Sepulveda Basin
Wildlife Park

Final Concept Plan

Design Narrative

Final Draft

Prepared for:
Department of the Army, Corps of Engineers

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1.0 Introduction

1.0 INTRODUCTION

1.1 Project Location

The Sepulveda Basin Wildlife Park is located in the southeast corner of the Sepulveda Flood Control Basin, within the City limits of Los Angeles, California, in the San Fernando Valley. The Sepulveda Flood Control Basin, a total of 2,130 acres, is owned by the United States Army Corps of Engineers (COE), with the majority of land leased to the City of Los Angeles, Department of Recreation and Parks (LADRP) for recreational uses. The Sepulveda Basin Wildlife Park, approximately 273 acres, is bordered by the Tillman Water Reclamation Project and Woodley Avenue Park to the north, the San Diego Freeway (405) and the Sepulveda Dam to the east, the Sepulveda Dam and the Los Angeles River to the south, and Woodley Creek to the west. Refer to Exhibit 1 - Project Location.

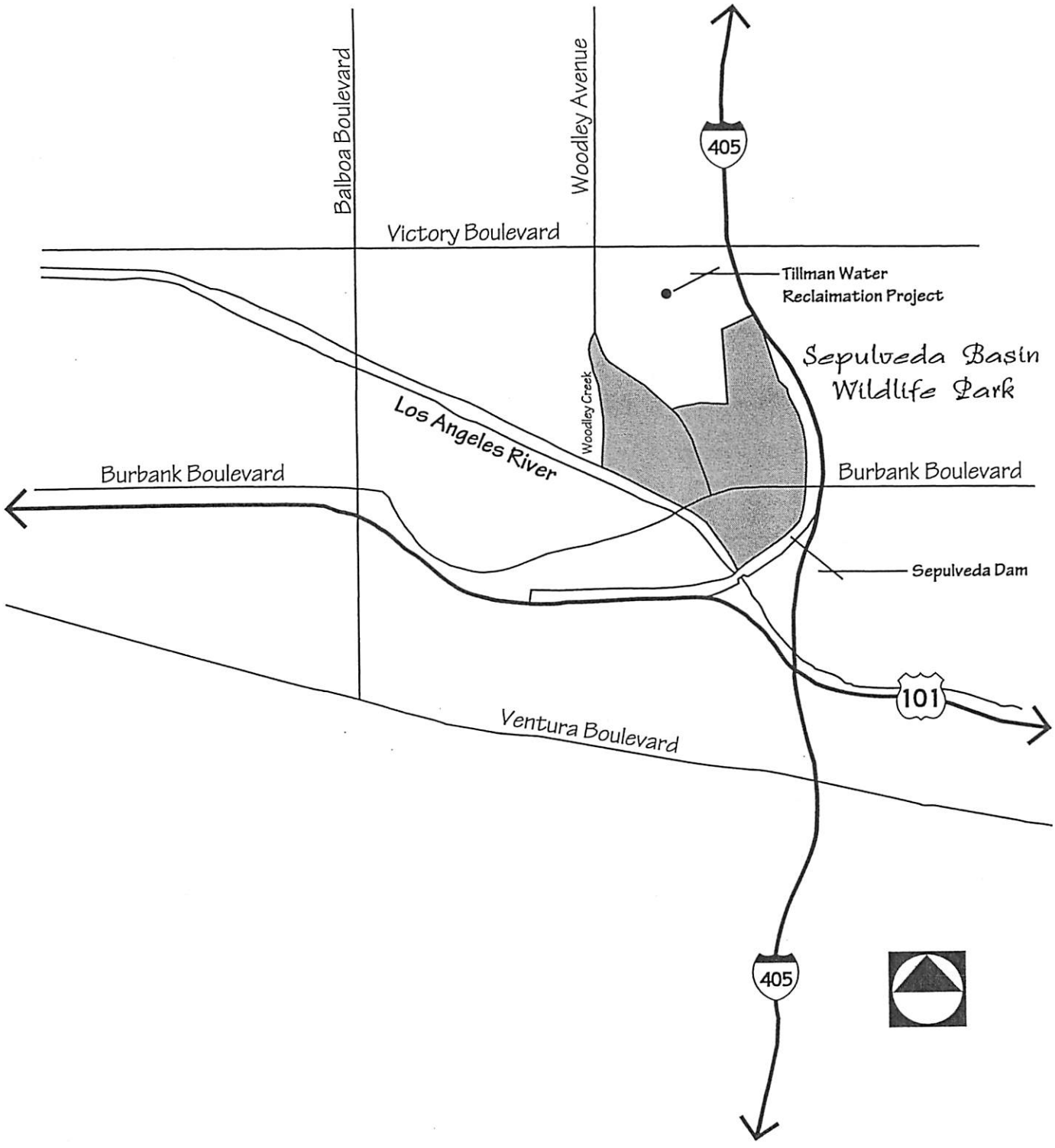
1.2 Purpose

The purpose of the Final Concept Plan is to outline the future improvements to the Sepulveda Basin Wildlife Park that include passive recreation and wildlife habitat revegetation. The Final Concept Plan, is base in part on and provides an update to the Conceptual Management Plan, dated March 1994, prepared by the Chambers Group. The Chambers Group report was based on a 108 acre park. Subsequent to the Chambers Group report, approximately 165 acres was added to the Wildlife Park. The additional pieces include Haskell Creek (approximately 7 acres), the area between Woodley Avenue and Woodley Creek (approximately 90 acres), the area between Woodley Avenue and Haskell Creek (approximately 46 acres) and an area between the Wildlife Lake and the Archery Range (approximately 22 acres).

1.3 Design Process

The design process incorporated a public participation program which included a series of public meetings. EDAW worked with COE, the City of Los Angeles DRP, the Sepulveda Wildlife Park Steering Committee and the general public throughout the design process. At the public meetings, EDAW worked with representatives from the local chapters of the Audubon Society, the California Native Plants Society, the Green Party, the Sierra Club, the Coalition to Save Sepulveda Basin and other concerned citizens.

A revegetation plan was developed in consultation with Martha Blane and Associates, Habitat Restorationist and incorporated into the design.



Project Location

Exhibit 1

Several alternatives were initially presented to the steering committee and in public workshops, issues discussed, comments were collected and incorporated into a Draft Concept Plan. The Draft Concept Plan was presented at a public meeting. Based on the comments from the public meeting, management considerations, and construction costs, a Final Concept Plan was developed and approved by COE.

1.4 Goals

The following goals were developed to guide the planning, design and development of the Sepulveda Basin Wildlife Park.

- Increase the diversity of native habitat within the Wildlife Park.
- Provide foraging resources for a diversity of wildlife.
- Improve the passive recreation experiences for all age groups and levels of knowledge such that they are compatible with the wildlife and habitat.
- Base all improvements on sustainable design principles.
- Provide an interactive interpretative program that would increase public understanding and knowledge of the Sepulveda Basin, the Wildlife Park, the native habitats, and the wildlife species.
- Provide a high quality, barrier-free (meeting ADA goals and guidelines), recreational, educational experience for visitors.

1.5 Area Designations

For the purpose of this report, the different portions of the Sepulveda Basin Wildlife Park has been designated and will be referred to as the following :

- West Area (between Woodley Avenue and Los Angeles River)
- Middle Area (between Woodley and the west edge of Haskell Creek)
- Haskell Creek (between the entry drive and the Los Angeles River)
- East Area (between the east edge of Haskell Creek and the San Diego Freeway)
- North Area (from the existing fence up to Archery Range)

- South Area (south of Burbank Boulevard)

Refer to Exhibit 2 - Conceptual Master Plan for area designations.

2.0 Existing Conditions & Analysis

2.0 EXISTING CONDITIONS AND ANALYSIS

2.1 Park Elements

2.1.1 Park Entrance and Parking Lot

The existing access to the park is from Woodley Avenue. The entrance access road is shared with the Tillman Water Reclamation Project (TWRP) and the Woodley Avenue Park. There is an existing parking lot located at the terminus of the road and it contains approximately 75 parking spaces. The existing access road may need to be expanded and a turn-around to accommodate bus traffic would be needed.

2.1.2 Wildlife Lake and Haskell Creek

The Wildlife Lake is a 10-acre man-made lake in the East Area. The lake features a one-acre island that provides a secure waterfowl refuge. Haskell Creek runs between the East Area and the Middle Area and through the South Area. Both water elements are supplied by the Tillman Water Reclamation Project. Refer to section 2.4 - Hydrology for more information. The Wildlife Lake and Haskell Creek provide both important habitats, opportunities for bird watching and visual amenities.

2.1.3 Trails

The North/East Area trail begins at the parking lot and provides access to four viewing areas located along the west side of the lake.

The South Area has a combination of hiking/maintenance trails, some that are disconnected. Ad-hoc temporary crossings, over the southern section of Haskell Creek, are created by park users to provide access to the western side of the South Area. These crossings are an existing safety hazard and create maintenance problems. The installation of a permanent bridge, in this location, should be evaluated.

The West Area has an existing bike trail along Woodley Avenue which connects to a trail along Burbank Boulevard. A clear separation between the bike trails and the pedestrian trails is desired to discourage bike use in the Wildlife Park. There are no existing pedestrian trails in the West Area.

The only access to the Middle Area is a service road on the east side of Woodley Avenue park. From that road there is one crossing over Haskell Creek to the East Area.

All the existing trails are constructed of decomposed granite which is appropriate for the natural character of the Wilderness Area. The trails do require some repair after periods of flooding.

2.1.4 Fences

An existing wood fence along Woodley Avenue is owned by a lessee who was farming the site. The lessee plans to move the fence off site. The fence would need to be replaced along Woodley Avenue and Burbank Road. The intent of the fence would be to discourage vehicles and bicycles from entering the Wildlife Park.

2.1.5 Site Furnishings

The existing viewing blinds are dated and are not used. The blinds should be redesigned and replaced. I There is one bench located in a viewing area. The docents use the bench to set up their microscopes for the children.

There are some trash receptacles located along the existing trails.

2.1.6 Signage

There are a lot of different types of signs on the site. The signs currently do not follow one standard. There are no interpretive signs.

The site signage should be redesigned to follow guidelines set by the City and COE with input from the steering committee. An up-to-date interpretative program should be developed.

2.2 Adjacent Uses

2.2.1 Tillman Water Reclamation Project

Located to the North of the Wildlife Park is the Tillman Water Reclamation Project. A Japanese Garden is located on the property. Though Tillman processes reclaimed water, reclaimed water is not available to use for irrigation purposes at the time of the report. There are plans to make reclaimed water available in the future.

2.2.2 Woodley Avenue Park

Woodley Avenue Park is located between the North Area of the Wildlife Park and Woodley Avenue. Woodley Avenue Park is passive park with picnicking and

restroom amenities. There are plans to expand the park to the edge of Woodley Avenue.

2.1.3 Archery Range and Restroom

Located to the north of the parking lot is an archery range, owned and operated by the City of Los Angeles. The facility includes a fenced in range, a restroom, small covered areas for outdoor events and meetings, and a small parking lot. The existing restrooms currently used by the archery facility could be expanded and shared, however the location would not be convenient for the Wildlife Park users.

2.2.4 Model Airplane Park

A model airplane park, parking and a restroom structure are located in the West Area. The Audubon Society representative stated that they have observed the Canadian Geese foraging, at this site, early in the morning before the airplane park is in use.

2.2 Sepulveda Dam

The Sepulveda Dam surrounds the site on the east and south portion of the Wildlife Park. The dam is an earthen dam with a boulder face. From its highest point, the dam is approximately 25 feet high. The dam is a very strong visual component of the park. There are two potential approaches to the dam; (1) to consider it as a negative impact and mitigate the views or, (2) to consider it a unique component of the project and incorporate it as an interpretive subject.

2.3 Topography

The entire site is generally flat. A minimum slope of .5 percent provides drainage in a southerly direction towards the dam. Within the East Area, the site drains to the 10-acre lake or Haskell Creek.

A slight increase in elevation occurs at the site's most northern point, near the existing parking. Elevations in this area appear to be approximately fifteen feet higher than the lake. This area is above the 50 foot floodline and should be the site of the more permanent facilities. From this higher elevation, there are long views of the Wildlife Lake and site.

There lowest points are in the southern portions of the Middle and East Area, these areas stay inundated longest after the floods.

2.4 Hydrology

The entire site is within the 50-year floodplain and is subject to periodic flooding. During severe flooding, the portions of the site is inundated for several weeks. Detailed information on groundwater levels has not been compiled. The groundwater is estimated, in the Chambers Group's report, to range from approximately 15 to 130 feet.

The Wildlife Lake, is a freshwater lake supplied with advanced secondary treated reclaimed water from the Tillman Water Reclamation Project. It has a normal water surface elevation of 684.0 feet which is controlled by an adjustable weir located on its downstream end. The maximum depth is 5.5 feet, providing a volume of 40 acre-feet (13 million gallons). The wildlife lake has been designed and is operating as a flow-through lake. To ensure high quality lake water, a continuous supply of reclaimed water replaces the lake water approximately every three days. The maximum normal supply is 4.7 million gallons per day (mgd), but this may be adjusted based on seasonal conditions and operating experience. The City of Los Angeles is responsible for managing the lake operations.

The Tillman Water Reclamation Plan NPDES Permit No.0056227 prevents any alteration to the operation, shoreline, access to the island, or contact with the lake without extensive approvals. (Refer to Sepulveda Basin Wildlife Area Management Plan [DRP 1991] for specific design and methodology of lake management.)

Haskell Creek flows through the site providing additional habitat opportunities and, at the same time, constraints to circulation. Haskell Creek handles the daily flow from the TWRP (1.8 mgd September to May except when lake maintenance occurs, increasing the flow to 3.3 mgd) and storm water runoff from the watershed. The banks and creek bottom are eroding and unstable. Enhancing Haskell Creek to create a strong riparian corridor by continuing the planting program should be a high priority. Regrading the bank, widening the creek bottom to increase opportunities for riparian plantings and reducing erosion should also be explored.

2.5 Vegetation

In general, the site vegetation consists of numerous native and non-native plant assemblages. The primary native plant communities on site consist of riparian woodland and mulefat scrub. Riparian woodland, with dense stands of cottonwoods (*Populus* spp.) and willows (*Salix* spp.), is found along portions of Haskell Creek and the wildlife lake, and on parts of the South Area. Mulefat scrub, often consisting of mulefat (*Baccharis salicifolia*) and Emory's baccharis

(*Baccharis emoryl*), was noted interspersed with riparian woodland along Haskell Creek, the lake and in the South Area. Patches and strips of mulefat scrub were also encountered in the lower portion of the East Are and the West Area.

The small island in the lake appears to be vegetated with primarily cottonwoods and non-native grasses that are mowed occasionally. Cattails (*Typha* spp.), watercress (*Rorippa nasturtium-aquaticum*) and a few other species (including non-natives) typically found in marsh areas were noted at points along the wildlife lake edges, particularly at the south end.

For many years, significant vegetation efforts have been performed throughout the site by various groups to establish and diversify the riparian vegetation and other native plant communities. Some species that are currently becoming established due to these efforts include wild rose (*Rosa californica*), coffeeberry (*Rhamnus californica*), golden currant (*Ribes aureum*), fuchsia-flowering gooseberry (*Ribes speciosum*) ad box elder (*Acer negundo*). Additionally, along the slopes adjacent to Burbank Boulevard components of coastal sage scrub and chaparral habitats are establishing, in conjunction with an occasional oak tree species.

Non-native vegetation can be found throughout the site in various forms. Landscapes with exotic species are present in the North Area as part of the active park areas, as well as around the parking lots, the archery range and other facilities. The Middle Area and West Area, surrounding the model airplane field, include abandoned agricultural fields with extensive weedy vegetation. Small to large patches of weed species, such as many annual grasses (*Avena* spp. and *Bromus* spp.), cocklebur (*Xanthium strumarium*), russian thistle (*Salsola iberica*), curly dock (*Rumex crispus*), and fennel (*Foeniculum vulgare*), can also be found adjacent to and within all native vegetation areas. It appears that the preponderance of weed species throughout the site may be minimizing the attractiveness of the site for a greater diversity of wildlife to use as habitat.

However, according to local Audubon members and other documentation, an area east of the wildlife lake has historically been used for foraging by numerous avian species including Canada goose (*Branta canadensis*). In recent years parts of this area have been actively and successfully managed to provide forage for the Canada goose. The vegetation surrounding the managed area is primarily non-native, annual forbs and grasses.

Refer to Appendix B - Site Observations and Plant Species Memorandum by Martha Blane of a list of plant species found on the site.

2.6 Soils

Five (5) representative soil samples were taken and sent to a soil laboratory for analysis and a preliminary assessment of the soils on site. The soils on site range from clay loam to sandy loam.

Based on the laboratory analysis results for the five (5) soil samples, it appears that the soils have adequate supply of micro nutrients, with only the following exceptions: low manganese in sample 3; low sulfur in all samples; and surprisingly low concentrations of organic matter in all soils. In addition, there are low concentrations of sodium in all soils except 5. Although there are elevated concentrations of boron in all 5 soils, even the high concentration found in sample 2 should not prove difficult for most plants.

The pH range for the soils tends toward the acidic side. However, even sample 5 has a pH within tolerance levels for most plants.

Water and air percolation rate through the soil is acceptable for revegetation plantings. In general, the report indicates that the soils on site can support a revegetation project without any major difficulties. Refer to Appendix A - Soil Analysis Report for detailed results.

3.0 Final Concept Plan

3.0 FINAL CONCEPT PLAN

3.1 Park Elements

The following discuss the proposed park elements in the conceptual master plan.

3.1.1 Park Entrance and Parking Lot

The park entrance would remain as it exists, with access from Woodley Avenue. The existing parking lot would be removed and the access road realigned and widened to better serve the site. A new parking lot, consisting of approximately 75 parking spaces, a bus drop-off and a bus turn-around would be constructed. The design of the new parking lot is organic in form, as if designed around an existing oak/sycamore woodland. The parking lot surface would be constructed of asphalt and surfaced with gravel to be compatible with the natural aspects of the site. Refer to Exhibit 3 - Staging Area and Parking Lot for conceptual plans and sections

3.1.2 Staging Area

The staging area would be located just south of the proposed parking lot. The staging area was located in the field by the COE, the Steering Committee and EDAW. The location was selected for its long views of the wildlife lake and park, low noise levels from the freeway and convenience for its users.

The components of the staging area include a comfort station, a small amphitheater, seating and picnic tables. The comfort station would be approximately 1000 square feet and include restrooms, a storage area and an outdoor interpretive exhibit space. The structure would be floodable and be designed to be compatible with the natural aspects of the site. Adjacent to the structure would be a 50 person amphitheater built into the existing slope. The amphitheater would be constructed of stone walls and seating areas with turf panels. The seating would be designed to be comfortable for children as well as adults. The Between the comfort station and the amphitheater would be a seating and picnic area. The entire staging area would be located within a oak sycamore woodland planting with specific goals of providing shade while maintaining views.

Refer to Exhibit 3 - Staging Area and Park Lot conceptual plans and sections.

3.1.3 Trails

The Conceptual Master Plan proposes to create a connected trail system with to provide access to all the park areas. Maintenance vehicles and pedestrians would continue to share a single trail. Pedestrian circulation would be separated from bike trails as much as possible to discourage bikes in the Wildlife Park Refer to Exhibit 2 - Conceptual Master Plan for locations of trails.

The existing crossing of Haskell Creek would be relocated. The plan proposes a total of three crossing, two north of Burbank Boulevard and one south of Burbank.

Crosswalks for Woodley Avenue were researched and were not feasible due to the City requirements for crosswalks.

The trails would be constructed with decomposed granite similar to the existing trails.

The trails, at the viewing areas adjacent to the lake, would be raised and be constructed of recycled plastic. The raised trails would contain people's movements, minimize soil compaction and provide dry access to the viewing areas after flooding. The trails would only be raised between 6"-12" off the ground to avoid any hazardous conditions.

All trails would be designed to meet current ADA standards.

3.1.4 Viewing Areas

Viewing areas are strategically located off the trails through out the site. The steering committee, specifically the Audubon Society representatives, helped define the requirements of viewing areas adjacent to the lake. The viewing areas adjacent to the lake would provide dry, controlled areas for staging groups of about 30 children. The viewing areas are designed to contain the group. Access would be provided to the water from the viewing areas for on-site experiments. The seating areas would be multi-functional, creating a space to set up microscopes and other experimental equipment. Bird blind were discussed extensively. The decision by the Steering Committee and the COE was that they are not necessary but could be included if the budget permits. The viewing areas would be shaded with strategically planted riparian trees. The interpretive program would be incorporated into the viewing areas. For the location of the viewing areas refer to Exhibit 2 - Conceptual Master Plan.

3.1.5 Perimeter Fence

A perimeter fence would be located along both sides of Burbank Boulevard and both sides of Woodley Avenue. The fence would be constructed of a prefabricated concrete, formed to look like wood. Recycled plastic was researched but is significantly more expensive. The concrete fences are currently being used in the Sepulveda Basin and are considered a successful and easy to maintain product. The function of the fence is to deter undesirable entries to the site. The fence would be four feet tall with a single top rail. The fence should not retains debris during a flood.

3.1.6 Site Furnishings

The site would have strategically located benches and trash receptacles. Picnic benches would be located near the staging area as discussed in 3.1.2 Staging Area. A drinking fountain would be located in the staging area.

3.1.7 Interpretive Program and Signage

The interpretive exhibits would be a springboard for discover based learning and would offer environmental education opportunities for school groups as well as the general public. Each exhibit would provide universal access and equal learning opportunities for Los Angeles's diverse community.

The goal for the interpretive program is to share the history and unique characteristics of the Sepulveda Basin, provide information the Sepulveda Basin wildlife, and the native habitats.

Simple interactive exhibits would explain the unique aspects of the site. For example, a concrete column would be marked with the elevations of the various floods in the basin. Visitors would gain a sense of how high storm waters can be by cranking a handle to raise a steel ring up the column to markings that identify flood elevations. By rotating a steel ring at the base of the column visitors can also find out about flow and magnitude of storms (i.e., 50 year, 100 year etc.). Other exhibits would focus on the wildlife and habitat of the Sepulveda Basin.

All interpretive exhibits in the Wildlife Park would communicate complex information simply and effectively to visitors of various ages and abilities. In addition, park identity, directional and regulatory signs would all be in the same graphic family as the interpretive signs.

Graphics would be designed with a hierarchy of information, combining legible typography with unique illustration and photographic images. The signs would be constructed of porcelain enamel panels that would withstand periods of flooding and inundation.

3.2 Revegetation

3.2.1 General Approach

The goals of the revegetation efforts are to establish self-sustaining and functional habitats that are suitable for wildlife use, to the extent feasible, based on past, present and planned future uses of the site. Special efforts would be focussed on targeting plantings for wildlife species, particularly the Canada goose. Self-sustaining, functional habitat is defined by the occurrence of natural processes which include plant succession, soil development, nutrient cycling, natural regeneration, resistance to invasion by exotic species, recovery from disturbance, and wildlife use and movement.

The general revegetation approach for the whole site would be to preserve and enhance existing native vegetation and habitats, and increase the amount and diversity of native plant communities. A focussed approach of the revegetation efforts would be toward replacing infestations of exotic species with species that are components of natural habitat assemblages.

Increasing diversity of native species and plantings within existing native vegetation and new revegetation areas would further the goal of self-sustaining plant communities. High diversity of native species is considered to be an indication of a functioning habitat suitable for a wide variety of wildlife species.

Review of numerous previous reports, revegetation efforts and evaluations of portions of the Sepulveda Basin, and our on-site evaluations indicate suitability for enhancement and revegetation of the following plant communities: riparian woodland, mulefat scrub, oak savannah, oak-sycamore woodland, grassland-forage area and managed goose forage area. Descriptions of locations where revegetation of these habitats may be established and/or integrated with existing native plant communities are provided below. Prior to targeting the precise locations of specific plantings (particularly riparian woodlands), additional data on the site's hydrology would be compiled and analyzed for suitability.

- Native Grassland/Forage Area
- Mulefat Scrub
- Riparian Woodland
- Oak/Sycamore Woodland
- Oak Savannah
- Lake Vegetation
- Managed Goose Forage
- Coastal Sage Scrub
- Hummingbird Hill

Descriptions of locations where revegetation of these habitats that may be established and/or integrated with existing native plant communities are provided below. Refer to Exhibit 2 - Conceptual Master Plan for proposed locations of these habitats.

3.2.2 Approach by Area

3.2.3.1 West Area

The primary focus of this area would be to establish a sustainable foraging area suitable for Canada goose and other migratory species. The majority of grassland and forb species chosen for planting would be those reported as occurring in Canada goose foraging sites in southern California.

A band of riparian woodland would be established in the area adjacent to the Los Angeles River and continue along Burbank Boulevard and Woodley Avenue.

Along Woodley Creek, areas with existing mulefat would be preserved as a buffer to the forage areas. Additionally, the northern area along Woodley Avenue would receive plantings of oak savannah as a buffer to the roads.

3.2.3.2 Middle Area

An open oak savannah is proposed for planting in the majority of this area. A native stipa (*Nassella* spp.) grassland and other forbs would be planted as the understory. Limited plantings of other species such as California walnut (*Juglans californica*), sugar bush (*Rhus ovata*), Mexican elderberry (*Sambucus mexicana*), and toyon (*Heteromeles arbutifolia*) may be included in parts the oak woodland areas such as near Haskell Creek and Woodley Park.

Parallel to Burbank Boulevard, in the low areas, a riparian woodland would be established.

Where the oak savannah meet the riparian vegetation along Haskell Creek and Burbank Boulevard, the plantings would begin to integrate more riparian species to provide a natural transition between habitats.

3.2.3.3 Haskell Creek

The existing, functional riparian woodland and mulefat scrub along Haskell Creek would be preserved. Haskell Creek would be enhanced and expanded as riparian woodland corridor. In areas with existing canopy components of riparian woodland, understory components would be added to reduce weed infestation and further incorporate more diversity of plant species naturally found in the understory of riparian plant assemblages. Other areas without existing native trees or understory plants would be planted with riparian canopy tree and understory species, which would increase the size and diversity of the riparian areas.

3.2.3.4 East Area

The existing, functional riparian woodland and mulefat scrub along the wildlife lake would be preserved. In areas where patches of weeds are present they would be removed and native plants installed and maintained until established. One focus of the new plantings would be to increase diversity of the plant community by introducing a number of understory and canopy habitat appropriate species which are either not found on-site or are present in low concentrations.

The existing riparian plantings on the island would be preserved. New plantings would be added to increase the diversity of the plant community.

The areas historically used by Canada goose for foraging would be enhanced through planting of sustainable grassland and forb species. The majority of grassland and forb species chosen for planting in these areas would be those reported as occurring in Canada goose foraging sites in southern California.

The disturbed area resulting from bulldozer earthwork is currently being successfully managed as goose forage by the City. The City plans on continuing this activity.

On the slope to the north of Burbank Boulevard there is a proposed project called Hummingbird Hill. This area would be reserved for the eventual implementation of the Hummingbird Hill project.

3.2.3.5 South Area

The existing, functional riparian woodland and mulefat scrub would be preserved. In areas where weeds are present they would be removed and native plants installed and maintained until established. The focus of the new plantings would be to increase diversity of the plant community by introducing a number of understory and canopy habitat appropriate species which are either not found on-site or are present in low concentrations.

The existing coastal sage scrub planting to the south of Burbank Boulevard would be preserved.

The existing duck pond does not currently attract wildlife. Research and an implementation plan should be developed to make the pond a more successful feature. Removing the pond was not an option.

3.2.3.6 North Area

The north area is currently landscaped with turf and ornamental trees. The intent is to transform the area into native habitats. The East Area would transition from the wildlife lake to riparian woodland to an oak/sycamore community and eventually to oak savannah. Sycamore trees would be used as shade trees for the parking lot, amphitheater and picnic area. The existing ornamental trees would eventually be removed.

3.2.3 Preliminary List of Proposed Species For Each Habitat

The following tables provide the proposed species for each habitat.

Native Grassland/Forage Area - Container Plants (West and East Areas)

Species, Common Name	Container Size	Amount Per Acre	Amounts Required
Elymus glaucus, blue wildrye *	4 inch	80	
Muhlenbergia rigens, California deergrass *	4 inch	60	
Nassella lepida, foothill needlegrass	super-cell	800	
Nassella pulchra, purple needlegrass	super-cell	1,200	
Sisyrinchium bellum, blue-eyed grass	4 inch	200	
Total		**2,340**	

* Plant in same-species clumps, rather than distributing evenly throughout the planting area.

Native Grassland/Forage Area - Seedmix (West and East Areas)

Species, Common Name	Min. % Pur/Germ	Lbs Per Acre
Amsinkia intermedia, fiddleneck	N/A	0.5
Bromus carinatus, California brome	95/80	2.0
Elymus glaucus, blue wildrye	90/80	0.5
Eriophyllum confertiflorum, golden yarrow	30/60	1.0
Gnaphalium bicolor, bicolored cudweed	10/25	0.1
Gnaphalium californicum, California everlasting	10/25	0.1
Grendelia robusta, gum plant	25/60	0.25
Hemizonia fasciculata, fascicled tar weed	10/25	0.5
Hordeum brachyantherum, meadow barley	90/80	4.0
Lasthenia californica, goldfields	50/60	1.0
Lepidium spp., peppergrass	N/A	0.5
Leymus condensatus, giant wildrye	70/80	0.25
Lotus purshianus, Spanish lotus	70/50	1.0
Lupinus bicolor, lupine	98/80	1.0
Lupinus succulentus, arroyo lupine	98/85	2.0
Melica imperfecta, coast melic	90/60	0.1
Muhlenbergia rigens, California deergrass	50/50	0.5
Nassella lepida, foothill needlegrass	60/60	1.0
Nassella pulchra, purple needlegrass	70/60	3.0
Orthocarpus purpurascens, owl's clover	50/50	0.5
Phacelia parryi, Parry's phacelia	95/70	0.5
Phacelia ramosissima, branching phacelia	95/85	1.0
Poa secunda, one-sided bluegrass	80/40	0.5
Sisyrinchium bellum, blue-eyed grass	95/75	2.5
Total		**24.30**

Mulefat Scrub - Container Plants * (South, East, West and Haskell Creek Areas)

Species, Common Name	Container Size	Amount Per Acre	Amounts Required
Anemopsis californica, yerba mansa	4 inch	85	
Baccharis emoryi, Emory's baccharis	one gallon	285	
Baccharis salicifolia, mulefat	one gallon	800	
Leymus condensatus, giant wildrye	4 inch	80	
Muhlenbergia rigens, California deergrass	4 inch	65	
Rosa californica, California rose	one gallon	75	
Rubus ursinus, black berry	one gallon	60	
Total		**1,450**	

* Seedmix would not be planted in the mulefat scrub areas due to generally small size of areas and weed competition problems.

Riparian Woodland - Container Plants * (Haskell Creek, West and Middle Areas)

Species, Common Name	Container Size	Amount Per Acre	Amounts Required
Anemopsis californica, yerba mansa	4 inch	110	
Artemisia douglasiana, mugwort	4 inch	40	
Baccharis emoryi, Emory's baccharis †	one gallon	65	
Baccharis salicifolia, mulefat	one gallon	225	
Leymus condensatus, giant wildrye	4 inch	40	
Muhlenbergia rigens, California deergrass †	4 inch	65	
Plantanus racemosa, California sycamore †	deep gallon	20	
Plantanus racemosa, California sycamore †	5 gallon	30	
Populus fremontii, Fremont's cottonwood †	deep gallon	10	
Populus fremontii, Fremont's cottonwood †	5 gallon	20	
Oenothera elata (hookeri), marsh evening primrose	4 inch	40	
Salix goodingii, black willow	one gallon	115	
Salix hindsiana, sandbar willow	one gallon	60	
Salix lasiolepis, arroyo willow	one gallon	145	
Rosa californica, California rose †	one gallon	65	
Rubus ursinus, black berry †	one gallon	50	
Umbellaria californica, bay laurel †	five gallon	15	
Vitis girdiana, desert grape	one gallon	55	
Total		**1,170**	

* Seedmix plantings not anticipated in the riparian areas due to generally small size of areas and weed competition problems. If upon further study large areas suitable for riparian plantings become evident and effective weed control can be implemented, then a seedmix would be planted.

† To be planted in the upper elevations of area.

Oak/Sycamore Woodland - Container Plants (Lower Elevations of West and Middle Areas)

Species, Common Name	Container Size	Amount Per Acre	Amounts Required
Heteromeles arbutifolia, toyon	deep gallon	25	
Juglans californica, California walnut	5 gallon	20	
Leymus condensatus, giant wildrye	4 inch	40	
Eriophyllum confertiflorum, golden yarrow	4 inch	80	
Muhlenbergia rigens, California deergrass *	4 inch	40	
Nassella lepida, foothill needlegrass	super-cell	450	
Nassella pulchra, purple needlegrass	super-cell	650	
Plantanus racemosa, California sycamore *	deep gallon	25	
Plantanus racemosa, California sycamore *	5 gallon	35	
Plantanus racemosa, California sycamore *	15 gallon	20	
Populus fremontii, Fremont's cottonwood *	deep gallon	10	
Populus fremontii, Fremont's cottonwood *	5 gallon	20	
Quercus agrifolia, live oak *	deep gallon	35	
Quercus agrifolia, live oak *	5 gallon	55	
Quercus agrifolia, live oak *	15 gallon	28	
Quercus lobata, valley oak *	deep gallon	25	
Quercus lobata, valley oak *	5 gallon	36	
Quercus lobata, valley oak *	15 gallon	18	
Rhus ovata, sugar bush	deep gallon	20	
Ribes speciosum, gooseberry	deep gallon	35	
Rosa californica, California rose	one gallon	40	
Rubus ursinus, black berry	one gallon	30	
Sambucus mexicana, elderberry	deep gallon	40	
Sisyrinchium bellum, blue-eyed grass	4 inch	60	
Umbellaria californica, bay laurel	5 gallon	15	
Total		**1,852**	

* To be planted in same species clumps, rather than distributed evenly throughout the planting area.

Oak/Sycamore Woodland - Seedmix (Lower Elevations of West and Middle Areas)

Species, Common Name	Min. % Pur/Germ	Lbs Per Acre
Bromus carinatus, California brome	95/80	2.0
Elymus glaucus, blue wildrye	90/80	0.5
Gnaphalium bicolor, bicolored cudweed	10/25	0.1
Gnaphalium californicum, California everlasting	10/25	0.1
Grendelia robusta, gum plant	25/60	0.25
Hemizonia fasciculata, fascicled tar weed	10/25	0.5
Hordeum brachyantherum, meadow barley	90/80	4.0
Lasthenia californica, goldfields	50/60	1.0
Leymus condensatus, giant wildrye	70/80	0.25
Lotus purshianus, Spanish lotus	70/50	1.0
Lupinus bicolor, lupine	98/80	1.0
Lupinus succulentus, arroyo lupine	98/85	2.0
Melica imperfecta, coast melic	90/60	0.1
Muhlenbergia rigens, California deergrass	50/50	0.5
Nassella lepida, foothill needlegrass	60/60	1.0
Nassella pulchra, purple needlegrass	70/60	3.0
Orthocarpus purpurascens, owl's clover	50/50	0.5
Phacelia parryi, Parry's phacelia	95/70	0.5
Phacelia ramosissima, branching phacelia	95/85	1.0
Sisyrinchium bellum, blue-eyed grass	95/75	2.5
Total		**24.30**

Oak Savannah - Container Plants (Middle and North Areas)

Species, Common Name	Container Size	Amount Per Acre	Amounts Required
Bloomeria crocea, golden stars *	5-1/2 x 6-inch	60	
Dichelostemma pulchella, blue dicks *	5-1/2 x 6-inch	200	
Heteromeles arbutifolia, toyon deep gallon	deep gallon	30	
Juglans californica, California walnut	5 gallon	25	
Eriophyllum confertiflorum, golden yarrow	4-inch	130	
Muhlenbergia rigens, California deergrass *	4-inch	25	
Nassella lepida, foothill needlegrass	super-cell	600	
Nassella pulchra, purple needlegrass	super-cell	800	
Quercus agrifolia, live oak *	deep gallon	40	
Quercus agrifolia, live oak *	5 gallon	65	
Quercus agrifolia, live oak *	15 gallon	32	
Quercus lobata, valley oak *	deep gallon	28	
Quercus lobata, valley oak *	5 gallon	42	
Quercus lobata, valley oak *	15 gallon	22	
Rhus ovata, sugar bush	deep gallon	30	
Ribes speciosum, gooseberry	deep gallon	25	
Rosa californica, California rose	deep gallon	30	
Sambucus mexicana, elderberry	deep gallon	30	
Sisyrinchium bellum, blue-eyed grass	4-inch	100	
Umbellaria californica, bay laurel	5 gallon	10	
Total		**1,852**	

* To be planted in same-species clumps, rather than distributed evenly throughout the planting area.

Oak Savannah - Seedmix (Middle and North Areas)

Species, Common Name	Min. % Pur/Germ	Lbs Per Acre
Amsinkia intermedia, fiddleneck	N/A	0.5
Bromus carinatus, California brome	95/80	2.0
Elymus glaucus, blue wildrye	90/80	0.5
Eriophyllum confertiflorum, golden yarrow	30/60	1.0
Gnaphalium bicolor, bicolored cudweed	10/25	0.1
Gnaphalium californicum, California everlasting	10/25	0.1
Grendelia robusta, gum plant	25/60	0.25
Hemizonia fasciculata, fascicled tar weed	10/25	0.5
Hordeum brachyantherum, meadow barley	90/80	4.0
Lasthenia californica, goldfields	50/60	1.0
Lepidium spp., peppergrass	N/A	0.5
Leymus condensatus, giant wildrye	70/80	0.25
Lotus purshianus, Spanish lotus	70/50	1.0
Lupinus bicolor, lupine	98/80	1.0
Lupinus succulentus, arroyo lupine	98/85	2.0
Melica imperfecta, coast melic	90/60	0.1
Muhlenbergia rigens, California deergrass	50/50	0.5
Nassella lepida, foothill needlegrass	60/60	1.0
Nassella pulchra, purple needlegrass	70/60	3.0
Orthocarpus purpurascens, owl's clover	50/50	0.5
Phacelia parryi, Parry's phacelia	95/70	0.5
Phacelia ramosissima, branching phacelia	95/85	1.0
Poa secunda, one-sided bluegrass	80/40	0.5
Sisyrinchium bellum, blue-eyed grass	95/75	2.5
Total		**24.30**

3.2.4 Revegetation Treatment

Numerous activities would be needed to prepare for, implement, and maintain the revegetation plantings. These include: reserving the required seeds and container-grown plant materials, performing week control, provision for providing irrigation to some of the plantings, soil preparation, planting of seeds and container materials, establishment maintenance, and long-term management of the site. Discussion of these activities are provided below.

3.2.5.1 Reserving Seeds and Container-Grown Plant Materials

Research has established that plant materials genetically adapted to the particular environmental conditions of a site are critical to the success of habitat restoration. Therefore, seeds for direct seeding, and seeds and cuttings for container plant propagation should be collected from the areas as close to the site as possible. Often seed and cutting sources for revegetation and habitat restoration projects can be found at adjacent properties, if not from the site itself. However, since this is not the case at Sepulveda Basin, accepting materials from outside sources for many of the required species would be necessary. We anticipate that seed materials would be available from parts of Los Angeles County, Southern Ventura County, and/or Northern Orange County. At a minimum, collection sites must have characteristics similar to the revegetation sites to ensure adaptation to the site conditions of the source materials. These characteristics include elevation, slope, aspect, and soil type.

During the early planning stages of a revegetation project, it is important to understand that reserving the required materials one to two years in advance of planting is necessary to ensure availability of adequate plant and seed quantities for planting. Specifications with details on how collections and container growing would be performed need to be developed. Commercial seed collector/suppliers and native plant nurseries with experience in site-specific seed collections and native plant propagation are available to provide the materials under contract. Sometimes, even with one to two years of advance notice for the required materials, a degree of flexibility for the final quantities of plants and seed may be necessary due to varying climate conditions.

3.2.5.2 Mycorrhizal Inoculation of Container-Grown Plants

Another important aspect to obtaining plant material suitable for revegetation is acquiring container-grown materials that have been inoculated with mycorrhizal fungi. Mycorrhizae are specialized fungi found on plant roots. A mutualistic relationship exists between plant roots and mycorrhizae. Plants benefit from an increased ability to take up nutrients and withstand drought when mycorrhizae are present. This relationship is essential to the growth rate, well-being, and longevity

of natural plant communities. Site disturbances, such as farming and grazing, eliminate or suppress their host plants and can cause mycorrhizal fungi to die out. Although the fungi can reestablish if suitable host plants and other conditions are in place, this process is often very slow (Miller, 1985). Plant utilization of mycorrhizal fungi markedly increases the success of restoration on disturbed or degraded lands (Skujins and Allen, 1986). The presence of mycorrhizal fungi is known to favor native plant establishment over weeds. Additionally, it has been demonstrated that the presence of the fungi is critical for regeneration of natural ecosystems in arid lands.

To ensure the presence of mycorrhizal fungi in the revegetation areas, the container-grown plant materials should be inoculated with appropriate mycorrhizal fungi by the contracted native plant nursery. The benefits of inoculating mycorrhizae into container-grown revegetation plant materials may include greater transplant success, increased plant growth, and greater reproductive success.

3.2.5.3 Weed Control

The predominance of exotic, invasive weed species throughout California presents a formidable challenge to most revegetation and restoration projects. Weed species are opportunistic and they have mechanisms for dispersal and establishment that leads to displacement of native species. Weedy vegetation contributes to the displacement of native vegetation and provides sources of seeds for further infestations of a site. The exotic seed bank in the soil often presents an equal or greater threat to a native community, and may pose a threat for several years.

The Sepulveda Basin and surrounding areas have numerous weed species occurring in various densities. It appears that many of the past and current revegetation efforts, which include weed control from different groups that have worked at the site, have been and continue to be relatively effective. This indicates that initial and long-term eradication/management of exotic species is not only effective but necessary to establish native habitats on-site. Because of the existing weed growth, comprehensive weed control efforts would be required both prior to revegetation plantings and during establishment of the plantings.

In addition to eradication of weed species at the time of planting new areas and during establishment, a long-term weed control, management plan would be required to ensure the long-term viability of native plantings and wildlife habitat. Performing on-going weed control throughout the Basin and areas surrounding the site would help to greatly minimize the potential for new infestations into revegetation areas. Haskell Creek, upstream from Woodley Park, is an example of an area where weed control would help to reduce infestations downstream into the site.

Weed control would also improve the site's biological values by increasing its usable habitat. The primary focus of the weed control/eradication efforts would be to revegetate weed infested areas using site appropriate native plant species. Weed control activities would likely include a combination of eradication methods such as spot-spray herbicide treatments applied to exotic plants and noxious weeds that require root kill, manual removal of annual and small perennial species, and soil solarization for large areas, as described below.

3.2.5.4 Herbicide Application

Use of systemic herbicide is often necessary to effectively eradicate exotic plants and noxious weeds requiring root kill. Targeted vegetation can be sprayed with an herbicide such as glyphosate (trade name Roundup™ or Rodeo™) with maximum benefit and minimal environmental impacts. The benefits of herbicide use and management would be weighed against potential impacts to the site biota. Herbicide treatments would employ conservative application methods such as spot spraying. Extreme care would be exercised to ensure that herbicides are used properly and only when necessary. The actual type and amount of herbicide to be used would be based on recommendations by a licensed pest control advisor and herbicide product labels. Herbicides may be applied prior to or after other weed control treatments.

3.2.5.5 Hand Removal

Manual methods are effective for controlling weed species that can be easily removed. Employing hand tools, hand pulling, and/or possibly weed whipping are most commonly used. These methods can be used during site preparation for removal of annual and small perennial species and during post-planting maintenance.

3.2.5.6 Soil Solarization

Soil solarization is a nonchemical technique used to control many weeds, soilborne pathogens, and pests. This technique captures radiant heat energy from the sun, thereby causing physical, chemical, and biological changes in the soil. Transparent polyethylene plastic is placed on moist soil during the hot summer months. It increases soil temperatures to levels lethal to many weed seeds, seedlings, soilborne plant pathogens, and nematodes, and some soil-residing mites. Soil solarization also improves plant nutrition by increasing the availability of nitrogen and other essential nutrients.

The main benefit of soil solarization is effective control of the weed seed bank over large ares without the use of soil fumigants or other chemicals. Herbicides, used in large quantities for weed control, are often undesirable due to toxic plant

and soil residues, unfavorable effects on animals and/or humans, complexity of treatments, and high cost. Seed and seedlings of many annual and perennial weeds have been effectively controlled with soil solarization in farming applications (Bainbridge, 1990). Numerous tests of this method are currently under way in southern California for assessing soil solarization effectiveness on revegetation projects. Some weed species are very sensitive to solarization, while others are moderately resistant. Control of annual, cool-season weed species is often evident for more than one year after treatment, since these species seem to be especially sensitive to solarization.

This weed control technique is recommended for large disturbed areas where a weed seed bank is believed to be present in the soil. Final plans would target sites where this method would be most effective.

3.2.5.7 Soil Preparation

Scarifying to roughen the soil surfaces, reduce surface compaction, and aid in promoting germination and growth of seeds and container plants is recommended. In order for seeds to germinate they must come in contact with the soil. This is usually accomplished when the seeds lodge in small surface cracks and crevices. To create these cracks and crevices or "micro-habitats," the soil surface must be roughened just prior to seeding. Roughening of the soil surface would also improve water infiltration and retention, while aiding in reducing erosion.

Slope areas with gradients of three-to-one (3:1) or steeper, such as along Haskell Creek, can be roughened by ripping, in one direction, on the contour just prior to seeding. Ripper blades are usually spaced approximately 12 inches apart and rip to a depth of four to eight inches. In areas where equipment access is not feasible, the soil surface can be roughened using hand tools. Hand picks can be used to create pock marks in triangular grid patterns across the slopes. Pocks can be spaced approximately three inches apart, and dug to a depth of three inches or more.

For flat or nearly flat areas, ripping in two directions is recommended. The first pass with the ripper blades would be against the contour, while the second pass would be with the contour.

3.2.5.8 Planting Methods for Container-Grown Plant Materials

To provide beneficial soil conditions for plant roots to develop deep root systems and to accelerate tree root growth to subsurface water levels, extra deep planting holes would be dug. A power auger can be used to dig planting pits for tree species to an approximate depth of six feet, unless the water table is encountered sooner, then deeper auguring would not be necessary. Planting pits for species such as mulefat (*Baccharis salicifolia*) would be augured to a depth of three feet. Planting pits for small shrubs would be dug twice as deep and twice as wide as rootball size. Planting pits would be thoroughly moistened prior to planting. Native soil, without amendments, would be used to back fill around plants and basins would be built around each plant for future watering purposes. Container-grown plants would be planted in fall or early winter.

3.2.5.9 Planting Methods for Seedmixes

It is anticipated that the seedmixes would be planted using a combination of methods, depending on site conditions. Land imprinting, drill seeding and/or hydroseeding are being considered. Hand broadcasting seed may also be used in small areas. Hydroseeding would be used on slopes with a gradient of 5:1 or steeper to provide immediate erosion control. The hydroseed slurry mix would contain fiber, soil stabilizer, seed, and water.

Areas with a gradient of 5:1 or flatter would be planted by land imprinting or with drill seed equipment. Land imprinting uses equipment specifically designed for revegetation and is a process where equipment consisting of heavy steel drum rollers, that have patterns of angular imprinting teeth welded to the outer circumference, are towed across a revegetation site. A seed hopper, attached in front of the imprinter, disperses seed ahead of the imprinting rollers. Seeding and imprinting are accomplished in a on-step operation. The imprinter immediately firms the seeds into contact with the soil.

The heavily-weighted imprinting roller produces corresponding soil imprint patterns when towed across the landscape with a crawler tractor (Dixon and Carr, 1994). The land imprinter forms discontinuous, staggered V-shaped troughs on the contour. These created troughs collect moisture, and reduce run-off and soil erosion, while also increasing the aerate of water infiltration into the soil. The funnel-shaped troughs also serve to trap seeds, organic materials, and moisture at the bottom of the funnel. Additionally, the troughs also provide shelter for young seedlings from drying winds and intense sunlight, which aids in germination of seeds and establishment of plants.

If drill seeding is chosen, a Truax Flex Drill seeder with fluffy seed box and no-till attachment, or equivalent equipment, would be used. Drill seed equipment has

concave angular mounted no-till blades which open a seed slot in the soil. A tongue mounted spring leveler controls penetration of the blades and depth bands control seed placement. A seed box has row dividers to distribute seed evenly across the width of the drill.

Planting seed, by any method, would be performed during fall and/or early winter months when beneficial temperatures and soil moisture would promote germination and growth. The actual planting dates would be chosen based on predicted weather patterns for the season.

3.2.5.10 Erosion Control

Mechanical and biological erosion control methods may be needed during the establishment of the larger revegetation sites. Conditions of a particular site would determine whether erosion control is needed, and what type is appropriate. Examples of mechanical erosion control methods are straw punching, straw bales, sand bags, and stick mulching. Biological methods can include plantings of rooted cuttings, and container plantings in vulnerable areas such as slopes, stream banks, and drainages. The annual species contained in the seedmixes would provide a fast vegetation cover to aid in erosion control. Erosion control techniques would be consistent with revegetation goals and use of non-native species would not be allowed.

3.2.5.11 Horticultural Treatments

Horticultural treatments, such as pest control, should be kept to a minimum. It may be necessary to measure certain site conditions such as soils, soil moisture, or weather in order to determine treatments.

The use of fertilizers is not anticipated. No herbicides or pesticides would be allowed to contact either open water, or runoff into wetlands. Chemicals used in treatment of pests would be restricted.

No treatments would be allowed if common pests and disease occur naturally in the environment. These would be identified as tolerated infestations. Integrated Pest Management would be considered to control problems threatening plant health and vigor.

3.2.5.12 Weed Control

A minimum five years of weed control is recommended after restoration planting. Hand weeding and/or weed whipping would likely be needed two times per year to keep weed species from producing seeds and to control weed competition during the establishment period after planting.

Weeds should be killed or removed before setting seed and before reaching approximately 12 inches in height. Seed heads from noxious weeds must be removed at the time of herbicide application, by bagging seed heads and disposing of them off-site.

3.2.5 Irrigation

One of the revegetation goals is sustainability. The preference is not to irrigate. There are many advantages to a non-irrigated planting approach and many habitat restoration experts advocate this approach. This approach is dependent on a reliable knowledge of the existing water table, appropriate plant selection, proper implementation methods, timing of installation, proper maintenance and monitoring. The Sepulveda Basin provides a unique context for a revegetation project, since the basin's primary function is flood control. Timing would be a significant constraint since the flood season coincides with the most advantageous time to plant a non-irrigated planting.

The first priority is to understanding of the hydrology of the site. The irrigation approach would be based on the results of the research of the site's hydrology.

If supplemental water is required, the following irrigation techniques would be used where appropriate:

- Quick Couplers

The intent is to design a system of pressurized mainline with strategically located quick couplers for hand watering with a hose. Watering basins would be implemented with the plantings. This system would be appropriate for areas that need supplemental water for a short (1 year) establishment period and once established are self sustaining. In the COE report, "Revegetation in the Sepulveda Wildlife Reserve: A Seven Year Summary," Table 2 illustrated a cost comparison of overhead irrigation versus hand watering. The result was hand watering cost 50 percent less. This method has proven to be successful on other revegetation plantings.

- Bubble Basin

For trees that require longer establishment periods or a permanent supplemental source of water a bubble basin system would be appropriate. The design would incorporate the placement of two or three bubblers for each tree basin. This technique allows for slow applications rates for deep watering. Since the water is being applied directly and only into the basin, excessive weed growth is reduced significantly. Bubble basin would be proposed instead of drip irrigation which requires higher levels of maintains and is more susceptible to damage.

- Rent-a-Rain

Temporary automatic agricultural type irrigation system was considered to establish the seeded native grassland/forage areas. However, overhead irrigation is not recommended for this project since it encourages weed growth and discourages growth of beneficial mycorrhizal fungi in the soil. Native plants adapt more readily to site conditions with only rainfall as a source of moisture. Ultimately, the densities and diversities of natural species would be better attained if temporary watering is supplied only to container plant materials during installation and the establishment period.

- Reclaimed Water

Currently, reclaimed water is not available. To pump water from the lake would require an extensive permitting process that COE would like to avoid. The plan for now is to design the system to meet all reclaimed water requirements, use potable water and switch to reclaimed when it becomes available.

3.2.6 Establishment Maintenance

Maintenance during establishment is necessary to ensure restoration success. The establishment maintenance period begins immediately upon completion of installation. Establishment maintenance would continue for a number of years or until the habitat demonstrates that it can sustain itself without significant maintenance measures. Replanting of seeds or containers, eradication of major weed infestations, and erosion repairs are considered significant maintenance measures.

3.2.7 Long-Term Habitat Management

Long-term management serves to maintain ecosystem integrity in perpetuity. Management measures may be required to counteract the effects of modern society. These woes include vandalism, hydrologic alteration, isolation from contagious habitats, and intrusion of exotic species. Recommendations and guidelines for long-term management should be developed before the end of the establishment maintenance period for the different phases of revegetation. Because this project encompasses several phases, guidelines should address issues important to the perpetuation of the habitat. These would include, at a minimum, weed control and site protection issues.

4.0 Implementation

4.0 IMPLEMENTATION

The Final Concept Plan would be implemented in phases. The phases would be based on the available budget and priorities developed by the COE and the LADRP.

The first phase is funded with 50 percent by the LADRP, Proposition A funds and 50 percent by the COE. The COE and the LADRP have a cost share agreement documented in the Project Cooperation Agreement, dated April 1995. The LADRP and the COE are obligated to apply the funds to resolve issues that effect the public access, health and safety and follow guidelines set by Policy Letter Number 36 - Checklist of Facilities Which May Be Cost-Shared in Recreation Developments at New Corps Non-Lake Structural Local Flood Control Projects. Refer to Appendix C - Checklist of Facilities Which May Be Cost-Shared in Recreation Developments at New Corps Non-Lake Structural Local Flood Control Projects.

The following are the areas listed in order of priorities based on discussions with the COE, the LADRP and the Steering Committee.

1. North Area
2. Haskell Creek
3. Middle Area
4. West Area
5. East Area
6. South Area

The following park elements and revegetation efforts are planned for the first phase of implementation.

1. Parking Lot
2. Staging Area including restrooms, storage and amphitheater
3. Viewing Areas in the East Area along the Wildlife Lake.
4. Perimeter Fence
5. Trails in the North and Middle Area
6. Interpretive Elements in the North, East and Middle Areas and Haskell Creek.
7. Landscaping around the Parking Lot and Staging Area.
8. Revegetation of Haskell Creek
9. Revegetation of the Middle Area

There are some issues that need to be resolved prior to developing the Construction Documents for phase one. The issues are as follows:

1. Ground Hydrology Studies
2. Plant Procurement - i.e., Contract growing coordination
3. Interpretive Program Development
4. Construction Scheduling

Appendices

Appendix A

REPORT NUMBER

95-198-079

A & L WESTERN AGRICULTURAL LABORATORIES

1311 Woodland Ave. • Ste. #1 • Modesto, CA 95351 • (209) 529-4080 • FAX (209) 529-4736

Client No: 1415

SEND TO:
RANDALL ISMAY
24002 ESTACIA
LAGUNA NIGUEL, CA 92677-

GROWER: SEPULVEDA BASIN

SAMPLES SUBMITTED BY:

DATE OF REPORT 07/20/95 PAGE 1

SOIL ANALYSIS REPORT

(SEE EXPLANATION ON BACK)

SAMPLE NUMBER	LAB NUMBER	ORGANIC MATTER % * RATE	ORGANIC MATTER ** ENR lbs./A	PHOSPHORUS P_1 (Weak Bray) * **** ppm-P RATE	PHOSPHORUS P_2 $NaHCO_3$-P * **** ppm-P RATE	POTASSIUM K * ***** ppm-K RATE	MAGNESIUM Mg * *** ppm-Mg RATE	CALCIUM Ca * *** ppm-Ca RATE	SODIUM Na * *** ppm-Na RATE	pH SOIL pH	pH BUFFER INDEX	HYDROGEN H meq/100g	Cation Exchange Capacity C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED) % K	% Mg	% Ca	% H	% Na
1	55766	0.6L	42	61VH	31VH	199M	416VH	1600H	79L	7.0		0.0	12.3	4.2	27.9	65.1	0.0	2.8
2	55767	1.9L	68	56VH	33VH	206H	219H	1370H	14VL	6.8		0.3	9.5	5.5	18.9	71.9	3.0	0.6
3	55768	2.4M	78	37H	24VH	215H	295VH	910M	69L	6.6		0.5	8.3	6.6	29.2	54.6	6.0	3.6
4	55769	0.7L	44	52VH	24VH	209M	323VH	1880H	41L	7.5		0.0	12.8	4.2	20.8	73.6	0.0	1.4
5	55770	0.6L	42	56VH	55**	184M	437VH	1400M	166H	6.0	6.7	2.1	13.8	3.4	26.0	50.4	15.0	5.2

** $NaHCO_3$-P unreliable at this soil pH

SAMPLE NUMBER	NITRATE NO_3 ppm-NO3-N RATE	SULFUR S ppm-S RATE	ZINC Zn ppm-Zn RATE	MANGANESE Mn ppm-Mn RATE	IRON Fe ppm-Fe RATE	COPPER Cu ppm-Cu Rate	BORON B ppm-B RATE	EXCESS LIME RATE	SOLUBLE SALTS mmhos/cm RATE	CHLORIDE Cl ppm-Cl RATE	PARTICLE SIZE ANALYSIS % SAND	% SILT	% CLAY	SOIL TEXTURE
1	5L	5L	1.4M	15H	23H	2.0H	1.6H	L	0.4L		35	36	29	CLAY LOAM
2	23M	8L	25.8VH	9M	48VH	6.4VH	2.3VH	L	0.6L		63	20	17	SANDY LOAM
3	14M	4L	1.9M	8L	29VH	1.3H	1.2M	L	0.3L		51	26	23	SANDY CLAY LOAM
4	10L	7L	1.2M	10M	14M	2.2H	0.8M	L	0.6L		35	36	29	CLAY LOAM
5	93VH	3VL	1.6M	90VH	145VH	4.1VH	1.6H	L	0.8M		39	30	31	CLAY LOAM

This report applies only to the sample(s) tested. Samples are retained a maximum of thirty days after testing.

By MIKE BUTTRESS, CPAg

* CODE TO RATING: VERY LOW (VL), LOW (L), MEDIUM (M), HIGH (H), VERY HIGH (VH), AND NONE (N).

** ENR - ESTIMATED NITROGEN RELEASE

*** MULTIPLY THE RESULTS IN ppm BY 2 TO CONVERT TO LBS. PER ACRE OF THE ELEMENTAL FORM

**** MULTIPLY THE RESULTS IN ppm BY 4.6 TO CONVERT TO LBS. PER ACRE P_2O_5

***** MULTIPLY THE RESULTS IN ppm BY 2.4 TO CONVERT TO LBS. PER ACRE K_2O

MOST SOILS WEIGH TWO (2) MILLION POUNDS (DRY WEIGHT) FOR AN ACRE OF SOIL 6-2/3 INCHES DEEP

Appendix B

MEMORANDUM

To: Ann Cutner, EDAW

From: Martha Blane, Martha Blane & Associates

Date: September 22, 1995

Re: Sepulveda Basin, Site Observation Notes and Plant Species List

During our site visit and meeting with Steve Hartman on July 10, 1995, the following observations and plant species were noted:

The site and surrounding areas have a large variety of weed species occurring in various densities. It appears that the revegetation areas receiving weed control from different groups has been and continues to be relatively effective.

This indicates that initial and long-term eradication/management of exotic species is not only effective but necessary to establish native habitats on-site. In addition to eradication of weed species at the time of planting new areas, a long-term weed control plan would be required to ensure the long-term viability of native plantings. Additionally, to reduce new infestations of weeds in the future, areas surrounding the site should receive weed control treatments as well. Haskell Creek, upstream form Woodley Park, is an example of an area where weed control would help to reduce infestations into the site.

From the biological perspective, a long-term management plan would also be useful in addressing other issues such as herbivore control and pest management.

The attached plant species list is based on casual observation made during our site visit with Steve Hartman. This list is not intended to be a complete listing of species occurring on-site or as a floral assessment of the site. Species marked with an asterisk (*) indicate exotic species noted.

SCIENTIFIC NAME	COMMON NAME
ACERACEAE	MAPLE FAMILY
Acer negundo	box elder
AGAVACEAE	AGAVE FAMILY
Yucca whipplei	our Lord's candle
ANACARDIACEAE	SUMAC FAMILY
Malosma laurina	laurel sumac
Rhus ovata	sugar bush
Schinus terebinthifolius *	Brazilian pepper
APIACEAE	CARROT FAMILY
Foeniculum vulgare *	sweet fennel
APOCYNACEAE	DOGBANE FAMILY
Nerium oleander *	oleander
ARECACEAE	PALM FAMILY
Washingtonia filifera *	fan palm
ASCLEPIADACEAE	MILKWEED FAMILY
Asclepias fascicularis	
ASTERACEAE	SUNFLOWER FAMILY
Ambrosia acanthicarpa	spiny ragweed
Ambrosia psilostachya	western ragweed
Artemsia californica	California sagebrush
Artemsia douglasiana	mugwort
Baccharis emoryi	Emory's baccharis
Baccharis glutinosa	mulefat
Baccharis pilularis	coyote bush
Centaurea melitensis *	Italian star thistle

* Indicates exotic species.

SCIENTIFIC NAME	COMMON NAME
ASTERACEAE (Cont'd)	SUNFLOWER FAMILY (Cont'd)
Cirsium spp. *	thistle
Conyza canadensis *	common horseweed
Helianthus annuus	western sunflower
Heterotheca grandiflora	telegraph weed
Latuca serriola *	prickly lettuce
Senecio douglasii	butterweed
Silybum marianum *	milk thistle
Xanthium strumarium *	cocklebur
BETULACEAE	BIRCH FAMILY
Alnus rhombifolia	white alder
BORAGINACEAE	BORAGE FAMILY
Amsinckia intermedia	common fiddleneck
Heliotropium curvassavicum	heliotrope
BRASSICACEAE	MUSTARD FAMILY
Brassica geniculata *	summer mustard
Brassica nigra *	black mustard
Raphanus sativus *	wild radish
Rorippa nasturtium-aquaticum	water-cress
Sisymbrium altissimum *	tumble mustard
CACTACEAE	CACTUS FAMILY
Opuntia littoralis	prickly pear cactus
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY
Sambucus mexicana	Mexican elderberry
CHENOPODIACEAE	GOOSEFOOT FAMILY
Atriplex semibaccata *	Australian saltbush
Chenopodium album *	lamb's quarters
Chenopodium ambrosioides *	Mexican tea
Salsola iberica *	Russian thistle

* Indicates exotic species.

SCIENTIFIC NAME	COMMON NAME
CONVOLVULACEAE	MORNING-GLORY FAMILY
Convolvulus arvensis *	bindweed
Cuscuta californica	California dodder
CUCURBITACEAE	GOURD FAMILY
Cucurbita foetidissima	stinking gourd
CYPERACEAE	SEDGE FAMILY
Cyperus spp. *	umbrella-sedge
EUPHORBIACEAE	SPURGE FAMILY
Ricinus communis *	castor bean
FABACEAE	LEGUME FAMILY
Lotus scoparius	deerweed
Lupinus sp.	lupine
Medicago polymorpha *	bur-clover
Melilotus albus *	white sweet-clover
FAGACEAE	OAK FAMILY
Quercus agrifolia	coast live oak
Quercus lobata	valley oak
GERANIACEAE	GERANIUM FAMILY
Erodium cicutarium *	red-stemmed filaree
HYDROPHYLLACEAE	WATER-LEAF FAMILY
Phacelia sp.	phacelia
JUGLANDACEAE	WALNUT FAMILY
Juglans californica	California walnut

* Indicates exotic species.

SCIENTIFIC NAME	COMMON NAME
LAMIACEAE	MINT FAMILY
Marrubium vulgare *	horehound
Salvia apiana	white sage
Salvia leucophylla	purple sage
LAURACEAE	LAUREL FAMILY
Umbellularia californica	California bay laurel
MALVACEAE	MALLOW FAMILY
Malva parviflora *	cheeseweed
MYRTACEAE	MYRTLE FAMILY
Eucalyptus camaldulensis *	red gum
Eucalyptus globosus *	blue gum
OLEACEAE	OLIVE FAMILY
Fraxinus velutina	Arizona ash
PINACEAE	PINE FAMILY
Pinus sp. *	pine
PLANTAGINACEAE	PLANTAIN FAMILY
Plantago major *	common plantain
PLANTANACEAE	SYCAMORE FAMILY
Platanus racemosa	California sycamore

* Indicates exotic species.

SCIENTIFIC NAME	COMMON NAME
POACEAE	GRASS FAMILY
Arundo donax *	giant reed
Avena barbata *	slender wild oat
Bromus diandrus *	ripgut brome
Bromus rubens *	red brome
Cynodon dactylon *	bermuda grass
Hordeum leporinum *	foxtail barley
Paspalum dilatatum *	dallis grass
Sorghum halepense *	Johnson grass
Zea mays *	cultivated corn
POLYGONACEAE	BUCKWHEAT FAMILY
Eriogonum fasciculatum	California buckwheat
Polygonum spp. *	
Rumex crispus *	curly dock
RHAMANACEAE	BUCKTHORN FAMILY
Ceanothus cuneatus	buckbrush
Rhamnus califonica	coffeeberry
ROSACEAE	ROSE FAMILY
Heteromeles arbulifolia	toyon
Rosa californica	wild rose
SALICACEAE	WILLOW FAMILY
Populus fremontii	western cottonwood
Populus spp.	
Salix spp.	willow
SAXIFRAGACEAE	SAXIFRAGE FAMILY
Ribes aureum	golden currant
Ribes speciosum	fuchsia-flowering gooseberry
SIMAROUBACEAE	QUASSIA FAMILY
Alianthus altissima *	tree of heaven

* Indicates exotic species.

SCIENTIFIC NAME	COMMON NAME
SOLANACEAE	NIGHTSHADE FAMILY
Datura meteloides	jimson weed
Nicotana glauca *	Indian tree tobacoo
TYPHACEAE	CAT-TAIL FAMILY
Typha sp.	cat-tail
ULMACEAE	ELM FAMILY
Ulmus parvifolia *	Chinese elm
VERBENACEAE	VERVAIN FAMILY
Verbena lasiostachya	vervain, verbena
VITACEAE	GRAPE FAMILY
Vitis girdiana	California grape

* Indicates exotic species.

Appendix C

CHECKLIST OF FACILITIES WHICH MAY BE COST SHARED IN RECREATION DEVELOPMENTS AT NEW CORPS NON-LAKE STRUCTURAL LOCAL FLOOD CONTROL PROJECTS[1]

I Access and Circulation

- Roads
- Turnarounds
- Trails (multiple-use)
- Parking
- Bridges and Culverts
- Walks
- Steps/ramps
- Footbridges[2]

II Structures

- Sanitation
  - Vault Toilets
  - Comfort Stations
- Shelters
  - Picnic
  - Trail
- Camping[3]
  - Camping Pads
  - Outdoor Cooking

III Utilities

- Water Supply
  - Municipal System[4]
  - Wells
  - Drinking Fountains and Faucets
- Sewage and Waste Water Disposal
  - Municipal System
  - Septic Tanks and Tile Fields
- Storm Drainage
- Public Telephone

IV Site Preparation/Restoration

- Clearing and Grubbing
- Grading and Land Form
- Vegetative restoration - includes native trees, shrubs and turf establishment

V Park Furniture

- Picnic Tables
- Grills and Fireplaces
- Trash Receptacles/Holders
- Benches

VI Play Activities

Play Area (Open space) (grading only)
Play Equipment (standard)
(basic climbing, swinging and sliding apparatus)

VII Signs

Entrance-Directional-Marker
Traffic Control
(Vehicular and Pedestrian)
Instructional
(Includes Fire Danger Notices)

VIII Interpretive Guidance and Media

Display Boards
Interpretive Markers
(Natural, Historical, Archaeological, etc.)
Bulletin Board

IX Protection, Control, Health and Safety

Protection and Control
Gates and Barricades
Cattle Guards
Walls and Fencing
Guardrails
Entrance Stations
Health and Safety
Lighting
Handrails

1. Facilities to be cost shared are limited to standard designs consistent with the natural environment of the surrounding area but should not include embellishments, elaborate designs, or be ostentatious.

2. Footbridges are to be austere and used only when other crossings methods are impractical. Footbridges which are the center of recreation experience are to be a non-Federal cost. Pedestrian bridges at highways or railroads are to be a non-Federal cost.

3. Allowable only at dry-bed reservoirs.

4. Connection to an existing municipal system.

September 26, 1995

SEPULVEDA BASIN WILDLIFE PARK
Los Angeles, California
EDAW Job No. #4N413.02

STATEMENT OF PROBABLE LANDSCAPE CONSTRUCTION COSTS FOR PHASE I - DRAFT
(This estimate is based upon EDAW's Final Concept Plan, dated September 26, 1995)

DESCRIPTION	QUANTITY	COST	TOTAL
1. NORTH AREA : (965,187 SF / 22.15 AC)			
DEMOLITION / CLEAN-UP :			
Remove Existing Parking Lot	71,145 SF	0.25	17,786.25
Remove Existing Palm Trees	5 EA	380.00	1,900.00
Remove Existing Fence	ALLOW	2,000.00	2,000.00
Demolition / Clean-up Subtotal			$19,686.25
ARCHITECTURE:			
Comfort Station	1,200 SF	150.00	~~180,000.00~~
Trellis	850 SF	20.00	~~17,000.00~~
Utility Connections (Sewer, Electrical and Potable Water)	ALLOW	50,000.00	~~50,000.00~~
Architecture Subtotal			$247,000.00
HARDSCAPE:			
Rough Grading - Parking Lot, Bus Turn-out and Amphitheatre	50,000 SF	0.20	10,000.00
Parking Lot Paving	45,449 SF	2.50	113,622.50
Accent Paving	1,425 SF	8.00	11,400.00
Amphitheater - Seatwalls Concrete 12" High Medium Sandblast	190 LF	27.00	5,130.00
Picnic Tables	6 EA	1,200.00	~~7,200.00~~
DG Maintenance / Pedestrian Trail - 10' wide x 3" thick	17,600 SF	2.00	35,200.00
Benches	4 EA	850.00	3,400.00
Interpretive Elements	ALLOW	30,000.00	30,000.00
Boulders ($75/Ton)	ALLOW	5,000.00	5,000.00
Site Lighting	ALLOW	20,000.00	~~20,000.00~~
Trash Receptacles	3 EA	350.00	1,050.00
Hardscape Subtotal			$242,002.50
SOFTSCAPE:			
Fine Grading	10,000 SF	0.11	1,100.00
Oak Savannah			
Trees - 24" Box (Around Parking Lot and Comfort Station)	100 EA	250.00	25,000.00
Trees - 15 Gallon (54/AC)	1080 EA	70.00	75,600.00
Trees and Shrubs - 5 Gallon (142/AC)	2840 EA	20.00	56,800.00
Shrubs - 1 Deep Gallon (213/AC)	4260 EA	6.50	27,690.00
Shrubs - 5 1/2" x 6" Container (155/AC)	3100 EA	1.30	4,030.00
Augered Hole in Plant Pit (for 24" boxes, 15's and 5's)	4,020 EA	5.00	20,100.00
3" Deep Mulch in Plant Basins (For Trees and Shrubs)	127 CY	10.00	1,270.00

Turf - Sod	5,000 SF	0.35	1,750.00
Irrigation - Conventional Spray	5,000 SF	1.00	5,000.00
Irrigation - Bubble Basin for Trees and Shrubs	ALLOW	100,000.00	100,000.00
Two Year Landscape Maintenance (.02/SF/YR)	357,500 SF	0.04	14,300.00
Total Softscape			$332,640.00
			841,328.75
North Area Subtotal			
2. WEST AREA:			
(3,891,127 SF / 89.32 AC)			
HARDSCAPE:			
Fine Grading - Trails	51,500 SF	0.11	5,665.00
DG Maintenance / Pedestrian Trail - 10' wide x 3" thick	51,500 SF	2.00	103,000.00
Woodcrete Fence - West of Woodley	4,800 LF	24.00	115,200.00
Hardscape Subtotal			$223,865.00
			$223,865.00
West Area Subtotal			
3. MIDDLE AREA :			
(1,992,684 SF/45.74 AC)			
DEMOLITION / CLEAN-UP :			
Remove Existing Pedestrian Crossing	ALLOW	5,000.00	5,000.00
Demolition / Clean-up Subtotal			$5,000.00
HARDSCAPE:			
Fine Grading - Trails	8,250 SF	0.11	907.50
DG Maintenance / Pedestrian Trail - 10' wide x 3" thick	8,250 SF	2.00	16,500.00
Woodcrete Fence - North of Burbank and East of Woodley	4,300 LF	24.00	103,200.00
Viewing Areas	1 EA	1,000.00	1,000.00
Interpretive Elements	ALLOW	5,000.00	5,000.00
Hardscape Subtotal			$126,607.50
SOFTSCAPE:			
Weed Eradication - Soil Solarization and Spot Spray	1,272,684 SF	0.07	89,087.88
Cross Ripping	1,272,684 SF	0.01	12,726.84
Oak Savannah (1,072,684 SF/24.62 AC)			
Trees - 15 Gallon (54/AC)	1,329 EA	70.00	93,030.00
Trees and Shrubs - 5 Gallon (193/AC)	3,496 EA	20.00	69,920.00
Shrubs - Deep Gallon (213/AC)	5,244 EA	6.50	34,086.00
Shrubs - 5 1/2"x6" Container (155/AC)	3,816 EA	1.30	4,960.80
4" Container (255/AC)	6,278 EA	2.00	12,556.00
Supercell Container (1400/AC)	34,468 EA	2.00	68,936.00
Hand Seed, Drill or Imprint	1,072,684 SF	0.03	32,180.52
Riparian Woodland (720,000 SF/16.50 AC)			
Trees and Shrubs - 5 Gallon (65/AC)	1,072 EA	20.00	21,440.00
Trees and Shrubs - Deep Gallon (810/AC)	13,365 EA	6.50	86,872.50
4" Container (295/AC)	4,867 EA	2.00	9,734.00
Oak / Sycamore Woodland (200,000 SF/4.59 AC)			
Trees - 15 Gallon (66/AC)	309 EA	70.00	21,630.00
Trees and Shrubs - 5 Gallon (181/AC)	830 EA	20.00	16,600.00

Shrubs - Deep Gallon (285/AC)	1,308 EA	6.50	8,502.00
4" Container (220/AC)	1,009 EA	2.00	2,018.00
Supercell Container (1100/AC)	5,049 EA	2.00	10,098.00
Hand Seed, Drill or Imprint	200,000 SF	0.03	6,000.00
Augered Hole in Plant Pit (for 5's and 15's)	7,036 EA	5.00	35,180.00
3" Deep Mulch in Plant Basins	300 CY	10.00	3,000.00
Irrigation - Automatic Bubbler Basin for Trees and Shrubs	ALLOW	187,000.00	187,000.00
Two Year Landscape Maintenance (.01/SF/YR)	1,992,684 SF	0.02	39,853.68
Softscape Subtotal			865,412.22
Middle Area Subtotal			**$997,019.72**
4. HASKELL CREEK:			
(299,180 S.F.)			
DEMOLITION / CLEAN-UP :			
Remove Existing Pedestrian Crossing	ALLOW	5,000.00	5,000.00
Demolition / Clean-up Subtotal			$5,000.00
HARDSCAPE:			
Rough Grading - Haskell Creek	30,000 CY	3.00	90,000.00
Pedestrian Bridge	2 EA	10,000.00	20,000.00
Viewing Areas	2 EA	1,000.00	2,000.00
Interpretive Elements	ALLOW	10,000.00	10,000.00
Hardscape Subtotal			$122,000.00
SOFTSCAPE:			
Weed Eradication - Spot Spray and Hand Pull	299,180 SF	0.01	2,991.80
Riparian Woodland (299,180 SF/6.86 AC)			
Trees and Shrubs - 5 Gallon (65/AC)	446 EA	20.00	8,920.00
Trees and Shrubs - Deep Gallon (810/AC)	5,556 EA	6.50	36,114.00
4" Container (295/AC)	2,023 SF	2.00	4,046.00
Augered Planting Pits - 6' Deep (5's and 1's)	6,002 EA	5.00	30,010.00
Irrigation - Quick Coupler System for Hose Watering	ALLOW	20,000.00	20,000.00
Two Year Maintenance / Hand Watering	299,180 SF	0.05	14,959.00
Softscape Subtotal			117,040.80
Haskell Creek Subtotal			**$244,040.80**
5. EAST AREA:			
(2,318,959 SF / 53.23 AC)			
HARDSCAPE:			
Raised Simulated Wood Trails - 8' Wide	5,600 SF	15.00	84,000.00
Viewing Area / Bird Blinds	3 EA	15,000.00	45,000.00
Interpretive Elements	ALLOW	15,000.00	15,000.00
Hardscape Subtotal			144,000.00
SOFTSCAPE:			
Weed Eradication - Soil Solarization and Spot Spray	2,000,000 SF	0.07	140,000.00
Cross Ripping	2,000,000 SF	0.01	20,000.00
Native Grassland / Forage Planting (2,000,000 SF / 45.91 AC)			
Hand Seed, Drill or Imprint	2,000,000 SF	0.03	60,000.00
Two Year Landscape Maintenance (.01/SF/YR)	2,318,959 SF	0.02	46,379.18

Softscape Subtotal			266,379.18
East Area Subtotal			**$410,379.18**

6. SOUTH AREA:
(2,475,665 S.F.)

HARDSCAPE:

Fine Grading - Trails	116,500 SF	0.11	12,815.00
DG Maintenance / Pedestrian Trail - 10' wide x 3" thick	116,500 SF	2.00	233,000.00
Perimeter Fence / Woodcrete - South of Burbank	2,800 LF	24.00	67,200.00
Pedestrian / Vehicular Bridge	1 EA	70,000.00	70,000.00
Hardscape Subtotal			137,200.00
South Area Subtotal			**137,200.00**

SUMMARY:

1. **North Area**	**841,328.75**
2. **West Area**	**223,865.00**
3. **Middle Area**	**997,019.72**
4. **Haskell Creek**	**244,040.80**
5. **East Area**	**410,379.18**
6. **South Area**	**137,200.00**
Subtotal	**$2,853,833.45**
15% Contingency	428,075.02
Total	**$3,281,908.47**
10% Engineering and Design	328,190.85
6% Supervision and Administration	196,914.51
Grand Total	**$3,807,013.82**

COST ESTIMATE EXCLUSIONS

This estimate is based on the following assumptions:

1. Permits, bonds, insurance, contractor profit, taxes and fees are not included.
2. The interpretive elements will be designed in the next phase. The numbers represented in this cost estimate is only a place holder.
3. No site lighting is included except at the staging area.

1/16/96

SEPULVEDA MTG. 1:00 pm

SIGN IN ROSTER

NAME	ORGANIZATION	PHONE
KEN MORRIS	CORPS - ENV. DES. SECT.	(213) 894-5421
JIM ANDERNICHT	R&P	818-756-9404
Stephen C. Mac	R&P	818 756 9710
ANDY LOPEZ	CORPS OF ENG.: ENV. DES. SECTION	(213) 894-0822
Bob FAUCETT	R&P	485-4819
TED CARR	CORPS - OPERATIONS	(213) 894-5635
Debbie Lamb	Corps WRD	213 894-5464
Laura Yoshizumi	R&P Grants Div	485-4880
Ruth Villalobos	Corps of Engr	(213) 894-5413

Funds Available.

1.8 mil	City (ESCRW.)
1.0 mil	Corps.
2.8 mil.	

Construction	2.0 mil
15% Contingency	300,000
	2,300,000
10% E&D	230,000
6.5% S&A	150,000
	2,680,000

60% of 230,000 - $138,000 P&E.