lot with eight spaces is included in this project design, with an additional five space parking lot planned for the future. The use of these parking lots will again generate a minor amount of additional noise, but not a perceptible increase.

Maintenance of the de-silting basin will require the use of heavy machinery to remove silt and debris. Most likely a rubber tire front loader or similar type of equipment will be used. Maintenance of the basin is expected annually and will last a few days. The infrequent and short duration of maintenance of the de-silting basin results in a temporary noise event. Furthermore, front loaders or similar type of equipment are routinely used on the surrounding dairies and farmland. Therefore, maintenance of the de-silting basin will not produce a substantial, prolonged noise event.

Maintenance of the ponds and trail system will be primarily conducted by hand and small equipment, similar to landscape maintenance of other parks or commercial sites. This type of noise event is common and does not create a significant impact.

4.11.7 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Noise	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in: a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐

Noise	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project site to excessive noise levels?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project site to excessive noise levels?	☐	☐	☐	☑

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The City of Chino's Noise Ordinance is found in Section 9.40 of the City's Municipal Code. The Noise Ordinance applies to designated noise zones, which include residential, commercial and manufacturing zones. The Demonstration Project is located in agricultural and open space zones. Therefore, the Demonstration Project is not located in one of the designated noise zones established by Section 9.40.030 and not subject to the City's adopted noise thresholds. Therefore, the potential impacts are considered less than significant.

Even though no impacts are anticipated, in order to minimize potential noise impacts from construction activities, the following mitigation measure has been incorporated.

NOI1: Construction Noise

a. **Construction shall occur only between the hours of seven a.m. and eight p.m. Monday through Saturday, with no construction allowed on Sundays and Federal holidays. Construction shall mean any manmade change to improved or unimproved real estate, including but not limited to buildings or**

other structures, streets and other paving, utilities, filling, grading, excavation, mining, dredging, drilling operations, or pile driving.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction of the Demonstration Project requires grading approximately 1.1 million cubic yards of dirt. The grading will be performed by standard grading equipment, such as scrapers, dozers, and excavators, which do not generate substantial groundborne vibration or noise. No blasting will be required. Therefore, construction of the Demonstration Project will not create excessive groundborne vibration or noise levels, which is considered less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan. Recreational trail users and maintenance activities are the two sources of operational noise associated with the Demonstration Project. The Native Habitat Plan does not generate noise. The Traffic Study projects that the Demonstration Project will generate an additional 128 average daily vehicle trips for the recreational uses. This number of daily trips is not enough to cause a perceptible change in the noise environment. Furthermore, the maintenance activities will only occur a couple of times per year. Due to its infrequency and short duration, the maintenance activities will also not create a perceptible change to the noise environment. Therefore, less than significant impacts are associated with operational noise.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Please see the response to Question c) above.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project site to excessive noise levels?

The Demonstration Project is located within approximately 1.8 miles of the Chino Municipal Airport. However, no people will reside or work on the project site. Therefore, no impacts will occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project site to excessive noise levels?

Please see the response to Question e) above.

4.12 POPULATION AND HOUSING

This chapter analyzes the potential impacts from the Demonstration Project on Population and Housing.

4.12.1 Background

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan. No housing or other structures are proposed as part of the Demonstration Project. Periodic maintenance of the Demonstration Project will be conducted by the City of Ontario.

The Demonstration Project is located within the boundaries of The Chino Preserve Specific Plan. The Chino Preserve Specific Plan, adopted by the City of Chino in 2003, covers an area of approximately 5,435 acres of former dairy and agricultural lands. The Chino Preserve Specific Plan provides the framework for the development of a dynamic and diverse community that includes a mixture of residential neighborhoods focused around a community core and regional commercial center, and interconnected with a multi-purpose open space feature by a series of paseos and trails.

The Chino Preserve Specific Plan designates the project site as Open Space-Recreation (OS-R), Agriculture/Open Space-Natural (AG/OS-N) and Open Space-Natural (OS-N). Future development on the project site consisting of housing or employment is not permitted by the current General Plan and Zoning designations.

4.12.2 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Population and Housing	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☑	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Demonstration Project does not include any residential or commercial land uses. Therefore, there would not be a direct increase in population or employment. Furthermore, the General Plan land use designations and zoning do not permit residential or commercial development on the project site.

The Demonstration Project is located within The Chino Preserve Specific Plan, which provides for new housing and commercial development. The Chino Preserve Specific Plan was approved by the City of Chino in 2003. Therefore, the Demonstration Project is not related to the approval of new housing or commercial development on The Chino Preserve.

The Demonstration Project includes a Water Quality Plan, which is a regional natural treatment system. A portion of the storm flow from surrounding development in the Cucamonga Creek watershed will be diverted to the de-silting basin and wetland/extended detention ponds. The Demonstration Project will provide water quality benefits to existing and approved development that discharge storm flows into Cucamonga / Mill Creek.

Therefore, the potential impacts associated with population growing are considered less than significant.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

The project site is currently vacant. No housing or commercial development exists on the project site. Therefore, no impacts will occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Please see the response to question (b).

4.13 PUBLIC SERVICES

This chapter analyzes the potential impacts to from the Demonstration Project on Public Services.

4.13.1 Background

Table 4.13-a summarizes the key service providers in the area.

Table 4.13-a: Key Service Providers

Category of Service	Provider
Transportation:	
• Freeways and interchanges……..	Caltrans
• Arterials and collectors……	City of Chino
• Local Roads…….	City of Chino
• Signalized Intersections……...	City of Chino
Fire and Paramedic……...	Chino Valley Independent Fire District
Police……	City of Chino
General Facilities…….	City of Chino
Domestic Water……	City of Chino
Recycled Water……	Inland Empire Utilities Agency (IEUA)
Wastewater……	IEUA
Flood Control and Drainage:	
• Local Facilities……..	City of Chino
• Cucamonga Creek (lined)…….	County of San Bernardino Flood Control
• Mill Creek (natural)……..	US Army Corps of Engineers
Parks and Recreation:	
• Local Facilities……..	City of Chino
• Regional Facilities……	County of San Bernardino Parks Division
Libraries……	San Bernardino County Library System
Schools……..	Chino Valley Unified School District
Utilities:	
• Cable…….	Adelphia Communications
• Electricity……..	Southern California Edison
• Telephone…….	Verizon
• Gas…….	The Gas Company
• Solid Waste Disposal……	Waste Management

Source: The Chino Preserve Specific Plan Final EIR

4.13.2 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Public Services	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: • Fire protection? • Police protection? • Schools? • Parks? • Other public facilities?	☐	☑	☐	☐

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- *Fire protection?*
- *Police protection?*
- *Schools?*
- *Parks?*
- *Other public facilities?*

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan. No housing or commercial development is part of the Demonstration Project. Therefore, the Demonstration Project will not result in the need for new governmental facilities, schools, parks, libraries, or other public facilities.

The Demonstration Project could create an increase for police and fire services. The trail system included as part of the Recreation Plan may increase the demand for police and fire services as a result of medical aide calls or public safety issues. The anticipated frequency for both services is very low. The Demonstration Project includes eight parking spaces in the current design with an additional five spaces planned for the future. Additional trail users will also arrive by bicycle, foot, or horse. However, the total number of trail users at any one time will be relatively low. Therefore, the increased demand is considered less than significant.

The demand for police and fire could rise if the facility were open past dark. No night lighting will be provided on the trail system. Therefore, darkness could lead to accidents resulting in medical aide calls. Darkness can also lead to public safety concerns. Therefore, implementation of the following mitigation measure will reduce potential impacts to public services to a less than significant level.

PUB1: Fire and Police Protection

a. **The trail system associated with the Demonstration Project shall only be open from dawn to dusk. Signage and/or a locking gate shall serve as notice to visitors of the operating hours of the park.**

In the event of an emergency on the project site, the trail system would provide sufficient access for emergency personnel. The trail is a 16-foot wide trail with all-weather surface designed to also accommodate maintenance vehicles. The trails provide access around the perimeter of all of the ponds. Additionally, each pond has an access ramp to the bottom of the pond for maintenance purposes. This access ramp could also be used in cases of emergency. Therefore, potential impacts associated with emergency access are considered less than significant.

4.14 RECREATION

This chapter analyzes the potential recreation impacts associated with the Demonstration Project.

4.14.1 Background

The USACE Feasibility Study will evaluate opportunities to expand recreational facilities within the Prado Basin. Therefore, the first priority of the Demonstration Project is recreation. The Prado Basin currently provides recreation opportunities through parks, such as the Prado Regional Park, community trails, and inter-county trail systems with one example being the Coast to Crest Trail. The Demonstration Project Recreation Plan proposes to enhance the existing recreation facilities by providing additional active and passive recreation opportunities in the Prado Basin.

The Recreation Plan, shown as Figure 4.14-1, includes active recreation opportunities in the Prado Basin by the construction of 3.3 additional miles of hiking and equestrian trails. The trails will be constructed of decomposed granite and form a looped trail system around vegetated ponds. The new trail system will also connect to City of Chino Urban Buffer and will provide future trail connections for the inter-county trail system noted above.

The Recreation Plan also contains passive recreation opportunities in the Prado Basin by providing vista and wildlife viewing locations and interpretive signage. The proposed trail system will include benches in locations that offer vistas of the wetland ponds and the surrounding environment. Planting around the benches will provide shade and aesthetics without blocking views. The surrounding native plantings and open water wetlands will attract numerous wildlife species, offering excellent wildlife viewing opportunities.

Interpretive signage will be located at the trailheads as well as throughout the trail system. The interpretive signage will provide park users with a better understanding of the history of the area; local wildlife that might be viewed; information on native vegetation, including plant communities and individual species; and an explanation on water quality and natural treatment systems.

The Recreation Plan identifies two new parking lots for use of the trail system. The primary parking lot for hikers and pedestrians is located off of Chino Corona Road. A secondary, future parking lot designed to accommodate horse trailers is located off of Comet Avenue on the west side of the Demonstration Project. No lighting is planned on the trail system around the ponds; however, the parking lots may include minimal safety lighting. The trailheads from both parking lots will be equipped with locking gates and signage that indicates the trails close at dusk.

Figure 4.14-1
Demonstration Project Recreation Plan

Safety fencing around the ponds is included as part of the Recreation Plan. The fencing will occur on slopes with a gradient of 3:1 or steeper only. No fencing is required on slopes with a gradient of 4:1 or flatter. Fencing will be a minimum of 48-inches high and located downslope from the trail and screened by vegetation. As the vegetation matures, the fencing in areas with a gradient of 3:1 or steeper may be superseded by vegetation provided the type, density, and height of the vegetation is sufficient to deter human access.

4.14.2 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Recreation	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☑	☐

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The Demonstration Project would increase recreation facilities in the area, providing approximately 3.3 additional miles of trails. The Demonstration Project also provides passive recreation opportunities through information kiosks and wildlife viewing areas. Therefore, no impact is expected.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and a Water Quality Plan. The potential environmental impacts associated with construction of the Demonstration Project, including the Recreation Plan, is the subject of this environmental analysis. Construction of the Demonstration Project has the potential to create significant environmental impacts, however implementation of the mitigation measures identified in this report reduce those potential impacts to less than significant. Please see the other sections of this report for details.

4.15 TRANSPORTATION/TRAFFIC

This chapter analyzes the potential transportation/traffic impacts associated with the Demonstration Project.

4.15.1 Background

Linscott, Law & Greenspan, Engineers (LLG) prepared a Trip Generation Analysis and Traffic Assessment for the Demonstration Project, which is included as Appendix L. The trip generation analysis was prepared to determine if a traffic study is required based on the requirements of the City of Chino and the criteria outlined in the current Congestion Management Program (CMP) for San Bernardino County. The traffic assessment was prepared to determine the potential impacts associated with the temporary closure of Chino Corona Road between Comet Avenue and Cucamonga Creek during construction operations.

4.15.2 Trip Generation

LLG estimated the daily and peak hour trip generation associated with the Recreation Plan based on the data from the San Diego Association of Governments (SANDAG). The handbook, *San Diego Traffic Generators* published by SANDAG includes trip generation factors for various land uses. The most appropriate land use category for the Demonstration Project is Open Space – Recreation Regional – Developed. The daily two-way generation for this category is 20 trips per acre. The developed space associated with the Demonstration Project constitutes the 3.3 miles of trails. The trail system is approximately 16 feet wide, resulting in 6.4 acres of trails. Therefore, the daily two-way trip generation is 128 trips. Table 4.15-a summarizes the trip generation for the Demonstration Project.

Table 4.15-a: Project Traffic Generation Forecast

Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Open-Space Recreation Regional – Developed (TE/ACRE)	20.00	0.40	0.40	0.80	0.80	0.80	1.60
Mill Creek Wetlands (6.4 acres – developed)	128	3	2	5	5	5	10

Source: LLG, 2008

Based on the prior analysis, the Demonstration Project is forecast to generate approximately 128 daily trips, with 5 trips in the AM peak hour and 10 trips in the PM peak hour. LLG concluded that since the Demonstration Project generates less than 50 peak hour trips, the Demonstration Project is not likely to impact surrounding

intersections. Furthermore, a traffic impact analysis is not required for projects with less than 50 peak hour trips according to the San Bernardino County CMP.

4.15.3 Traffic Assessment

The Demonstration Project requires the closure of Chino Corona Road between Comet Avenue and Cucamonga Creek. The road closure is necessary to haul material from south of Chino Corona Road to north of Chino Corona Road as part of the grading of the wetland/extended detention ponds. Therefore, the Traffic Assessment analyzes the potential impacts from this road closure on the following four key study intersections:

1. Chino-Corona Road (N/S) at Pine Avenue
2. Hellman Avenue at Pine Avenue/Schleisman Road
3. Chino-Corona Road (N/S) / Cucamonga Avenue at Chino-Corona Road (E/W)
4. Hellman Avenue at Chino-Corona Road (E/W)/Chandler Street

The traffic assessment was conducted in accordance with the City of Chino, City of Ontario and the San Bernardino County CMP requirements. Signalized and unsignalized intersections were evaluated using the Highway Capacity Manual 2000 (HCM 2000) methodology.

According to the City of Chino, LOS “D” is the minimum acceptable condition during peak hours. Therefore, any intersection operating at LOS “E” and “F” is considered deficient and unsatisfactory. The CMP definition of deficiency is based on maintaining a level of service standard of LOS “E” or better, except where an existing LOS “F” condition is identified in the CMP document.

Figure 4.15-1 summarizes the results of the Traffic Assessment. The first summary column provides the level of service of the existing conditions. As shown in this table, the intersection of Hellman Avenue at Pine Avenue/Schleisman Road operates at a LOS “F” in the AM and LOS “E” in the PM. Both peak hours are currently operating at a deficient level of service.

The second summary column provides the level of service with the temporary closure of Chino Corona Road and re-routing of traffic. In this condition the intersection of Hellman Avenue at Pine Avenue/Schleisman Road continues to operate deficiently, with both the AM and PM operating at LOS “F.”

As shown in the forth summary column, the intersection of Hellman Avenue at Pine Avenue/Schleisman Road will operate at LOS “C” during the AM peak hour and LOS “A” during the PM peak hour with implementation of the recommended improvements.

In response to City of Chino staff’s concerns, the Traffic Assessment analyzed stacking/storage requirements at the intersection of Hellman Avenue at Pine

Avenue/Schleisman Road with a particular emphasis on the northbound and eastbound movements. At signalized intersections the storage length for left-turn and right-turn lanes is based on one and one-half times the average number of vehicles that would store during the cycle. Therefore, the Traffic Assessment determined that the minimum storage equals 1.5 times the average queue length multiplied by the average car length of 25 feet (Minimum required storage = Q_{av} x 1.5 x 25 feet). Figure 4.15-2 summarizes the queuing evaluation. The minimum storage length requirement for left-turn and right-turn lanes on each approach is 150 feet. However, the eastbound right-turn lane on Pine Avenue and the northbound left-turn land on Hellman requires a minimum pocket length of 350 feet.

Figure 4.15-1
Traffic Assessment Summary

CHINO-CORONA ROAD TEMPORARY CLOSURE INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersections	Time Period	(1) Existing Traffic Conditions[6]			(2) Existing Traffic Conditions With Chino-Corona Road Temporary Closure[7]			(3) Significant Impact	(4) With Recommended Temporary Improvements		
		Delay	V/C	LOS	Delay	V/C	LOS	Yes/No	Delay	V/C	LOS
1. Chino-Corona Road (N/S) at Pine Avenue	AM	25.9 s/v	0.551	C	15.3 s/v	0.583	B	No	--	--	--
	PM	17.1 s/v	0.581	B	41.1 s/v	0.852	D	No	--	--	--
2. Hellman Avenue at Pine Avenue/Schleisman Road	AM	**96.2** s/v	--	**F**	**171.2** s/v	--	**F**	**Yes**	22.9 s/v	0.819	C[8]
	PM	**44.6** s/v	--	**E**	**52.5** s/v	--	**F**	**Yes**	9.1 s/v	0.532	C
3. Chino-Corona Road (N/S) at Chino-Corona Road (E/W)	AM	9.4 s/v	--	A	6.9 s/v	--	A	No	--	--	--
	PM	18.4 s/v	--	C	6.6 s/v	--	A	No	--	--	--
4. Hellman Avenue at Chino-Corona Rd (E/W)/Chandler St	AM	21.1 s/v	--	C	12.2 s/v	--	B	No	--	--	--
	PM	21.2 s/v	--	C	12.0 s/v	--	B	No	--	--	--

Notes:
s/v = seconds per vehicle (delay).
Bold HCM/LOS values indicate adverse service levels based on LOS standards

6 Intersection volumes and lane geometrics are from the *South of Pine Avenue (Tentative Tract Map No. 16420) External Evaluation Traffic Impact Analysis*, prepared by LLG, dated January 21, 2008.

7 Represents anticipated intersection operating conditions with the temporary closure of Chino-Corona Road between Comet Avenue and Cucamonga Creek (local access only).

8 Improvements at this key study intersection include the following:
- Add an exclusive northbound left-turn lane, southbound left-turn lane, eastbound left-turn lane and westbound left-turn lane.
- Install two-phase traffic signal.

Figure 4.15-2
Queuing Evaluation Summary

INTERSECTION QUEUING ANALYSIS

Key Intersection	AM Peak Hour			PM Peak Hour		
	Average Queue (Vehicles)	Max. Queue (Vehicles)[9]	Minimum Required Storage (ft.)[10]	Average Queue (Vehicles)	Max. Queue (Vehicles)[7]	Minimum Required Storage (ft.)[8]
2) Hellman Ave at Pine Ave/Schleisman Rd						
Left-turn Lane						
• NB Left-Turn	9 vehicles	14 vehicles	***350 feet***	3 vehicles	5 vehicles	150 feet
• SB Left-Turn	0 vehicles	0 vehicles	150 feet	0 vehicles	0 vehicles	150 feet
• EB Left-Turn	0 vehicles	0 vehicles	150 feet	0 vehicles	0 vehicles	150 feet
• WB Left-Turn	0 vehicles	0 vehicles	150 feet	0 vehicles	0 vehicles	150 feet
Right-turn Lane						
• NB Right-Turn	--	--	--	--	--	--
• SB Right-Turn	0 vehicles	0 vehicles	150 feet	0 vehicles	0 vehicles	150 feet
• EB Right-Turn	2 vehicles	3 vehicles	150 feet	9 vehicles	14 vehicles	***350 feet***
• WB Right -Turn	0 vehicles	0 vehicles	150 feet	0 vehicles	0 vehicles	150 feet

9 Minimum required left-turn lane storage length in feet (ft) is calculated by multiplying the *Average Queue* by a factor of 1.5 and an average car length of 25 feet.

10 Minimum pocket length is 150 feet on all Arterial streets. The minimum pocket length on all other streets is 100 feet.

4.15.4 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Transportation/Traffic	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☑	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☑	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑

Transportation/Traffic	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☑	☐	☐
e) Result in inadequate emergency access?	☐	☐	☑	☐
f) Result in inadequate parking capacity?	☐	☐	☐	☑

Transportation/Traffic	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

The Trip Generation associated with the Recreation Plan is forecast to generate approximately 128 daily trips, with 5 trips in the AM peak hour and 10 trips in the PM peak hour. Since the Demonstration Project generates less than 50 peak hour trips, the Demonstration Project is not likely to impact surrounding intersections. Furthermore, a traffic impact analysis is not required for projects with less than 50 peak hour trips according to the San Bernardino County CMP.

The Demonstration Project does however, require the closure of Chino Corona Road between Comet Avenue and Cucamonga Creek. Four key intersections were studied. The intersection of Hellman Avenue at Pine Avenue/Schleisman Road is currently operating at LOS E/F, which is considered deficient. With the closure of Chino Corona Road, the level of service at that intersection would worsen to LOS F/F, also considered deficient. However, with implementation of the following improvements, the intersection of Hellman Avenue at Pine Avenue/Schleisman Road would operate at LOS C/A, thereby reducing the potentially significant impact to a less than significant level.

TRF 1: Road Closure

a. **Prior to the closure of Chino Corona Road, the following improvements shall be made at the intersection of Hellman Avenue at Pine Avenue/Schleisman Road.**

a.1 Restripe the northbound, southbound, eastbound, and westbound approaches to provide separate left-turn lanes on Hellman Avenue and Pine Avenue/Schleisman Road.

a.2 Each left-turn should have 150-feet of storage (minimum) and 90-foot transitions, with the exception of the northbound left-turn lane, which will require 350-feet of storage. In addition, the existing eastbound right-turn lane on Pine Avenue will require 350-feet of storage.

a.3 Install a temporary traffic signal with two-phase operation. The temporary installation of a traffic signal at Hellman Avenue and Pine Avenue/Schleisman Road, and associated signing and striping modifications, is subject to the approval of the City of Chino.

b) Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Please see the response to question (a).

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan. None of these components would change air traffic patterns. No impacts are anticipated.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Demonstration Project requires the closure of Chino Corona Road between Comet Avenue and Cucamonga Creek. The potential exists for the closure of this road to create a hazardous condition. Motorists could become lost or possibly drive into the road closure area and not have sufficient space to turn-around. Therefore, the following mitigation measure is included to reduce the potential impacts to a less than significant level.

TRF2: Road Closure

a. Prior to the closure of Chino Corona Road, a Construction Traffic Diversion Plan shall be submitted to the City of Chino for approval. The Construction Traffic Diversion Plan shall show the recommended locations for barricades, signage, and other safety devices to divert area vehicles around the road closure consistent with the Conceptual Traffic Control Plan included in the Traffic Assessment prepared by Linscott, Law, and Greenspan dated November 26, 2008. Furthermore, the Construction Traffic Diversion Plan shall include a turnaround area at either end of the road closure.

e) Would the project result in inadequate emergency access?

The closure of Chino Corona Road is temporary and will only last during construction operations. During the closure of Chino Corona Road emergency access will re-route around the closure, which will not result in a significant impact. Following construction, Chino Corona Road will reopen. The Demonstration Project does not result in any long-term changes to Chino Corona Road or Comet Avenue. Therefore, potential impacts to emergency access are considered less than significant.

f) Would the project result in inadequate parking capacity?

The proposed parking adequately meets current projected demand. As development occurs in the surrounding area, opportunities will become available for trail users to use alternative forms of transportation, such as bicycles, to reach the trail system. No impacts are anticipated.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The Demonstration Project includes a Recreation Plan that provides approximately 3.3 miles of additional hiking, biking, and equestrian trails, which supports the plans and policies of alternative transportation. No impacts are anticipated.

4.16 UTILITIES

This chapter analyzes the potential impacts to utilities from the Demonstration Project.

4.16.1 Background

Several utilities can be found the area of the Demonstration Project that not only services the surrounding residences and businesses, but the region as well. On the Demonstration Project site, a 66 kilovolt (kV) electrical line operated by Southern California Edison extends south from Chino Corona Road to the southern boundary of the project site before heading west. This alignment of the 66 kV lines bisects proposed wetland Ponds 1 and 3. Other wet and dry utilities exist in Chino Corona Road, which separates the diversion structure and de-silting basin to the north from the wetland and extended detention ponds to the south. The Demonstration Project includes a storm drainage conveyance pipe that will cross Chino Corona Road connecting the de-silting basin with the wetland ponds.

4.16.2 Findings

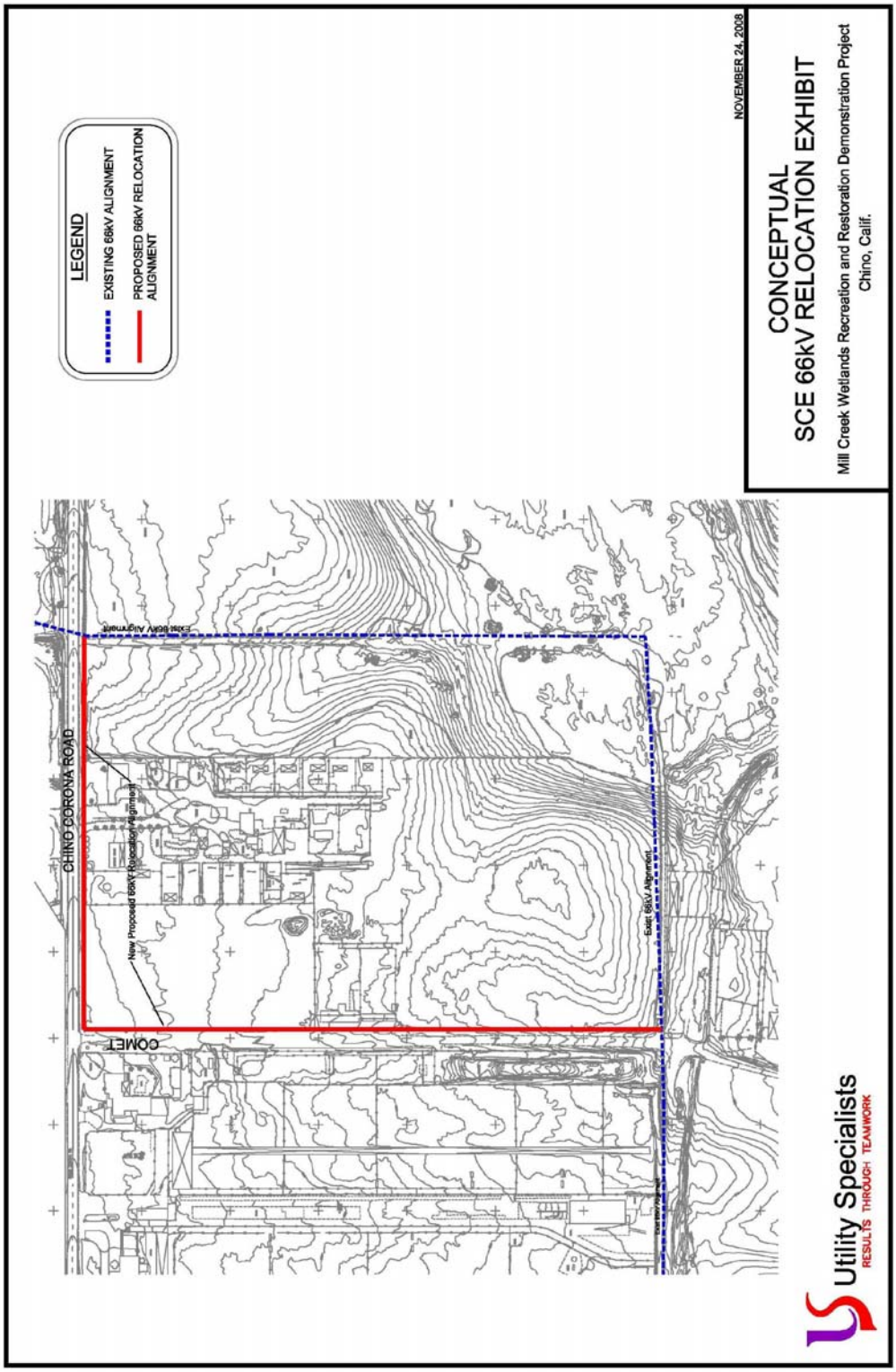
The Demonstration Project includes a Recreation Plan, Native Habitat Plan, and Water Quality Plan, for which future energy demand is minimal. Future electrical demand may consist of running the irrigation system unless a solar system is installed. The Water Quality Plan is designed to operate by gravity; therefore no pumps are required. The system includes manually operated sluice gates. It is possible that an emergency shut-off system could be tied to a float. Should the water level rise to unsafe levels, the float would activate closure of the diversion structure. Should a float system be used, a minor incremental increase in electrical demand would occur. The Demonstration Project does not create a demand for natural gas or other dry utilities.

Construction and operation of the Demonstration Project will cause a minor increase in water use. Water is required for the grading of the Demonstration Project to reduce dust. This increase in water demand is temporary. Additionally, irrigation of the Native Habitat will increase water demand. Temporary irrigation is necessary to establish the plant material in all planting zones. The temporary irrigation could last for two to five years depending on plant establishment. The vegetation around the trail system will include permanent irrigation. However, the plant palette includes native drought tolerant vegetation. Therefore, future water demand should be minimal.

Existing 66kv electrical transmission lines traverse the eastern portion of the project site. The location of these lines conflicts with the proposed construction of Ponds 1 and 3. Therefore, the Demonstration Project includes a plan to reroute the power lines. The existing 66 kV power lines will be re-routed on existing power poles to follow an alignment that extends from the project site west along Chino Corona Road to Comet

Avenue; and south on Comet Avenue to connect back to the existing power line alignment. The current pole height of approximately 40 feet will remain. Figure 4.16-1 depicts the existing and proposed alignment of the 66kV line.

Figure 4.16-1
Transmission Line Relocation



4.16.3 Environmental Checklist and Responses

The following is the environmental checklist from Appendix G of the CEQA Guidelines and corresponding responses.

Utilities	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☑	☐	☐

Utilities	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☑	☐

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The Demonstration Project includes a Water Quality Plan, which is designed as a regional natural storm water treatment system. Storm water will be diverted from Cucamonga Creek through the diversion structure, which conveys flows to the de-silting basin. The de-silting basin causes the flows to drop sediment, trash, and other gross solids. From the de-silting basin, the flows enter a wetland/extended detention pond where ultraviolet radiation and wetland vegetation combine to remove various pollutants. The flow is then conveyed back into Mill Creek through the outlet. The demonstrable increase in water quality is consistent with the Regional Water Quality Control Board objectives. Therefore, no impact is anticipated.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The Demonstration Project will not increase the demand on wastewater treatment facilities because no restroom facilities will be provided as part of the project. The demand for water will be minor and not require the construction of new facilities. Water demand includes temporary construction water and irrigation. Permanent irrigation of native drought tolerant vegetation will cause a minor increase in water demand. The demand is not sufficient to warrant the construction of new facilities. Therefore, less than significant impacts are anticipated.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The Demonstration Project results in a minor increase in impervious or semi-impervious surface associated with the construction of two parking lots, one with eight parking spaces and a future lot with five spaces. However, the Demonstration Project provides additional capacity for storm water as part of the Water Quality Master Plan. Therefore, the Demonstration Project will not create a need for new storm water drainage facilities. Less than significant impacts are anticipated.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Please see the response to question (b).

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Please see the response to question (b).

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The solid waste disposal needs associated with the Demonstration Project are minimal. The Recreation Plan will include trash receptacles for trail users. However, the amount of trash generated by the trail system is de minimis. Clearing of the de-silting basin and trash removal in the wetland ponds will also generate solid waste, which can sufficiently be served by the El Sobrante Landfill. Finally, vegetation removal could occur as part of the maintenance of the trails and wetland/extended detention ponds. The vegetation removal could be recycled as green waste. Therefore, potential impacts associated with solid waste generation are considered less than significant.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The City of Chino currently implements a recycling program designed to comply with Assembly Bill 939. The Demonstration Project will not generate enough solid waste to impacts the City's compliance with AB 939. One source of solid waste from the project site will be green waste from maintenance of the vegetation. The following mitigation measure encourages recycling of the green waste from the project site. With implementation of this measure, potential impacts will be reduced to less than significant.

UTI1: Waste Management

a. Green waste generated from the maintenance of the vegetated areas shall be taken to a green waste recycling facility to the maximum extent practical instead of placement in the landfill.

4.17 GREENHOUSE GAS / GLOBAL WARMING

This chapter analyzes the potential impacts from the Demonstration Project on Greenhouse Gas emissions and Global Warming.

4.17.1 Background

Although Global Warming and the associated greenhouse gas effects are not explicitly defined under CEQA and yet to have any defined set of significance standards, Section 15382 of the California Environmental Quality Act (CEQA) guidelines defines a significant impact as,

> *"… a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."*

Furthermore, the California State Legislature passed the California Global Warming Solutions Act of 2006 (Assembly Bill 32, or AB 32) which requires the California Air Resources Board (CARB) to develop regulations and market mechanisms that will ultimately reduce California's greenhouse gas emissions by 25 percent by 2020.

Mandatory caps will begin in 2012 for significant sources and ratchet down to meet the 2020 goals. Specifically, AB 32 requires CARB to:

1) Establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008.
2) Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2009.

3) Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions.

4) Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas, including provisions for using both market mechanisms and alternative compliance mechanisms.

5) Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise CARB.

6) Ensure public notice and opportunity for comment for all CARB actions.

7) Prior to imposing any mandates or authorizing market mechanisms, CARB must evaluate several factors, including but not limited to, impacts on California's economy, the environment and public health; equity between regulated entities; electricity reliability; conformance with other environmental laws; and that the rules do not disproportionately impact low-income communities.

Therefore, given the broad nature of the Section 15382 and the passage of AB 32, the topic of greenhouse gas emissions and global warming warrants analysis pursuant to CEQA. As such, a Greenhouse Gas/Global Warming Risk Assessment was prepared by Investigative Science and Engineering Inc. and included as Appendix M. The purpose of the analysis is to quantify the aggregate greenhouse gas emissions due to the proposed project action as well as quantify the net heating effect to the State of California.

4.17.2 Methodology

Greenhouse gas emissions associated with diesel engine combustion from mass grading construction equipment will be assumed to occur for engines running at the correct fuel to air ratios. Of principal interest are the emission factors for CO_2 and NOx. For a four-stroke diesel-cycle engine, the combustion byproducts are approximately 1.5-percent-by-volume O_2, 0.5-percent-by-volume CO, and 13.5-percent-by-volume CO_2. Thus, the ratio of CO_2 to CO production in a property mixed diesel stroke would be 13.5/0.5 to 27:1.

To address the potential greenhouse gas emissions and global warming potential of the project per AB 32, the entire State of California was modeled as a thermodynamically closed system, subject only to increasing CO_2 concentrations and their equivalents (denoted as CO_{2e}). This approach creates a type of Urban Heat Island dependant only on CO_2 whereby the effective temperature increase on the State due to the proposed project action can be quantified using the methodology identified in the U.N.'s Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

4.17.3 Findings

Construction equipment used to grade the Demonstration Project constitutes the primary source of greenhouse gas emissions, namely CO_2. Based on construction vehicle emission levels, the Demonstration Project has an equivalent CO_2 level (denoted as CO_{2e}) of 5,633,994.6 pounds over the construction period. This represents the projected greenhouse gas emission budget for the project.

By modeling the State of California as a thermodynamically closed system and assuming all of the CO_{2e} mixes within the Troposphere, the Demonstration Project will cause an increase of 0.00029708 ppmv of CO_{2e}. Based on methodology established by the IPCC,

the Demonstration Project will cause a temperature increase of 4.1826×10^{-7} ^{o}C. This temperature increase is infinitesimal and considered less than significant.

4.17.4 Conclusions

The proposed Demonstration Project will cause a temperature increase of 4.1826×10^{-7} ^{o}C due to the release of greenhouse gas emissions. While there are no adopted thresholds of significance pursuant to CEQA, this increase in temperature is considered infinitesimal and less than significant. Pursuant to policies established under AB 32, the following measures are included as a means of further reducing greenhouse gas emissions and further minimizing adverse effects on global warming.

GLO1: Greenhouse Emissions

- **a. To the extent feasible, the Grading Contractor shall follow the following diesel equipment offset strategies:**
  - **a.1 Use electricity from power poles rather than temporary diesel power generators.**
  - **a.2 Construction equipment operating onsite should be equipped with two to four degree engine timing retard or precombustion chamber engines.**
  - **a.3 Construction equipment used for the project should utilize EPA Tier 3 or better engine technology.**

- **b. To the extent feasible, the Grading Contractor shall implement the following strategies for construction worker commutes.**
  - **b.1 Encourage commute alternatives by informing contractors and construction workers about transportation options for reaching your location (i.e. post transit schedules/routes).**
  - **b.2 Help employees rideshare by posting commuter ride sign-up sheets, employee home zip code map, etc.**
  - **b.3 When possible, arrange for a single vendor/supplier who makes deliveries for several items.**
  - **b.4 Keep vehicles well maintained to prevent leaks and minimize emissions, and encourage employees to do the same.**

4.18 MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

This Expanded Initial Study analyzed the proposed Demonstration Project's potential impacts on the environment, including biological and cultural resources. The analysis concluded that with mitigation, impacts to biological resources are less than significant. The Demonstration Project will not substantially reduce habitat for wildlife species. Instead, the Demonstration Project will result in a net gain of native habitat that supports the foraging and nesting of the endangered least Bell's vireo. Furthermore, with mitigation, the Demonstration Project will not eliminate examples of California's history. A thorough study of potential sites was conducted for the project site and mitigation is included to ensure that no impacts occur to the one site that has the potential to reveal more of California's history.

Therefore, the potential impacts associated with the Demonstration Project are considered less than significant with mitigation.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

This Expanded Initial Study analyzed the potential for the Demonstration Project to result in cumulatively considerable impacts. The analysis concluded that all of the potential impacts associated with the proposed Demonstration Project are less than significant with mitigation for both individual and cumulative impacts.

Therefore, the Demonstration Project's potentially cumulatively considerable impacts are considered less than significant with mitigation.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Direct impacts on human beings can include impacts such as; health impacts due to toxic air emissions; loss of hearing due to noise impacts; dangerous conditions that could affect public safety; injury due to building collapse or flooding; and health impacts due to the release of hazardous materials. All of these potential conditions and other potential impacts directly effecting humans were analyzed in the Expanded Initial Study. The Demonstration Project does not include any buildings or structures, therefore, there is no

risk associated with the collapse of a building. The Demonstration Project does not include any long-term operations of equipment; therefore there is no risk of toxic air emissions or loss of hearing due to noise impacts. The facility will be closed and locked at night to minimize potential risks to public safety. The flow through the wetland will be constant, with a residence time of 3 to 6 days, thereby minimizing mosquito breeding and health risks associated with West Nile Virus or other disease. Finally, measures have been including to minimize any potential impacts during construction associated with the release of toxic chemicals or hazardous materials.

Based on the information contained in the Expanded Initial Study potential direct impacts on human beings is considered less than significant with mitigation.

5.0 CONSULTATION

During preparation of this Expanded Initial Study / Negative Declaration, the following agencies were consulted.

- City of Ontario
- City of Chino
- U.S. Army Corps of Engineers
- Regional Water Quality Control Board
- County of San Bernardino Parks Department
- Orange County Water District
- Inland Empire Utility Agencies
- City of Chino Fire Department
- City of Chino Police Department
- California Department of Fish and Game