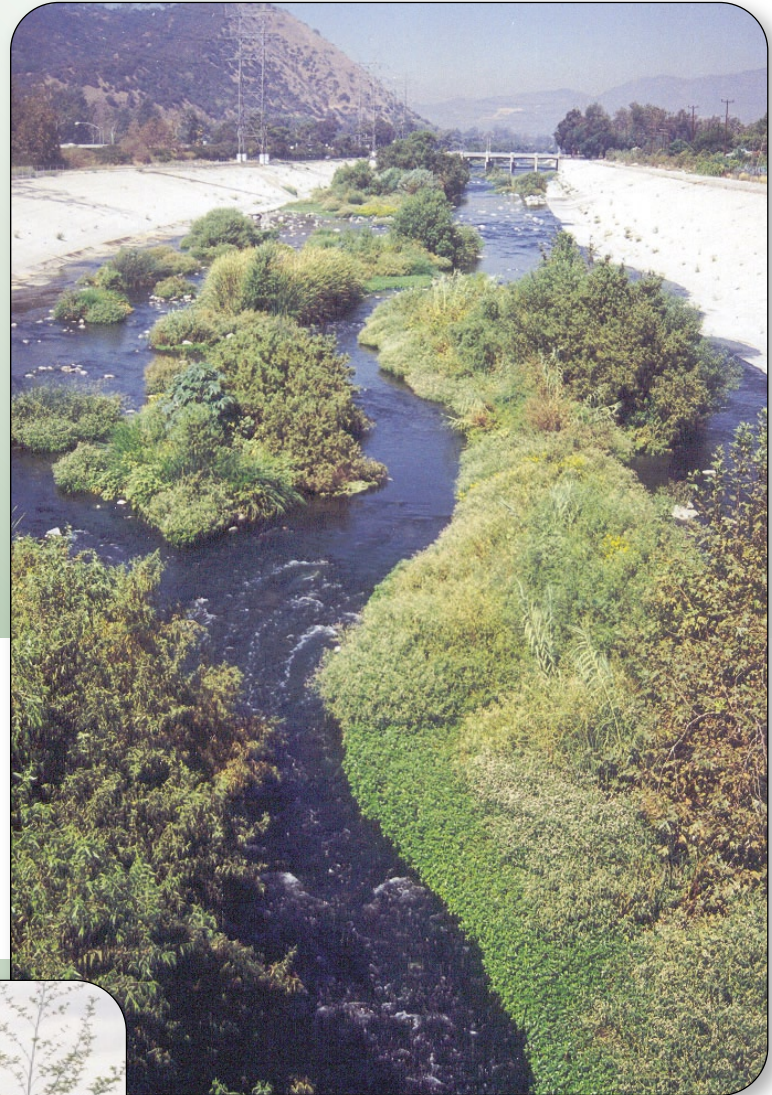


LANDSCAPING GUIDELINES AND PLANT PALETTES

January 2004





LOS ANGELES RIVER MASTER PLAN LANDSCAPING GUIDELINES AND PLANT PALETTES

A County of Los Angeles Department of Public Works resource that provides a framework for public recreation and non-motorized transportation, creates an indigenous native plant landscape, implements watershed management BMPs, utilizes sustainable forms of energy and materials, and creates an identity for the Los Angeles River.

January 2004

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Purpose

The Los Angeles River Master Plan produced by the County of Los Angeles Department of Public Works, Parks and Recreation and Regional Planning, the National Park Service and the Master Plan Advisory Committee, articulates the vision for the development of a continuous natural scenic and recreational corridor enhancement of the existing flood control channel. Adherence to the Master Plan will ultimately promote and increase the value of the river, aesthetically, economically, and ecologically.

The importance of the Master Plan is far reaching. The County as the leading agency has established greening as a clear priority, and mandates for the first time since channelization a shift in public policy that redefines the function of this watercourse from single to multi- purpose uses. With a commitment to reclaiming the river heritage, this 51 mile corridor of the Los Angeles River, and 9 mile corridor of the Tujunga Wash can not only serve the purpose of flood protection (Fig. A), but can help meet the public's open space needs (Fig. B). Once implemented, public use of the river corridor will provide a strong sense of regional pride and identity that will join communities presently separated by these channels.

The Landscaping Guidelines and Plant Palettes for the Los Angeles River and Tujunga Wash provides County approved guidelines and procedures for project proponents to implement projects that demonstrate best management practices (BMPs) for watershed protection, and acceptable amenities and plant materials for public use between the top of the channel and the right-of-way (ROW) limits. Plant setbacks and site amenities, materials, and application standards can be used as a reference to aid in future development plans. This document also constitutes one of several County resources available to agencies, planners, engineers, architects, landscape architects, property owners, and community groups interested in preparing plans for the development of



Figure A. Flood Damage in the Burbank/Studio City area, 1920s.
Photo by Lakeside Golf Course Archives



Figure B. Flood Protection Channel and multi-use trail in the Burbank/Studio City area

public open space along the Los Angeles River.

The Landscaping Guidelines are specifically for the public ROW adjacent to the Los Angeles River system. It is hoped that the Guidelines will be useful to other watershed groups that wish to incorporate the ecological approach followed in this document. These Guidelines and Plant Community Lists may be cautiously extrapolated to other tributaries within the Los Angeles River watershed including Arroyo Seco, Compton Creek, Rio Hondo, and all the tributaries in the San Fernando Valley. However,

the plant lists for the Los Angeles River watershed were derived from historic resources (Abrams 1904), Rancho Santa Ana Botanic Garden, and other documents. These resources will need to be consulted for the compilation of plant lists specific to other watersheds.

These Guidelines incorporate concepts of sustainability, creative design, and sound ecological concepts and are based on the conditions presented by the various sites along the Los Angeles River. However, since the Los Angeles River development is an on-going effort, information in these Guidelines is subject to change. The Guidelines will be updated as

necessary, to reflect consensus-based recommendations derived by the Los Angeles River Master Plan Advisory Committee.

The Guidelines are divided into two parts: Design Considerations and Planting Guidelines. The Design Considerations outline the goals and approach to revegetation of the public ROW. The Planting Guidelines are specific to the process of planning and planting the ROWs. The Appendices provide additional information for the process (Appendix A), the plant community descriptions and lists (Appendix B), sources for materials (Appendix C)*, a glossary and a bibliography.

*** DISCLAIMER -**

This list is a small representation of the resources currently available on the market. It is neither comprehensive, nor does the listing of any product and/or vendor in the Guidelines constitute a recommendation or endorsement by the Los Angeles County Department of Public Works (LACDPW).

If you are a vendor for any of the products listed within the Guidelines and would like your product in this guide, please fill out the form on page 153 of the Guidelines and return it to the Department of Public Works.

Part I

Los Angeles River Landscape Design Considerations



Figure 1.1 Guadalupe River multi-use path, San Jose, CA



Figure 1.2 Woonasquatucket River Water Park, Providence, RI



Figure 1.3 Soft bottom portion of Los Angeles River at Willow Street, Long Beach

1.0 Introduction

Within the State of California and throughout the United States, wonderful examples of urban river treatments provide inspiration and guidance for those involved in the Los Angeles River recreation and greenway corridor planning and implementation process. Each project represents successful recreational utilization of a river through a metropolitan area. Although every river condition differs, the growing demand from the public to maximize their particular waterway as an amenity leads to similar design applications. Planning and design solutions common to each successful river project include: 1) Public access to the water at various locations, 2) A myriad of pedestrian scale site amenities, trees, and open spaces along the entire urban waterfront, and 3) A high priority placed on providing a quality environment along the river as an asset to the community.

The Guadalupe River in San Jose, California is unique in that the implementation of public design elements became the flood control solution for the Army Corps of Engineers. New parks and open spaces provide flood protection by widening the river corridor and allowing a riparian forest to be restored at the river's edge (Fig 1.1).

The City of Providence, Rhode Island incorporated its river into the downtown core as a public water park plaza (Fig 1.2).

Implementation of watershed management solutions are necessary for the Los Angeles River to evolve to similar value and benefit to the public. Its existing charm lies in its soft bottom areas, historic bridges, landscape variations from Long Beach to Calabasas, and in the dozens of neighborhoods lining its banks (Fig 1.3).

Tujunga Wash is a tributary and part of the greater watershed contributing stormwater flow into the Los Angeles River. Tujunga Wash below Hansen Dam is also channelized (Fig 1.4), and many areas along

the nine miles are documented in the Master Plan as being prime habitat restoration sites due to the relative abundance of open space and ground water recharge basins. Unique to the character of Tujunga Wash is the gravel, dry alluvial wash landscape still evident behind Hansen Dam. The Dam itself is a local landmark, a popular recreation area, and a viable habitat site.



Figure 1.4 Tujunga Wash looking south from San Fernando Road

Why Native Plant Associations for the Los Angeles River?

These naturalistic native plant associations emulate the historic landscapes of the Los Angeles Basin, helping to restore a special “sense of place” and visual identity to the river environment. Moreover, they can provide habitat for indigenous and migratory wildlife. Successful establishment of these native associations along the river can expand vital habitat opportunities for wildlife species, as well as provide them with potential corridors for movement between natural areas adjacent to the river. Expansion of these wildlife habitats and historic landscapes will help reconnect the human population with our natural heritage. (Photos by Barbara Eisenstein)



Quercus engelmannii



Berberis (Mahonia) nevadensis



Eschscholzia californica



Mimulus aurantiacus
(*M. longiflorus*)



Encelia californica



Mimulus aurantiacus
(*M. longiflorus*)

2.0 Goals and Objectives

The goals of the landscape and plant palette guidelines listed below establish base-line criteria for creating a new identity for these urban river channels. Some are planning goals and objectives based on the goals of the Master Plan that extend beyond the scope of this document, yet are considered important for project proponents and their local jurisdictions to consider in the development of site specific programs. Other objectives specifically relate to channel interface in an approach that redefines a channelized riparian character and promotes consistency in installation. Each city is encouraged to apply a vernacular approach to the design and development of these areas that is reflective of that community's unique character (Fig 2.1-2.2). All signage should be accomplished in accordance with the LARMP (Los Angeles River Master Plan) Sign Guidelines (Aug 2003).

The objectives are as follows:

- A. Create a River Identity
- B. Provide a Framework for Public Recreation and Non-motorized Transportation
- C. Create an Indigenous Native Plant Landscape
- D. Implement Watershed Management Best Management Practices (BMPs) and Utilize Sustainable Forms of Energy and Materials

A. Create a River Identity

Objective A-1. Develop a riparian character along the river system.

- 1) Establish a primary plant palette consisting of indigenous L.A. River watershed native and, where possible, riparian plants.
- 2) Express the river's continuity and linearity through regular plantings of tall native trees, shrubs, grasses, wildflowers, and groundcovers.
- 3) Encourage the long range planning of diversion



Figure 2.1 Existing condition at Studio City
(Photo by Nuvis Landscape Architects)

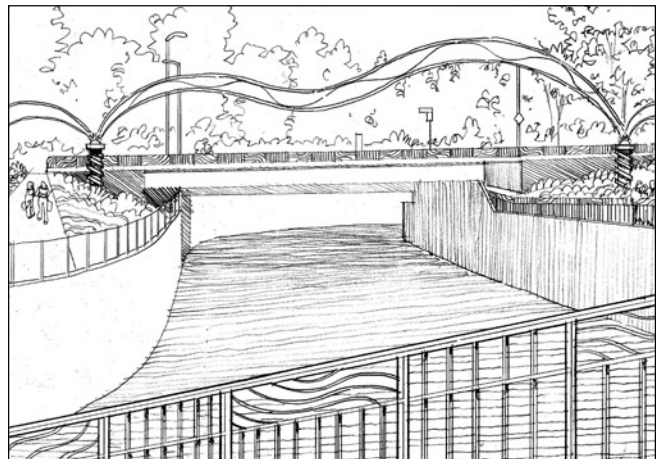


Figure 2.2 Proposed Metal Archway at Studio City
(Illustration by Nuvis Landscape Architects)

channels and future floodplain areas for riparian zones previously eliminated by channelization.

- 4) Provide a comfortable human experience by planting large native shade trees in all locations possible within the standards.

Objective A-2. Strengthen the role of the river as a positive recreational amenity that is inviting, safe, and uses available lands to the best advantage possible while providing a river-related vocabulary for structures and design.

- 1) Design winding pedestrian trails with tree cover, where possible, to soften hard channel character.



Figure 2.3 Existing conditions between Whitsett Avenue and Laurel Canyon Blvd. (Photo by Nuvis Landscape Architects)

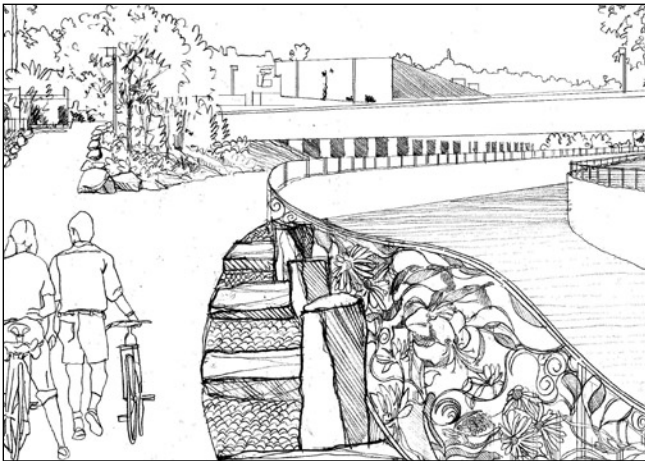


Figure 2.4 Proposed artistic panels with poetic phrasing for area between Whitsett Avenue and Laurel Canyon Blvd. (Illustration by Nuvis Landscape Architects)

- 2) Develop a materials palette for hardscape and site furnishings to establish a specific character on the river right-of-way.
- 3) Incorporate materials including artwork which suggest and enhance riparian aesthetic (i.e. decomposed granite trails, boulders, arroyo and river stone, local stone, undulating and organic shapes).
- 4) Reduce or eliminate concrete and asphalt wherever possible, to be replaced with a variety of treatments that evoke different experiences of the river or wash and to reflect the character of adjacent areas.
- 5) Use low reflectivity surfaces to return to a more natural state and to counteract the glare of the concrete channel.

Objective A-3. Establish a sense of orientation to the river within each city.

- 1) Create a strong urban design interface with the riparian/recreational corridor. Design solutions to accentuate major gateways to the river the use of gates, artwork and other amenities, to be designed specifically to the preferences of each community (Fig 2.3-2.4).
- 2) Encourage adjacent land uses to provide compatible native planting, landscape elements, and on-site stormwater management.
- 3) Re-orient existing public and private development toward the river.
- 4) Emphasize historic bridges, historic sites, and vista points through design.
- 5) All signage should be accomplished in accordance with the LARMP Sign Guidelines (Aug 2003).

B. Provide a Framework for Public Recreation and Non-motorized Transportation

Objective B-1. Optimize opportunities for use of the river as a transportation and recreation link/spine.

- 1) Assume the implementation of a continuous trail system, both paved (where appropriate) and unpaved with amenities and recreational elements along the entire river and Tujunga Wash on both sides. Paved trails should be restricted to vehicle access ramps, Class 1 bikeways, and at ADA (Americans with Disabilities Act) accessible entryway ramps (Fig 2.5-2.6).
- 2) Promote the construction of a Caltrans Class I Bike Path along the entire river length (detail p.96).
- 3) Pedestrian amenities to meet ADA standards where possible, or like access provided.
- 4) Eliminate stepovers and use bollards, gates, and signage to direct appropriate uses.
- 5) Maximize ingress and egress opportunities at all street ends, where possible, and from major



Figure 2.5 Existing conditions on Tujunga Wash

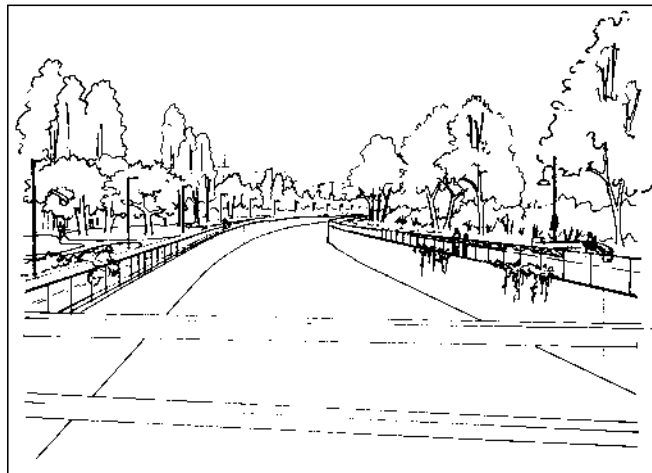


Figure 2.6 Proposed changes at Tujunga Wash

arterials to guarantee accessibility to each open space amenity as it develops (Fig 2.7).

Objective B-2. Plan for public oriented activities in key locations along a continuous pedestrian path.

- 1) Provide recreation-supporting amenities such as benches, lights, water fountains, trash receptacles, and trail markers to invite use of river as urban open space.
- 2) Ensure adequate space separating the sights and sounds of recreational use from residential areas including screening and buffering and barrier plantings where necessary.
- 3) Design interpretive sites to maximize river potential as an outdoor classroom. Design recreational areas to provide educational opportunities as well as a variety of experiences for the public.

Objective B-3. Implement Los Angeles River Sign Guidelines (Aug 2003) to promote public use and understanding of river open space and natural resources. Examples may include:

- 1) Provide access identification, warning signage, and traffic signals at significant entry points. (Fig 2.8)

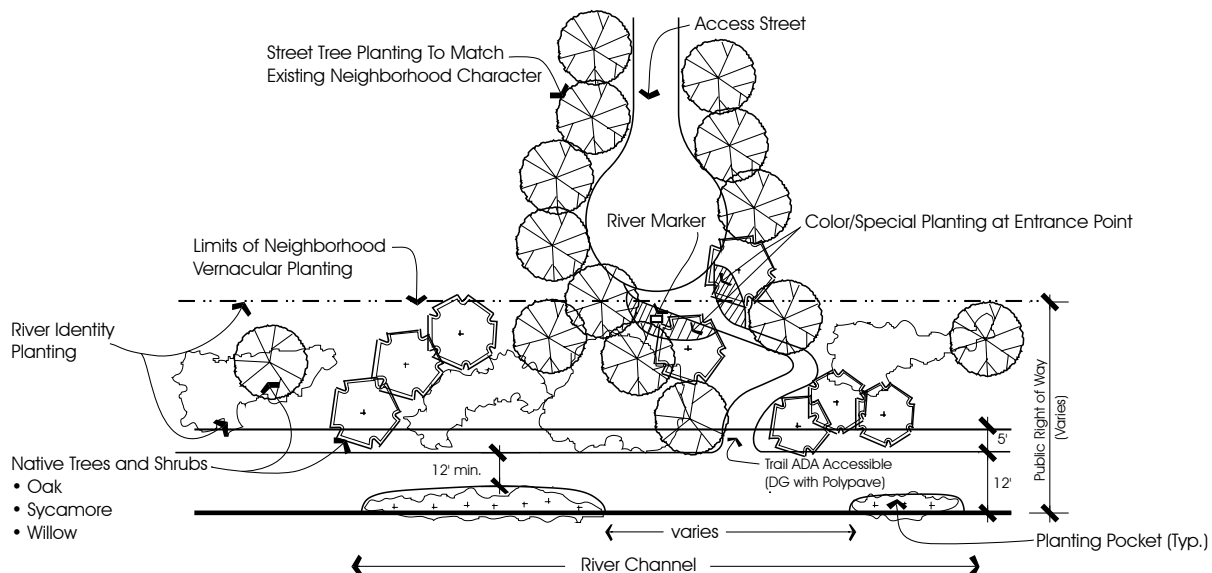


Figure 2.7 Street End Planting Example



Figure 2.8 Example of entry point signage



Figure 2.9 Previous conditions along the river in Long Beach



Figure 2.10 Improvements from the Los Angeles County Drainage Area project

- 2) Install a directional system to optimize accessibility to the river.
- 3) Install informative and interpretive signage to educate the public and promote the awareness of existing and future recreational and landscape developments along the river.
- 4) Provide signage that depicts the various biological resources indigenous to Southern California riparian areas that may be encountered along this route.

C. Create an Indigenous Native Plant Landscape

Objective C-1. Design landscapes comprising California native species, indigenous to the Los Angeles River Watershed, and that will survive within the natural rainfall and that can adapt to the microclimate, drainage and soil conditions of each site (Fig 2.9-2.10).

- 1) Implement design and planting actions that emulate the principles and processes of natural landscapes.
- 2) Where possible, establish planting areas with sufficient size to enable a diverse association of plants to grow and adapt in a self-sustaining manner.
- 3) Implement soil remediation and management practices that achieve viable levels of biological activity.

Objective C-2. Provide project proponents with readily available native plant materials and resources to support local efforts (see Appendix C).

- 1) Establish a network of nurseries and support systems that specifically collect and propagate indigenous native plant species for planting along the river corridor.
- 2) To maintain and support the integrity of local genetic resources/biodiversity, it is required that all seeds and vegetative propagules are collected from verified appropriate plant populations within the Los Angeles River watershed.

- 3) Prepare a Los Angeles River resource guide to identify resources available to project designers.
- 4) Where necessary, work with local nurseries to implement a mycorrhizal inoculation program for container plants, and manufacture supplies of inoculum for use in site rehabilitation and planting.

Objective C-3. Use existing remnants of natural wildlife habitats as templates for habitat restoration and rehabilitation.

- 1) Achieve healthy soil biology, not just chemistry, by providing the critical foundation for each stage of succession that will ultimately host a sound ecological system.
- 2) Provide successional development of plantings into communities of plants that are ultimately best suited to the conditions of their environment.

Objective C-4. Provide a continuous native tree and plant corridor along the river with linkages to riparian habitat and upland areas in close proximity to the river (Fig 2.11-2.12).

- 1) Promote land purchases of valuable habitat for preservation along the river.
- 2) Provide a diversity of cover and food sources for other riparian wildlife species that range between riparian and upland areas.
- 3) Provide interpretive signage regarding possible wildlife encounters along a river corridor.
- 4) Adhere to open space zoning and provide habitat areas in future open space development.

Objective C-5. Increase locally native biologic diversity of the river corridor.

- 1) Eliminate exotics that provide little or no habitat value and eradicate invasive exotics.
- 2) Protect existing areas and create new areas that provide suitable habitat for native species.
- 3) Provide areas along the river as “islands” for

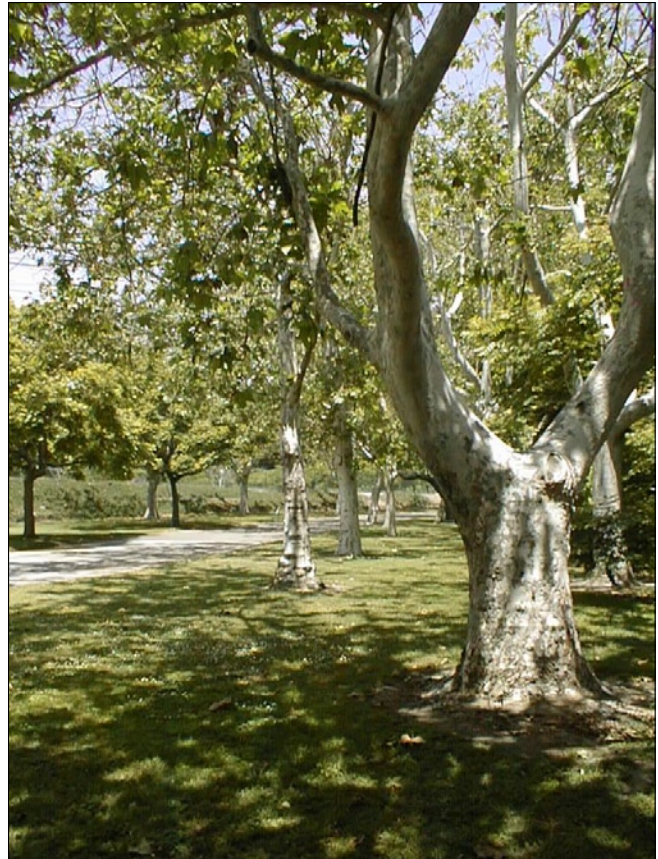


Figure 2.11 Grove of California sycamores (*Platanus racemosa*) (Photo by Barbara Eisenstein)



Figure 2.12 California sycamore (*Platanus racemosa*) - leaves and fruits (Photo by Barbara Eisenstein)

wildlife where human disturbance is minimized.

- 4) With community support, phase out non-native ornamental plants adjacent to the river.

D. Implement Watershed Management Best Management Practices and Utilize Sustainable Energy and Materials

*Objective D-1. Implement alternatives for storm-water management and water quality improvement where appropriate (Fig 2.13).**

- 1) Encourage use of permeable paving solutions, filtration and percolation of rainwater, on site water retention/detention to mitigate/eliminate water pollution and to reduce runoff.
- 2) Utilize the landscaped easement to accommodate a variety of stormwater management solutions for water quality improvements.
- 3) Devise creative solutions to reduce surface water pollutants, including ways of maximizing existing open space for this purpose.
- 4) As a long-term goal, expand land available to accept controlled, temporary flooding to improve flood control capacity of the river.

Objective D-2. Utilize sustainable forms of energy and materials.

- 1) Use solar powered light fixtures and irrigation controllers along the river wherever possible.
- 2) Implement large tree plantings against buildings abutting the easement to decrease energy costs for air conditioning units where applicable.
- 3) Promote use of light colored materials to keep surface temperatures down, where applicable.
- 4) Use recycled content materials whenever possible.
- 5) If applicable, provide Electric Vehicle (EV) hook-ups at access point so that people can drive electric vehicles to recreational facilities.

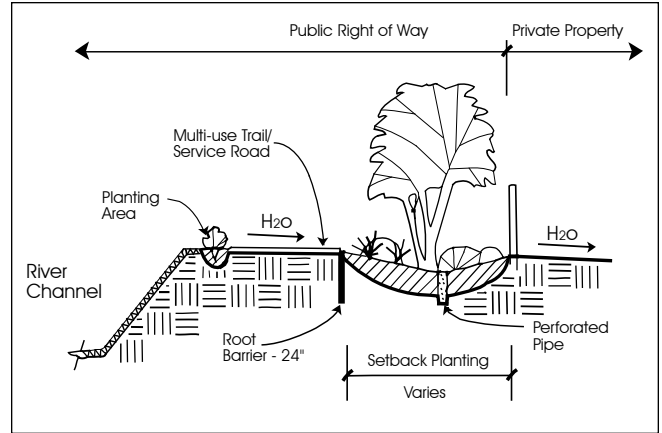


Figure 2.13 Proposed water management in public easement applying the landscape and plant palette standards with participation from adjacent land owners.

* CASQA, Stormwater Best Management Practice Handbooks, June 2003.

3.0 Los Angeles River Master Plan Coordination

The Los Angeles River Master Plan divides the Los Angeles River system into six distinct reaches relating to topographic features and city boundaries. Graphic icons are used in the Master Plan document to identify a variety of opportunities supporting public use of the river system within the six reaches (Fig 3.1). Trail locations along the river are referenced in both the Master Plan and in this document as either west bank or east bank.

Continuous paths and trails defined by the setbacks and design guidelines are consistent recreational elements throughout the reaches. The design and location of paths and trails are affected mainly by several considerations: 1) the channel configurations, 2) the US Army Corps of Engineers, City of Los Angeles or County rights-of-way widths, 3) maintenance requirements of flood control and auxiliary uses, and 4) utility easements. The landscape elements such as

site amenities provide many more opportunities for unique site specific relationships and customized detailing, based on local agency directives and County or Corps of Engineers permit approval.

The plant palette guidelines provide opportunities for distinctive design applications depending on the native palettes chosen by project proponents on a site by site basis. Plant palette selection is heavily dependent on the existing conditions of channelization (entrenched or leveed), native or imported soil conditions, access to water, sun exposure amount of shade, rights-of-way width variations and adjacent land uses. Habitat revegetation throughout the various reaches is also a goal of the Master Plan and sites are clearly indicated by a graphic icon used throughout the Master Plan Document. The restoration of a riparian forest environment by application of the standards presented in this document is more easily attainable wherever a source of water combined with open space is available. An example would be the settling ponds and percolation basin areas along Tujunga Wash and in Burbank.

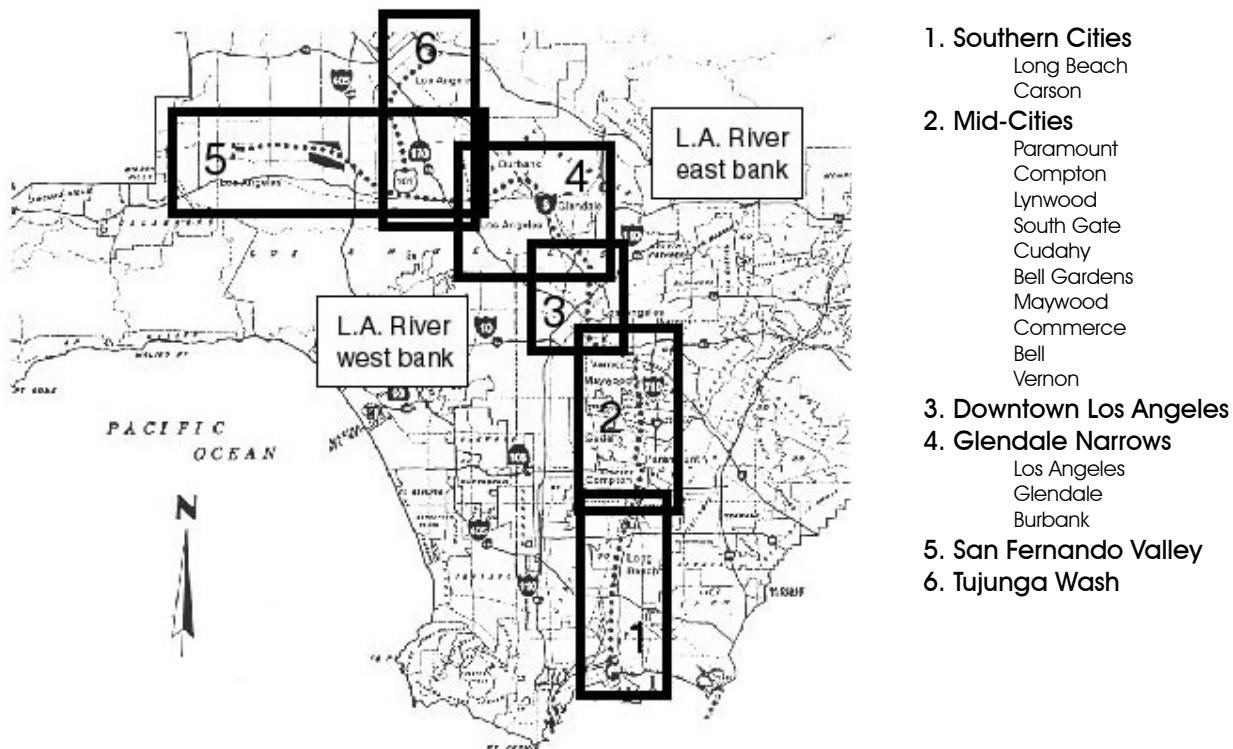


Figure 3.1 Los Angeles River Reaches as identified by the Master Plan (N.T.S)

4.0 Existing Conditions

Channel Configurations

Widths and heights of the Los Angeles River system flood control channels vary. Two basic channel designs exist: 1) the rectangular configuration seen in Figures 4.1 & 4.4 with vertical sides, and 2) the trapezoidal configuration as seen in Figures 4.2, 4.3, 4.5, & 4.6 with sloping sides that typically vary from a 2.25:1 to 3:1 slope ratio.

The public ROW includes the channel and adjacent land with width variations from five to 20 feet, with some areas providing even wider widths ideal for planting opportunities. The ROW widths allow flood control maintenance personnel and vehicles to access the channels. Service roads are generally compacted earth, asphalt, or concrete (Fig 4.1 through 4.7). There are also two channel bottom configurations: a) hard bottom; reinforced concrete or grouted stone (Fig 4.2), and b) soft bottom; vegetated areas in river (Fig 4.3). These vegetated riparian areas in the Los Angeles River support a range of riparian plant species, provide valuable bird habitat, and provide a river aesthetic of increasing value to neighboring communities participating in the river greenway corridor project.



Figure 4.1 Rectangular channel condition at the confluence of Bell and Calabasas Creeks.



Figure 4.2 Entrenched trapezoidal condition at Fourth St. Bridge.

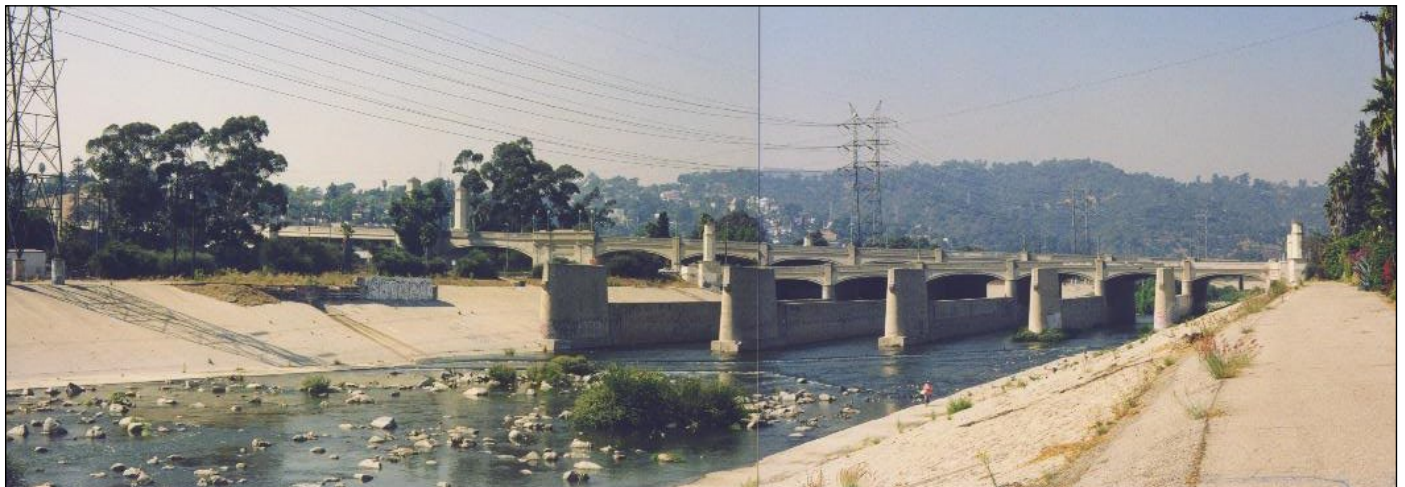


Figure 4.3 Soft bottom and trapezoidal condition at Glendale Hyperion Bridge.

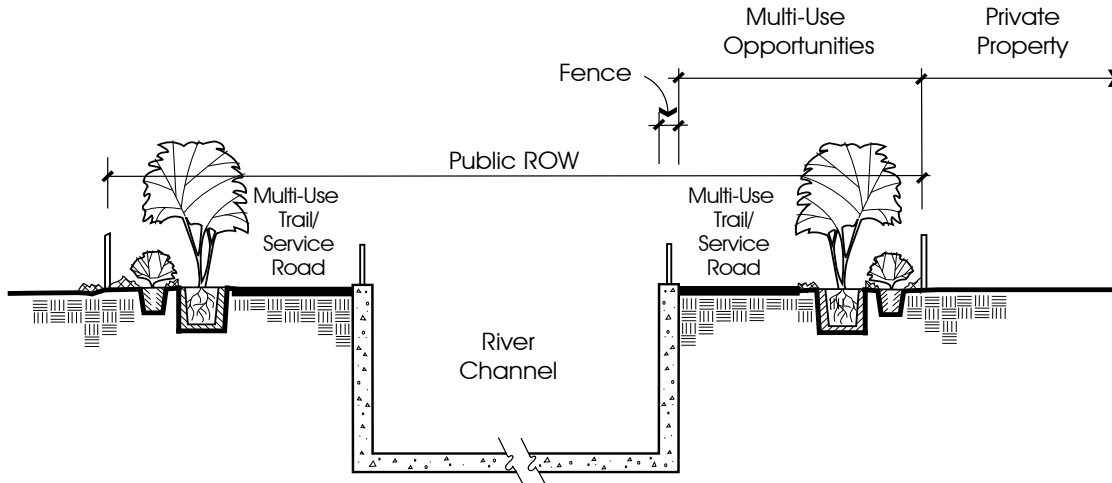


Figure 4.4 Channel: Rectangular Entrenched Existing Conditions Diagram

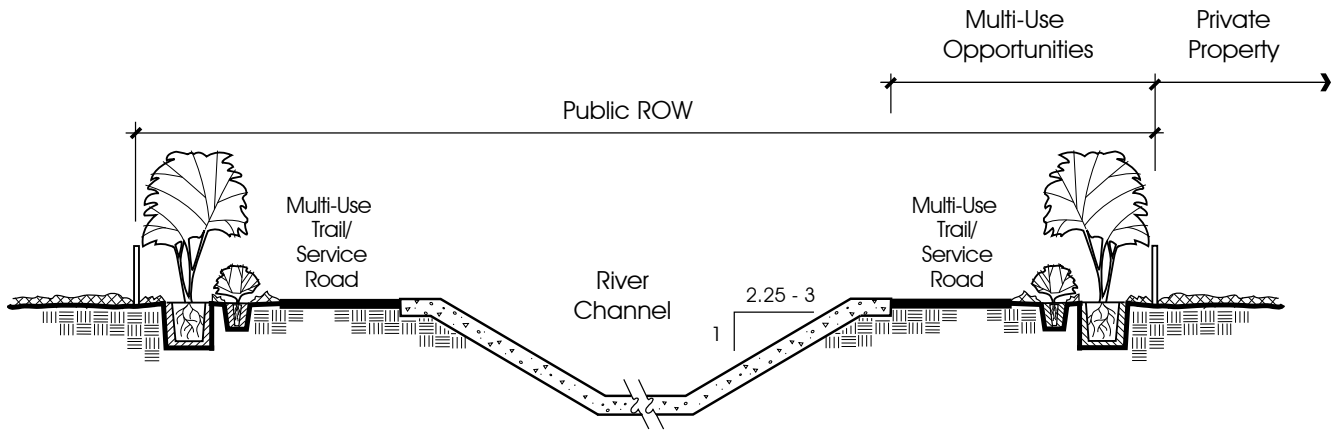


Figure 4.5 Channel: Trapezoid Entrenched Existing Conditions Diagram

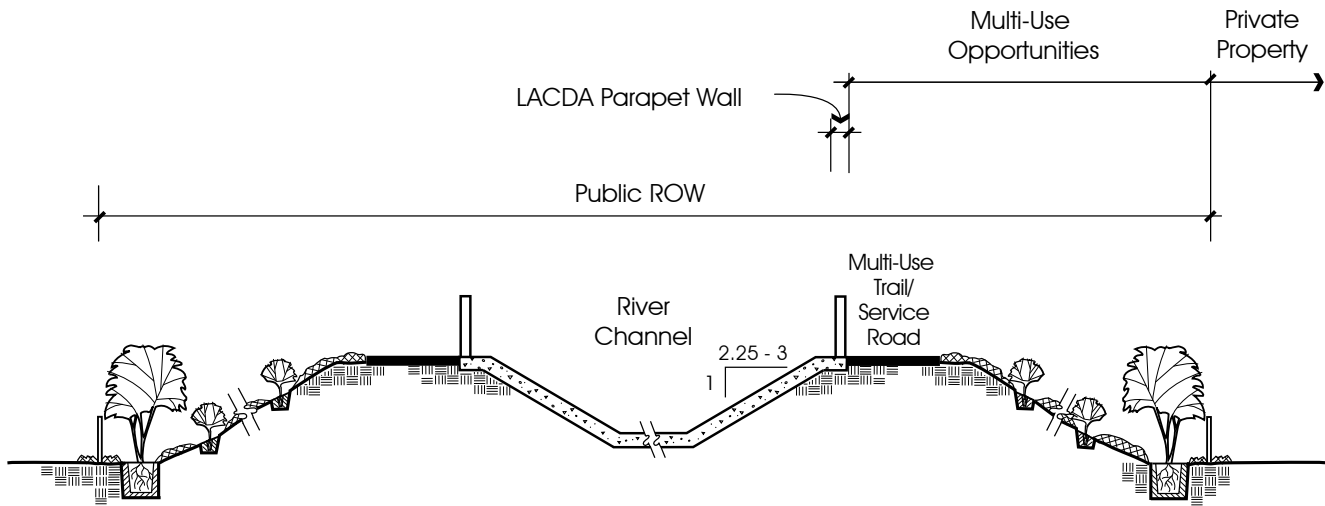


Figure 4.6 Channel: Trapezoid Leveed Existing Conditions Diagram

Additionally, the Los Angeles River is maintained in either an “entrenched channel” condition or a “leveed channel” condition. The upper Los Angeles River from its headwaters down to the City of Vernon, as well as the Tujunga Wash are considered entrenched channels. Soil conditions around the entrenched channels are anticipated to be predominantly disturbed and compacted native soils.

Imported soils and rubble are typical components of the levee structure, extending from Vernon to Long Beach. Soil contamination due to use of herbicides, pesticides, industrial uses, and dumping is a probable condition to be found in both entrenched and leveed conditions.

While no channel modification is part of this document, the channel profiles provide varying opportunities with regard to recreational use, safety considerations, planting criteria, and future stormwater management capabilities.



Figure 4.7 Leveed trapezoidal condition in Long Beach

5.0 Land Use and Maintenance Standards

A total of 13 municipal jurisdictions have authority over land adjacent to their section of the river with regard to services and land use policy. In addition, there are a number of federal, state and county jurisdictions that have an interest in activities on the river, as well as utility districts, adjacent railroads, and private ownerships that create a network of overlapping easements, ownerships and responsibilities. Several agencies have specific safety and maintenance requirements affecting the implementation of public amenities and planting along the river. The various requirements and standards of existing functions already in place along the river and wash will affect the implementation of landscaping and planting.

Flood Control Maintenance Jurisdictions

The Los Angeles County Department of Public Works, and the United States Army Corps of Engineers maintain various segments of the River and Wash channels (Figure 5.1). Service roads (paved and unpaved) along the top of the channels are used by County and Corps flood control crews to: inspect the concrete panel expansion joints occurring every 100 feet continuously and channel structural integrity; clean out weir structures on an annual basis at various locations; and respond to emergency situations. Along some sections of the river, the service road runs along both banks and in some sections on one bank. Through the industrial parts of downtown Los Angeles, no room is currently provided for service roads (see Figure 4.2).

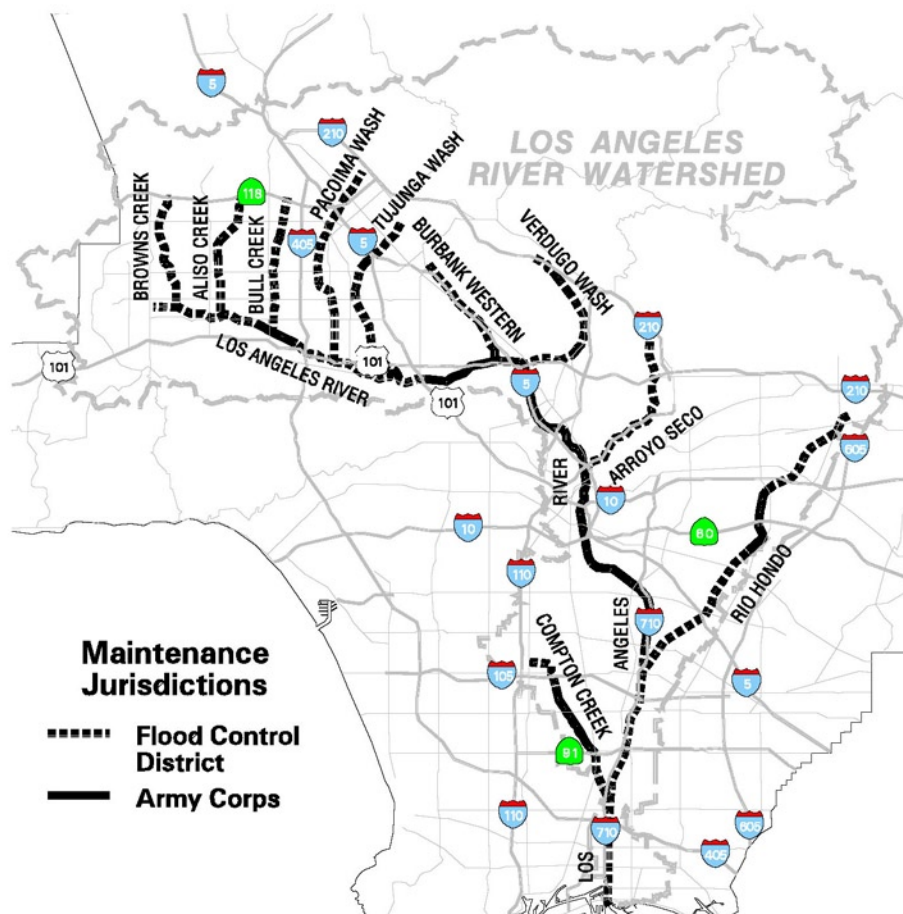


Figure 5.1 Maintenance Jurisdictions

Los Angeles County Flood Control District Maintenance Standards

Although some existing conditions providing for maintenance along the top of the channels may not comply with the stated requirements below (Fig 5.2), all proposed new development shall comply with these agency's Guidelines and any other requirements. Any variance shall be reviewed and approved by the appropriate jurisdiction.

1. Twelve (12) foot minimum service road width. In areas with no service road, Caltrans standards for a Class I bike path (12 ft width) shall be used (see detail page 96).
2. Five (5) foot clear area continuous behind service road for emergency crane equipment.
3. Trees should be set back 5-8 ft from the edge of the pavement. This setback distance can be halved if a 24" root barrier is installed immediately next to the pavement. Under no conditions will trees be allowed to be planted within the Limited Management Landscape Zone, 17' from the channel wall. There are no exceptions

to the required setbacks for shrub plantings (see Fig 8.10 on page 31).

4. Trees should not be pruned during their establishment period. When the tree trunk reaches a 2" diameter at breast height (dbh), those trees that overhang the service road may then be pruned up to 8' (from the ground) to provide clear vehicle access.
5. Planting areas (optional) against the channel walls may be located between expansion joints but not directly behind one. Edge of planting areas should be 5' from expansion joint.
6. Planting areas against the channel walls may be planted with low shrubs (18" or less), ground cover, and grasses (no trees or large woody shrubs).
7. All access points to be gated.
8. Forty (40) foot centerline turning radius for truck ingress and egress from arterial streets.
9. Setback from sidewalk of all trees and tall shrubs adjacent to vehicular ingress/egress from arterial streets to meet local jurisdictional codes. For projects within the City of Los Angeles, consult Municipal Code Section 62.200. In the absence

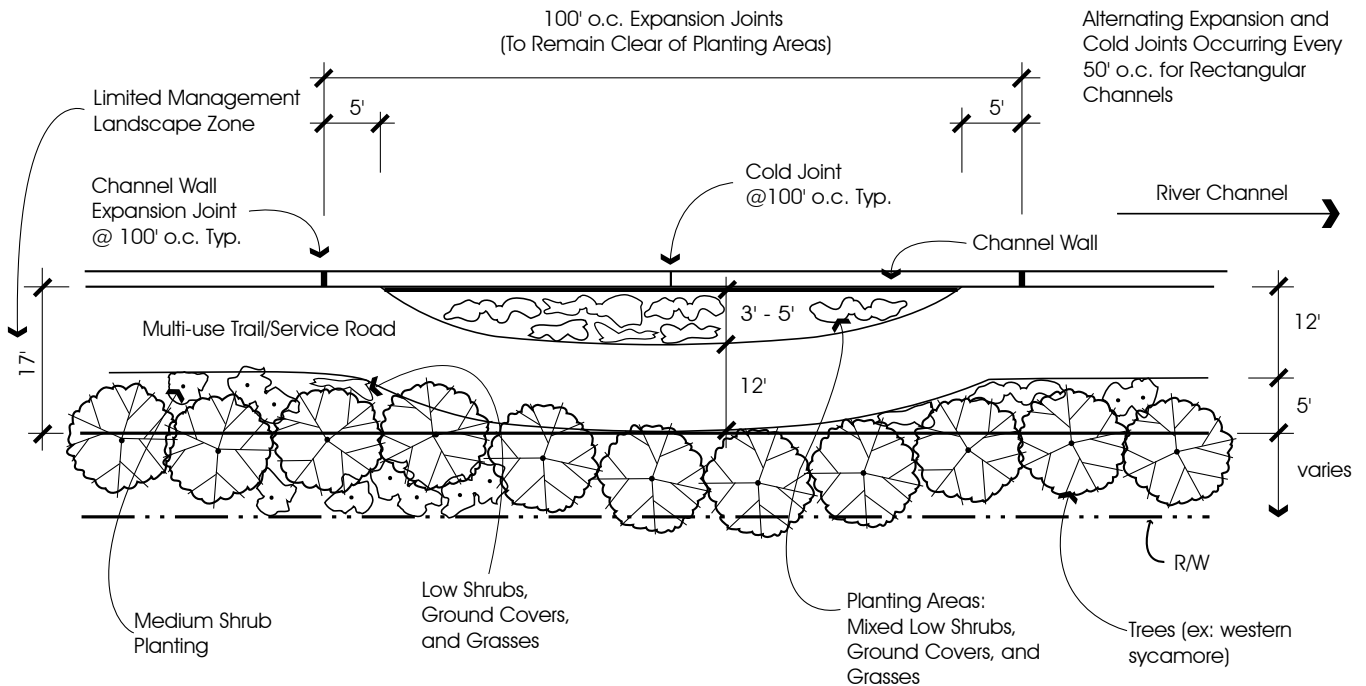


Figure 5.2 Diagram of Setbacks and Guidelines for public ROW in Entrenched Channels

- of criteria from the local agency of jurisdiction, a minimum four (4) foot setback shall be used.
- 10. All maintenance vehicles must have ingress/egress clearance at all times.
- 11. Any alteration/design of service roads must meet with County approval.
- 12. Vehicular access gates are to be setback twenty (20) feet from the arterial street curb when available and feasible.

Auxiliary Functions and Maintenance Requirements

Utilities:

Two utilities, The City of Los Angeles Department of Water and Power (DWP) and Southern California Edison maintain power lines and transmission towers located on the service road or adjacent to the channel (Fig 5.3). DWP requirements include but are not limited to:

1. All auxiliary functions and maintenance requirements are in addition to, and must comply with LA County Flood Control District Maintenance Standards.
2. Tower base clearance of fifty (50) foot radius of

- vegetation over eighteen (18) inches in height.
3. Vegetation height limitation of twenty-five (25) feet under power lines.
4. Existing pavement greater than twelve (12) feet wide to remain undisturbed under tower bases.
5. Tree planting variance within the 50' adjacent to power lines to be reviewed and approved on a tower by tower basis.
6. Project proponents should contact the utility companies directly to confirm current requirements. These agencies will separately check and approve planting plans within their easements.

Swift Water Rescue:

In-channel rescues during flood conditions are performed by City and County Fire Departments. Rescue anchors located adjacent to major arterials in 100 sites throughout Los Angeles County are imbedded into the concrete panels along both sides of the river for use in emergency situations. County Flood Control District Maintenance Standards for both maintenance and emergency vehicle ingress and egress apply in current and future locations (see previous page). Planting guidelines are the same as in the previous page. Project proponents should take these swift water anchor rescue locations into account when planning projects.

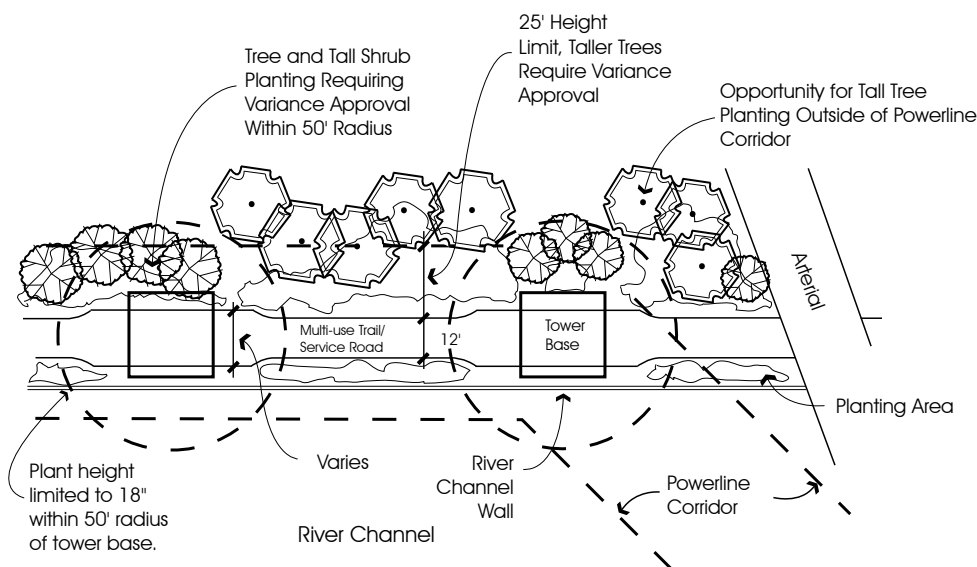


Figure 5.3 Utilities: Powerline Clearance Diagram

Existing Bike Path System:

A continuous bike path system along the entire Los Angeles River corridor is in progress (Fig 5.4-5.6). To date, Los Angeles River bike path projects have been funded by Proposition C (local gas tax), and distributed through Metropolitan Transit Authority (MTA) Call for Projects with matching funds contributed by local agencies. Construction of three unconnected segments of Class I bike paths include: the Burbank to the Arroyo Seco segment, Vernon to South Gate and 13 miles of the LARIO (Los Angeles River and Rio Hondo) trail from South Gate to Long Beach. To warrant MTA funding, the bike path needs to serve a commuter function.

Bike Path Requirements:

1. Overpass and underpass gradients - 5% preferable, 8% maximum.
2. Caltrans Class I bike path width and surfacing standards.

To the extent feasible, and where not otherwise constrained by intractable infrastructure, the bike path alignment should be continuous along one bank or the other in order to minimize the necessity to construct bicycle bridges.

Existing Equestrian Trails and Facilities:

Equestrian trails exist adjacent to the river in several reaches, and are typically either a trail separated by a fence from the bike path, or a dirt trail adjacent to the county service road. Reaches 1 and 2 in the Southern Cities have existing trails and facilities. In Reach 4 (Burbank/Glendale), provisions are made for users of the Los Angeles Equestrian Center to cross the river providing access to Griffith Park (Fig 5.7). Stables in Los Feliz make use of an in-river crossing to access horse trails in Griffith Park. Several stables are located around Hansen Dam making use of the Tujunga Wash area in Reach 6, however equestrian trails are not identified specifically in the Master Plan. Linking these facilities in the future would provide equestrians with greater opportunities for all day rides, or longer trail loop systems not currently available.



Figure 5.4 Los Angeles River Bike Path, no fencing on trapezoidal channel



Figure 5.5 City of Los Angeles Bike Path, west bank, fencing on trapezoidal channel



Figure 5.6 Bike Path Entry Area off of Los Feliz Blvd., west bank



Figure 5.7 Horse Rental/ Equestrian Center equestrian bridge



Figure 5.8 Burbank multi-use trail used by Equestrian Center

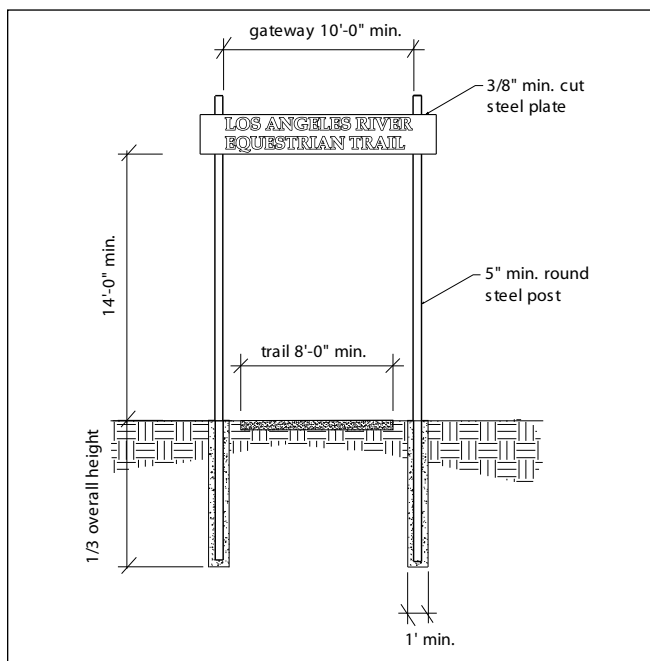


Figure 5.9 Gate concept - Equestrian trail requirements (N.T.S.)



Figure 5.10 Reseda Park - existing fence against the river

Due to the high demand for recreational uses in the County easement, trails will remain multi-use wherever possible until additional lands become available to separate functions (Fig 5.8).

Equestrian Trails Requirements:

- 1) Trail width 8' minimum, 12' preferred
- 2) Gate top bar clearance 14' (Fig 5.9)
- 3) Sign equestrian trails

Public Ingress and Egress:

Until recently, the river channel has been restricted, and unavailable for public use. Existing fencing is placed to keep people out of the channel and away from the service road for safety purposes (Fig 5.10). Opening up the Los Angeles River and Tujunga Wash to the public will be a gradual process. With the channel's primary function still being flood control, there is an inherent hazard that must be respected, particularly during the peak stormwater flow conditions. However, as policy and legal liability laws change, the public can be invited to use the river as an urban amenity. Expectations of safe usage during non-storm periods must be assessed and redefined.

Opportunities exist to provide the appropriate type of fencing for a variety of proposed recreational uses and to remove fencing that is redundant or does not meet a multi-objective approach to river management. This includes situations that fence the river off from adjacent parks and other public open spaces rather than provide the parks an opportunity to function as part of the river corridor by gating the park entrance. (See Catalog of Hardscape Elements/ Selected Amentities p.67-77; Appendix C, Sources for Selected Amentities p.146-152).

6.0 Opportunities for Landscape and Planting

Opportunities for multi-use trail systems are attainable using the existing service road. Several communities such as the cities of Long Beach, Paramount, Los Angeles, Cudahy, Glendale, and neighborhood associations in the San Fernando Valley have already taken an active role in promoting river enhancements in their own reaches.

In positive response to the Los Angeles River Master Plan, “pocket parks” have recently been designed and installed by North East Trees and the Mountains Recreation and Conservation Authority funded through grants by California Department of Transportation and Los Angeles County Regional Parks and Open Space District (Proposition A). Several of these projects have occurred in small triangular open space areas at the convergence of the maintenance road access points and major arterial streets, which were identified by the Master Plan as prime areas for the introduction of trees and amenities (Fig 6.1-6.3).



Figure 6.1 Egret Park, by North East Trees with the Mountains Recreation and Conservation Authority and County of Los Angeles.



Figure 6.2 Rattlesnake Park, by North East Trees with the Mountains Recreation and Conservation Authority and County of Los Angeles.



Figure 6.3 Steelhead Park, by North East Trees with the Mountains Recreation and Conservation Authority and County of Los Angeles.

Part II

Los Angeles River Planting Guidelines

Landscape Goal

Natural landscapes of Southern California are to be used as the basis to guide the design, implementation and management of landscapes along the Los Angeles River. Natural landscapes demonstrate the critical benefit of species diversity and the marvelous strategy of successional development into communities of plants that are locally adapted to the conditions of their environment (Fig C-E). To successfully establish sustainable native landscapes along the Los Angeles River system it is critical to grow plants propagated from representative locally collected seed and cuttings. Such plantings paired with actions to achieve healthy soil biology, form the essential foundation for each stage of healthy plant growth and succession.

Although the environment along the Los Angeles River is highly altered and urbanized, and new landscapes must meet other aesthetic, functional and economic criteria of the community, the ecologic principles and processes observed in natural landscapes offer a viable and compelling strategy for overall landscape success. Landscapes are alive and always changing. At a minimum, it is necessary to provide a foundation for such landscapes to exist and evolve. If future landscape projects implemented along the Los Angeles River do not incorporate these principles and processes, the result will not be sustainable landscapes, but landscapes requiring significant amounts of additional water, nutrients, and maintenance.

As much as possible, these Planting Guidelines are founded upon the examples provided in natural landscapes. However, these guidelines also reflect landscape knowledge and practice in the context of urban situations. The product is a set of guidelines that extends our approach and practices in urban settings to achieve increased levels of success and sustainability.



Figure C. Toyon (*Heteromeles arbutifolia*) (Photo by Barbara Eisenstein)



Figure D. California walnut (*Juglans californica* var. *californica*) (Photo by Barbara Eisenstein)



Figure E. Mexican elderberry (*Sambucus mexicana*) (Photo by Barbara Eisenstein)

7.0 Site Characterization

Historic Vegetation

The historic vegetation of the Los Angeles River was a complicated landscape scale mosaic of predominately willows, cottonwoods, sycamores, oaks, and marsh species. This historic, riparian vegetation is no longer possible within the confines of the present right-of-way due to limited access to water, changes in soil biotic activity and organic matter and other alterations resulting from the development of the river channel system. The project restoration ecologist should keep in mind the species and communities that probably existed along project river reaches and determine whether or not those species can still thrive within the constraints now existing along the river right-of-way.



Figure 7.1 Pitcher sage (*Salvia spathacea*) (Photo by Barbara Eisenstein)

Sustainable Landscapes

As stated earlier, one of the Guidelines' goals is the creation of sustainable landscapes for these urban river edges. The sustainable approach includes:

- choice of indigenous native plants (Fig 7.1) that can exist within present ecological constraints based on recent soils tests;
- selection of plant species that will minimize maintenance (water and pruning);
- use of seed and cuttings collected from local plant populations;
- management of invasives exotics species (i.e. solarizing, mulching);

- use of stormwater BMPs to maximize rainwater infiltration;
- use of sustainable energy and recycled content materials.

These actions are expected to result in a landscape that will require less maintenance, little supplemental water, and minimal manipulation to flourish following establishment.

Both a short native plant palette (pages 28-29) and native vegetation communities (Appendix B) are supplied to address the conditions of the present soils and water availability. The 'Short List' of Los Angeles River plants is intended to facilitate the selection process using verifiable local seed and plant sources. In addition, pictures of plants from the short list are shown on the next few pages.

The vegetation communities are longer lists of indigenous plant species that are grouped by similar ecological tolerances and that occur together naturally. A wider selection of species may be more appropriate for areas immediately adjacent to existing or planned open spaces or restoration sites. The Community Lists are not exhaustive as a number of plant groups, such as, annuals and bulbs, are not included due to their high maintenance requirements and limited availability.

Soil Testing

Planting failures are often a result of inadequate soil testing that would have guided an ecologist and landscape architect towards a plant palette that could tolerate the present soil conditions. The planting professionals should use the soil analysis results to determine the plant palette.

It is possible to alter soil conditions with a succession of plantings that will change the soil to eventually support a more diverse plant palette. However, that approach may be beyond most landscaping budgets. Soil amendments are a possible alternative, but should not be a part of standard planting specifications for these projects.

8.0 Design Guidelines

Design Guideline 1 - Design Following Soil Characterization

Plant selection will depend on the condition of the soil. As stated earlier, soil conditions around the entrenched river channels are anticipated to be predominately disturbed and compacted native soils. Imported soils and rubble are typical components of the levee structure. Heavy soil contamination is a probable condition in areas along both entrenched and leveed conditions. Therefore, soils should be tested to determine its ability to retain and infiltrate water, soil fertility (macro & micro nutrients)(see "Note," p.42), biologic activity, texture, toxics, salts, and heavy metals.

Design Guideline 2 - Design with Native Plants: The Plant Lists

Landscape plantings along the Los Angeles River and Tujunga Wash corridors should comprise indigenous native species based upon the Short List of Los Angeles River Plants (pages 28-29) (Fig 8.1-8.9 and 8.16-8.18) or the Plant Community Lists provided in Appendix B. All planting projects are to include the services of qualified planting experts who have proven experience with California native planting projects to assist in making decisions regarding the plant palette. These experts should include a restoration ecologist (or biologist) together with a registered landscape architect.

A total of nine California native vegetation communities are included in these guidelines to provide suitable planting choices for a variety of project situations. However, the Short List (pages 28-29) of indigenous Los Angeles River watershed plants can be used throughout all reaches of the river to provide overall landscape continuity. This List is much shorter than the Plant Community Lists to assure a strong visual image for the river, and is based upon the following criteria:

1. Plants are native and appropriate to the Los Angeles River system.

2. Plants are growable in nursery conditions.
3. Plants have a high probability for success when planted within the designated area(s).
4. Propagules of the plants are available within the Los Angeles River system.
5. Plants have aesthetic appeal.
6. Plants will provide potential wildlife habitat.
7. Plants require minimal maintenance and water following establishment.

Tree and shrub species from this List can be used in almost all project situations. Plant species from the nine communities listed in Appendix B can be combined with the Short List in project areas where situations and conditions along the river merit their use. The combination of plant communities and total listing of plant species is to be evaluated during the conceptual design process and depends on the soil analysis results.

Most vegetation communities included in Appendix B include a few accent plants. These are locally indigenous species that occur occasionally in their respective vegetation types and provide additional visual characteristics. Since the Community Lists are not exhaustive due to the elimination of some plant groups, other native species not included in Appendix B may be recommended by the project plant or restoration ecologist for review and approval by the County. The only limitation is again that the recommended species should be indigenous to the Los Angeles River watershed.

Additionally, a list of native vines and a comprehensive list of Los Angeles River plants has been added to Appendix B. The list of native vines (page 135) is included to expand the choices of plants that can be used for specialty planting situations to cover walls, fences, steep slopes, and banks.

The Compiled List of all Los Angeles River plants (page 136-143) are listed in order by scientific name. This comprehensive list also includes the recommended geographic locations within the watershed as well as the frequency of occurrence within the various plant communities.

Key to the Short List Table

The Short List is divided into four broad categories: Names, Plant Characteristics, Recommended Conditions, and Plant Communities. Explanations of symbols, abbreviations, and terms used in the Short List table are provided below.

Names:

Botanical Name - Indicates the currently accepted scientific name for the plant. Previous widely known plant names appear in parenthesis for clarity. Plant list nomenclature primarily follows *The Jepson Manual* (Hickman 1993).

Common Name - Indicates one or more vernacular names for the plant. Unfortunately, there is no standardized listing of common names and a single common name can refer to any number of different plants.

Plant Form:

Some plants listed have more than one plant form or category designation. In such cases, their “form” will depend on its use in the landscape.

t	tree
d	deciduous
s	shrub
sc	succulent
g	grass
gc	groundcover
p	perennial
a	annual
v	vine

Minimum Setback from Pavement:

Recommended distance (in feet) each species should be planted away from pavement and walls.

Estimated Water Needs:

Approximate water needs of each native plant species is estimated in relation to the water needs for tall fescue turfgrass. Supplemental watering should be



Figure 8.1 Fuchsia-flowered gooseberry (*Ribes speciosum*) (Photo by Barbara Eisenstein)



Figure 8.2 California buckwheat (*Eriogonum fasciculatum* var. *foliolosum*) (Photo by Barbara Eisenstein)

applied between late November and early March to complement the seasonal rain cycle to avoid winter dry spells and to assist in establishing new plantings. Summer watering is to be avoided in established landscapes where possible; deep watering on a monthly schedule may be applied if determined to be appropriate by the project plant or restoration ecologist.

VL	Performs with no supplemental water
L	Low Supplemental Water, approx. 3-5"
M	Moderate Supplemental Water, approx. 5-10"
H	High Supplemental Water, approx. 10-16"

Sun Exposure:

Ideally, understory species adapted to partial or full shade would be planted after conditions become suitable. But since most landscape projects are installed all at one time, strategic methods are required to ensure that shade-adapted species survive the initial establishment period. Possibilities include positioning shade-requiring species on the north side of boulders or installing temporary shade structures. Such structures should be checked regularly to ensure their ongoing function due to potential vandalism.

su	full sun
ps	part shade
sh	full shade

Height:

Average height in feet (at maturity) or what height can be expected.

Spread:

Average spread in feet; + : indeterminate growth or rhizomatous (spreading) plants.

Recommended Conditions:

A recommended listing of plants for geographic



Figure 8.3 Morning glory (*Calystegia macrostegia*) (Photo by Barbara Eisenstein)



Figure 8.4 California fuchsia (*Epilobium canum*) (Photo by Barbara Eisenstein)



Figure 8.5 Desert grape (*Vitis girdiana*) (Photo by Barbara Eisenstein)



Figure 8.6 Bladderpod (*Isomeris arborea*) (Photo by Barbara Eisenstein)

locations within the Los Angeles River system, water requirements for established plants, and shaded conditions.

* indicates that the plant must always have access to water. Water must be supplied on a continuous basis by irrigation, or the plant's roots must have direct, reliable contact with ground water.

Upper Watershed - Indicates that the plant is suitable for growing in the foothill and mountain portions of the Los Angeles River watershed.

Immediate Coast - Indicates that the plant is suitable for growing in coastal conditions along the lower most portions of the Los Angeles River watershed.

Mid region, acc. to water - Indicates that the plant is suitable for growing in the central urbanized portions of the Los Angeles River watershed as long as the plants have access to supplemental water. For most of this area, supplemental water will need to be provided by irrigation systems. In rare conditions, the plants may have direct root access to the flowing river water or ground water.

Mid region, no water - Indicates that the plant is suitable for growing in the central urbanized portions of the Los Angeles River watershed without supplemental water - AFTER THE PLANTS ARE ESTABLISHED.

Mid region, shade - Indicates that the plant is suitable for growing in central urbanized portions of the Los Angeles River watershed that are significantly shaded. Most of these plants will require supplemental watering, though this will vary depending upon specific site conditions.

Communities:

For additional information of plant communities, see Appendix B, pages 106 to 108.

AFSS	Alluvial fan sage scrub
CH	Chaparral
CLORF	Southern coast live oak riparian forest
CLOW	Coast live oak woodland
CSS	Coastal sage scrub
CWRF	Southern cottonwood-willow riparian forest
SRW	Southern sycamore riparian woodland
VOW	Valley oak woodland
WW	California walnut woodland

Short List of Plants for the Los Angeles River System

Botanical Name		Common Name		Plant Form	Seaback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Immediate coast	Mid region, acc. to water	Mid region, shade	Upper Watershed	Communities
Trees														
<i>Alnus rhombifolia</i>		white alder		t-d	6	M/H	all	20-30	20-30	*	*	*		SRW
<i>Juglans californica</i> var. <i>californica</i>		California walnut		t-d	6	VL	su/ps	15-25	20	X	X	X		CH, CLORF, CLOW, SRW, WW
<i>Platanus racemosa</i>		California sycamore		t-d	6	M	su	40	40	X	X	X		AFSS, CLORF, CWRF, SRW, VOW
<i>Populus fremontii</i> ssp. <i>fremontii</i>		Fremont cottonwood		t-d	8	M/H	su	30	35	*	*	*		CLORF, CWRF, SRW
<i>Quercus agrifolia</i> var. <i>agrifolia</i>		coast live oak		t	8	VL/L	su	40	40	X	X	X		AFSS, CLORF, CLOW, SRW, VOW, WW
<i>Quercus engelmannii</i>		Engelmann or mesa oak		t	8	VL/L	su	30	30	X	X			CLOW
<i>Quercus lobata</i>		valley oak		t-d	8	M	su	35	35	X	X			VOW
<i>Sambucus mexicana</i>		Mexican elderberry		t-d	6	VL/L	su	15	20	X	X	X		AFSS, CLORF, CLOW, CSS, CWRF, SRW, WW
<i>Umbellularia californica</i>		California bay laurel		t	6	M	su/ps	30	30	X	X	X		CLORF, CLOW, CWRF, SRW
Shrubs and Perennials														
<i>Artemisia californica</i>		California sagebrush		s	3	VL	su/ps	3	2-3	X	X	X		AFSS, CH, CLORF, CLOW, CSS, SRW
<i>Artemisia douglasiana</i>		mugwort		p	3	L/M	all	3-5	3+	X	X			CLORF, CWRF, SRW
<i>Atriplex lentiformis</i> ssp. <i>lentiformis</i> (<i>A. lentiformis</i> ssp. <i>brevieri</i>)		saltbush		s	5	VL	su	6-8	5-10	X	X	X		CSS
<i>Baccharis pilularis</i> var. <i>consanguinea</i>		coyote brush		s	4	L/M	su/ps	4-6	6-8	X	X			CLORF, CLOW, CSS, SRW
<i>Baccharis salicifolia</i>		mulefat		s	3	M	all	4-8	6-10	X	X			CLORF, CWRF, SRW
<i>Berberis (Mahonia) nevadensis</i>		Nevin's barberry		s	5	VL/L	su	6-12	6-12	X	X			CH, CSS
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>		mountain mahogany		s/t	6	L	su	6-20	12	X	X	X		AFSS, CH
<i>Encelia californica</i>		California encelia		s	3	L	su/ps	3-4	3-6	X	X	X		AFSS, CSS
<i>Epilobium canum</i> ssp. <i>latifolium</i> (<i>Zauschneria californica</i>)		California fuchsia		p	2	VL/L	su/ps	1-3	2-4	X	X	X		CH, CLOW, CSS
<i>Epilobium canum</i> ssp. <i>canum</i> (<i>Zauschneria californica</i>)		hoary California fuchsia		p	2	VL/L	su/ps	1-3	2-4	X	X			CH, CSS
<i>Eriodictyon trichocalyx</i> var. <i>trichocalyx</i>		hairy yerba santa		s	2	VL	su	2-5	3+	X	X			AFSS
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>		California buckwheat		s	3	VL/L	su/ps	3-5	2-6	X	X	X		AFSS, CH, CLORF, CLOW, CSS
<i>Euthamia occidentalis</i>		western goldenrod		p/gc	1	M/H	su/ps	2-4	2+	X	X	X		AFSS, CSS, CWRF, SRW, VOW, WW
<i>Heteromeles arbutifolia</i>		toyon		s/t	6	L	su/ps	8-15	15	X	X	X		CH, CLORF, CLOW, CSS, SRW, WW
<i>Isomeris arborea</i> (<i>Cleome isomeris</i>)		bladderpod		s	4	VL	su/ps	3-5	5	X	X	X		CLOW, CSS
<i>Juncus patens</i>		rush		p/gc	2	L/M	su/ps	2.5	3+	X	X	X		CLORF, CWRF, SRW
<i>Malosma laurina</i>		laurel sumac		s	6	VL	su	10	20	X	X	X		AFSS, CH, CLORF, CLOW, CSS, SRW
<i>Mimulus (Diplacus) aurantiacus</i> (<i>M. (D.) longiflorus</i>)		bush monkeyflower		s	2	L	su/ps	2	2	X	X	X		CH, CLORF, CLOW, CSS, SRW, WW
<i>Muhlenbergia rigens</i>		degrass		g/p/gc	3	L	su/ps	3	4	X	X			CH, CLORF, CLOW, SRW, VOW
<i>Pluchea sericea</i>		arrow weed		s	3	L/M	su	6-8	6+	X	X	X		AFSS, CSS, CWRF, SRW

Botanical Name	Common Name	Plant Form										Communities
		Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Immediate coast	Mid region, acc. to water	Mid region, shade	Upper Watershed		
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, SRW, WW
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	X	X	X	X	CH, CLOF, CLOW, SRW, VOW
<i>Rhamnus crocea</i>	spiny redberry	s	4	VL/L	all	4	4	X	X	X	X	AFSS, CH, CSS
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	VI/L	all	6	6	X	X	X	X	CH, CLOF, CLOW, CSS, SRW
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, SRW
<i>Rhus ovata</i>	sugar bush	s	6	VL/L	su/ps	8-10	15	X	X	X	X	AFSS, CH, CLOW, WW
<i>Ribes aureum</i> var. <i>gracillimum</i>	golden currant	s-d	3	VL/L	su/ps	6-8	6-8	X	X	X	X	CLOF, CLOW, SRW, WW
<i>Ribes californicum</i> var. <i>hesperium</i>	hillside gooseberry	s-d	4	VL/L	ps	5	5-8	X	X	X	X	CH, CLOF, CLOW, SRW
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry	s-d	4	L	ps/sh	5-8	6-8	X	X	X	X	CH, CLOF, CLOW, SRW
<i>Rosa californica</i>	California wild rose	s	3	L	all	4-6	4+	X	X	X	X	CLOF, CLOW, CWRF, SRW
<i>Salix lasiolepis</i>	arroyo willow	s/t-d	5	M/H	su/ps	15	15	*	*	*	*	CWRF
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, SRW
<i>Salvia leucophylla</i>	purple sage	s	5	VL	su	5	6-8	X	X	X	X	CLOW, CSS, WW
<i>Salvia mellifera</i>	black sage	s	4	VL	su	4	6	X	X	X	X	AFSS, CH, CLOW, CSS
<i>Yucca whipplei</i>	Our Lord's candle or chaparral yucca	sc	5	VL	su	3	5	X	X	X	X	AFSS, CH, CLOW, CSS
Groundcovers												
<i>Baccharis pilularis</i> var. <i>pilularis</i>	prostrate coyote brush	s/gc	3	L/M	su/ps	1-3	6-8	X	X	X	X	CLOF, CLOW, CSS, SRW
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	X	X	X	X	CLOF, CLOW, CSS, CWRF, SRW, VOW, WW
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, VOW, WW
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	X	X	X	X	CH, CLOF, CLOW, CSS, CWRF, SRW, VOW, WW
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	X	X	X	X	CLOF, CWRF, SRW, VOW, WW
<i>Salvia spathacea</i>	pitcher sage	p/gc	2	L	ps/sh	1	3+	X	X	X	X	CH, CLOF, CLOW, SRW
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, CWRF, SRW, VOW, WW
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, CWRF, SRW, VOW, WW
<i>Stachys bullata</i>	pink hedgenettle	p/gc	2	L/M	ps/sh	1-2	2+	X	X	X	X	CLOF, SRW
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	X	X	X	X	CH, CLOF, CLOW, CWRF, SRW, WW
Vines												
<i>Calystegia macrostegia</i> ssp. <i>arida</i>	finger-leaf morning glory	v/p	1	VL/M	su/ps	climbs	climbs	X	X	X	X	AFSS, WW
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	wild morning glory	v/p	1	VL/M	su/ps	climbs	climbs	X	X	X	X	CSS, WW
<i>Clematis lasiantha</i>	pipestems	v-d	2	L/M	su/ps	climbs	climbs	X	X	X	X	CH, CLOF, CLOW
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs	climbs	X	X	X	X	AFSS, CH, CLOF, CLOW, CSS, CWRF, SRW, VOW, WW
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs	climbs	*	*	*	*	CLOF, CWRF, SRW, VOW

Design Guideline 3 - Planting Patterns, Density, and Setback Guidelines

Landscapes are to be designed with assistance of planting experts to arrange and group native plants into naturalized patterns that reflect their cultural needs, adaptations, and companion species. For example, riparian trees prefer locations where seasonal moisture collects; evergreen oaks are well adapted to slopes and deeper soils; evergreen shrubs and scrub species are often best suited to full sun and drier locations, grasses and perennials are suited adjacent to pavement and help develop soil quality. It is important during the site analysis step to assess soils, topography, hydrology, and microclimate to develop the planting patterns for each site.

Landscape plantings shall also include appropriate setbacks from pavement, walls, and structures (Fig 8.10-8.15). Setback guidelines are provided for each species of plant in Appendix B. These setbacks are intended to reduce potential problems from roots, trunks and branches as plants mature to larger sizes. Exceptions can be made for trees by using 24" linear root barriers at the service road pavement edge (Fig 8.12, 8.15). With the use of a root barrier the tree setback distance can be halved. Large shrubs will still require the designated setback to accommodate their spread.

Planting patterns and densities shall also consider the safety of pedestrians, joggers and cyclists along all trails and provide sufficient line-of-sight clearance near roads and intersections.

A special 17' setback zone has been established along the entrenched reaches of the river to provide for maintenance and emergency vehicle access (page 15). This zone is designated to be a Limited Landscape Zone and is the primary location for service roads and repair work along the river. Plantings in this zone may be heavily disturbed or removed if repair or emergency access is required. Landscape plantings in this zone are restricted to low growing species, not to exceed 3-5' in height. Plantings of trees and shrubs outside this zone are not subject to these size restrictions.



Figure 8.7 Sugar bush (*Rhus ovata*) (Photo by Barbara Eisenstein)



Figure 8.8 Golden currant (*Ribes aureum* var. *gracillimum*) (Photo by Barbara Eisenstein)



Figure 8.9 Mexican elderberry (*Sambucus mexicana*) (Photo by Barbara Eisenstein)

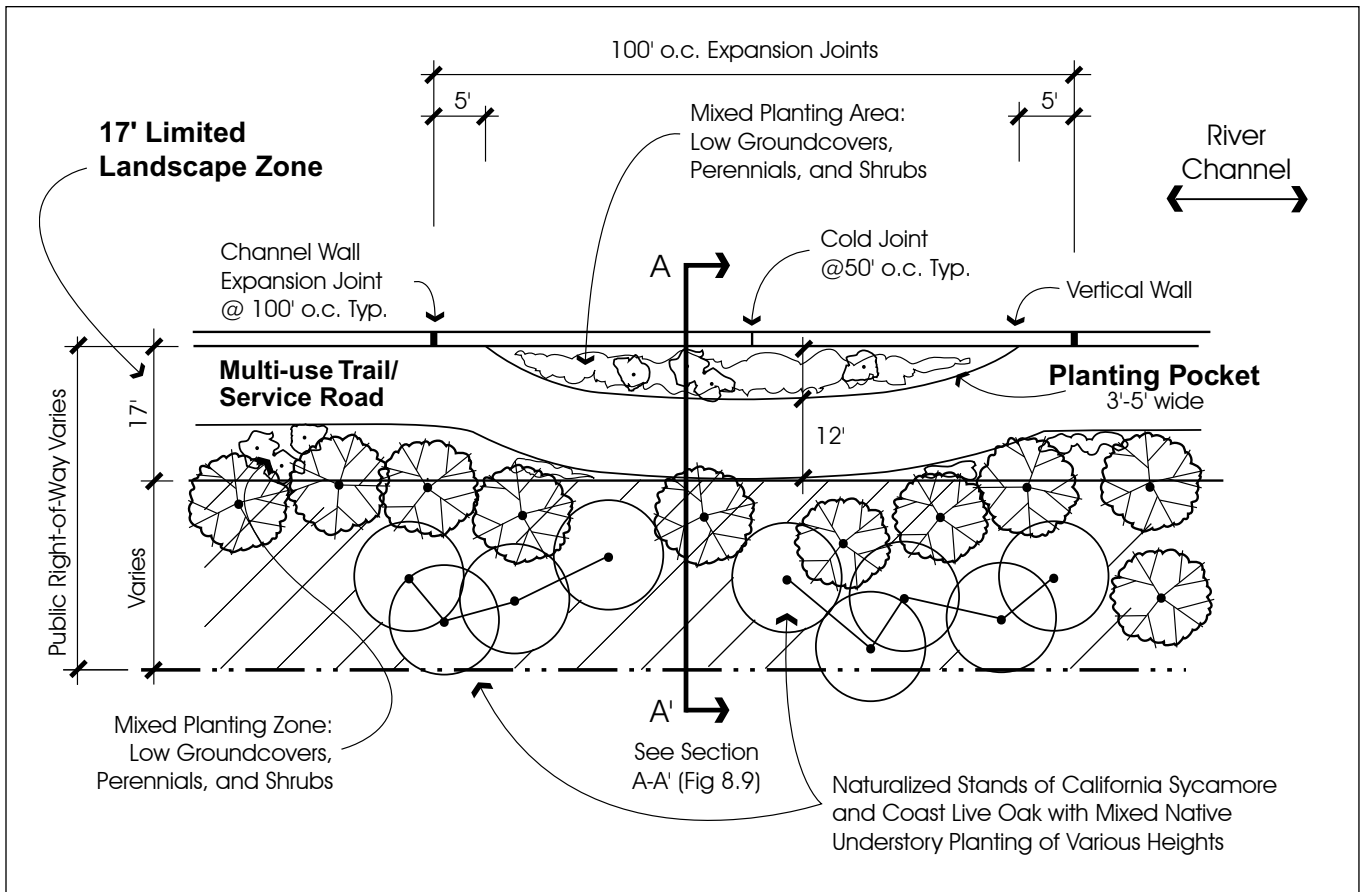


Figure 8.10 **Design Guideline 3:** Planting Patterns and Setbacks with Planting Pockets Along Trapezoidal & Rectangular Entrenched (Plan View)

NOTES:

- 12' Multi-use Trail/Service Road with planting areas adjacent to vertical and trapezoidal walls within the 100' expansion joint sections; edge of planting pockets should be 5' from expansion joint.
- Setback distances for trees can be halved if a 24" linear root barrier is used immediately next to the road outside of the 17' wide Limited Landscape Zone (Fig 8.12, 8.15).
- Landscape plants located within the unpaved areas of the Limited Landscape Zone shall not exceed 3-5' in height and shall provide for user safety, visibility and emergency access. California sycamore trees are restricted to the edge of this Zone.
- Other groupings of California sycamores as well as coast live oaks and associated native species planted beyond the 17' Limited Landscape Zone are not subject to the same height restrictions.

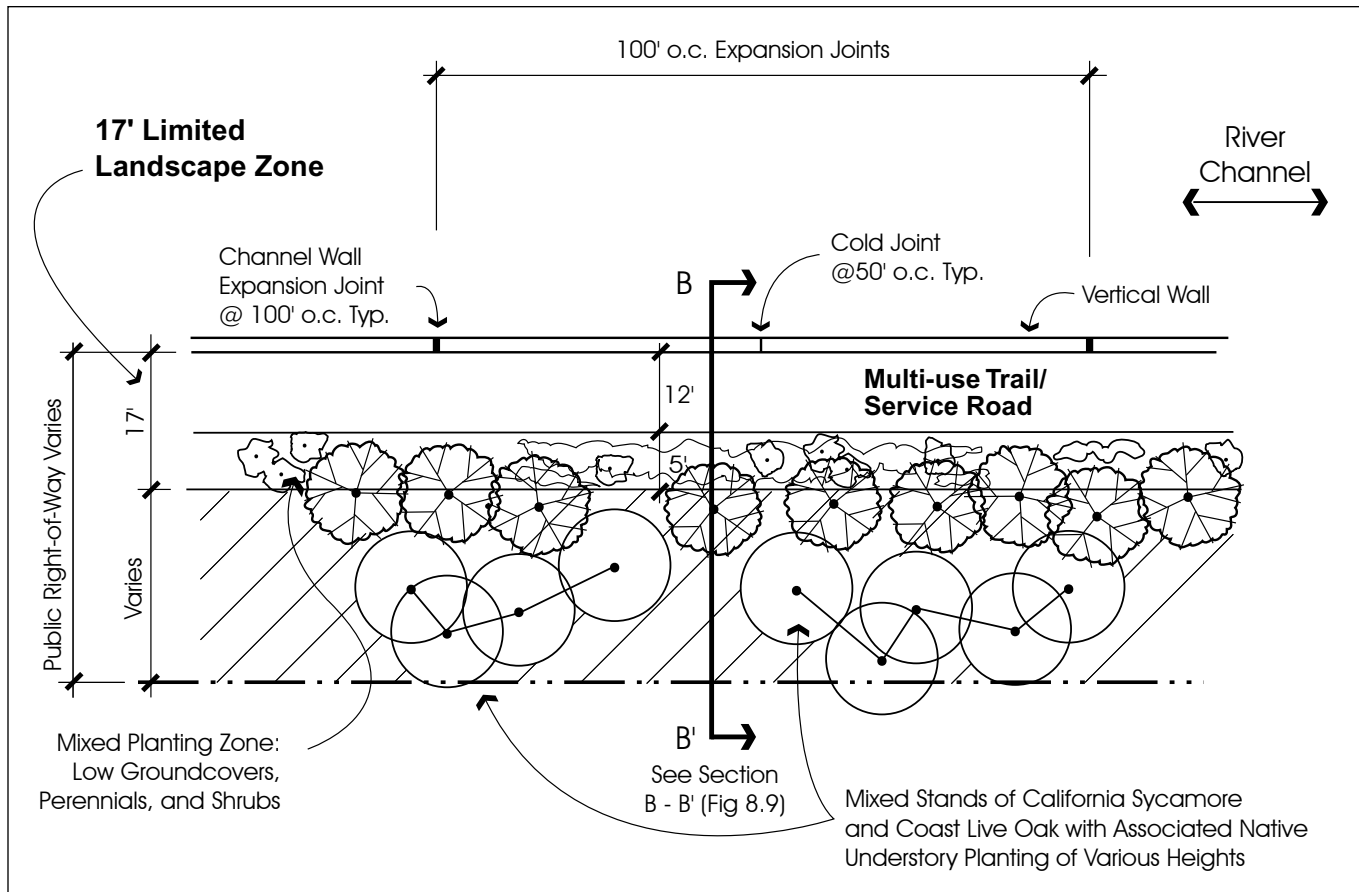


Figure 8.11 **Design Guideline 3:** Planting Patterns and Setbacks Along Trapezoidal & Rectangular Entrenched (Plan View)

NOTES:

- 17' wide Limited Landscape Zone is established along all entrenched sections of the river. A 12' wide straight Service Road can be constructed in this zone.
- Setback distances for trees can be halved if a 24" linear root barrier is used immediately next to the road outside of the 17' wide Limited Landscape Zone (Fig 8.12, 8.15).
- Landscape plants located within the unpaved areas of the Limited Landscape Zone shall not exceed 3-5' in height and shall provide for user safety, visibility and emergency access. California sycamore trees are restricted to the edge of this Zone.
- Other groupings of California sycamores as well as coast live oaks and associated native species planted beyond the 17' Limited Landscape Zone are not subject to the same height restrictions.

Figure 8.12 **Design Guideline 3:** Planting Patterns and Setbacks Along Trapezoidal & Rectangular Entrenched (Cross-Section View)

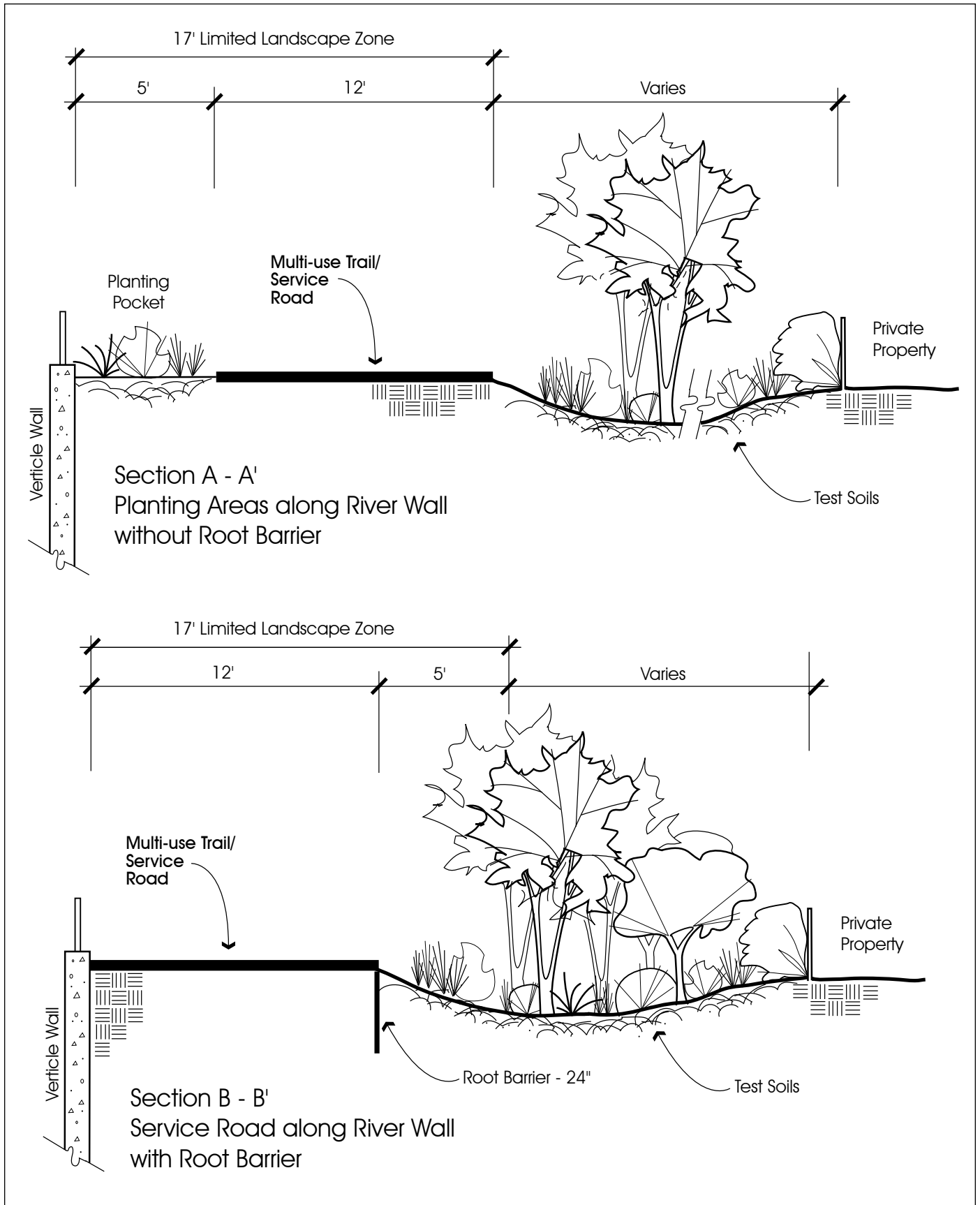


Figure 8.13 Design Guideline 3 - 2:1 Levee Slope Planting (Cross-Section View)

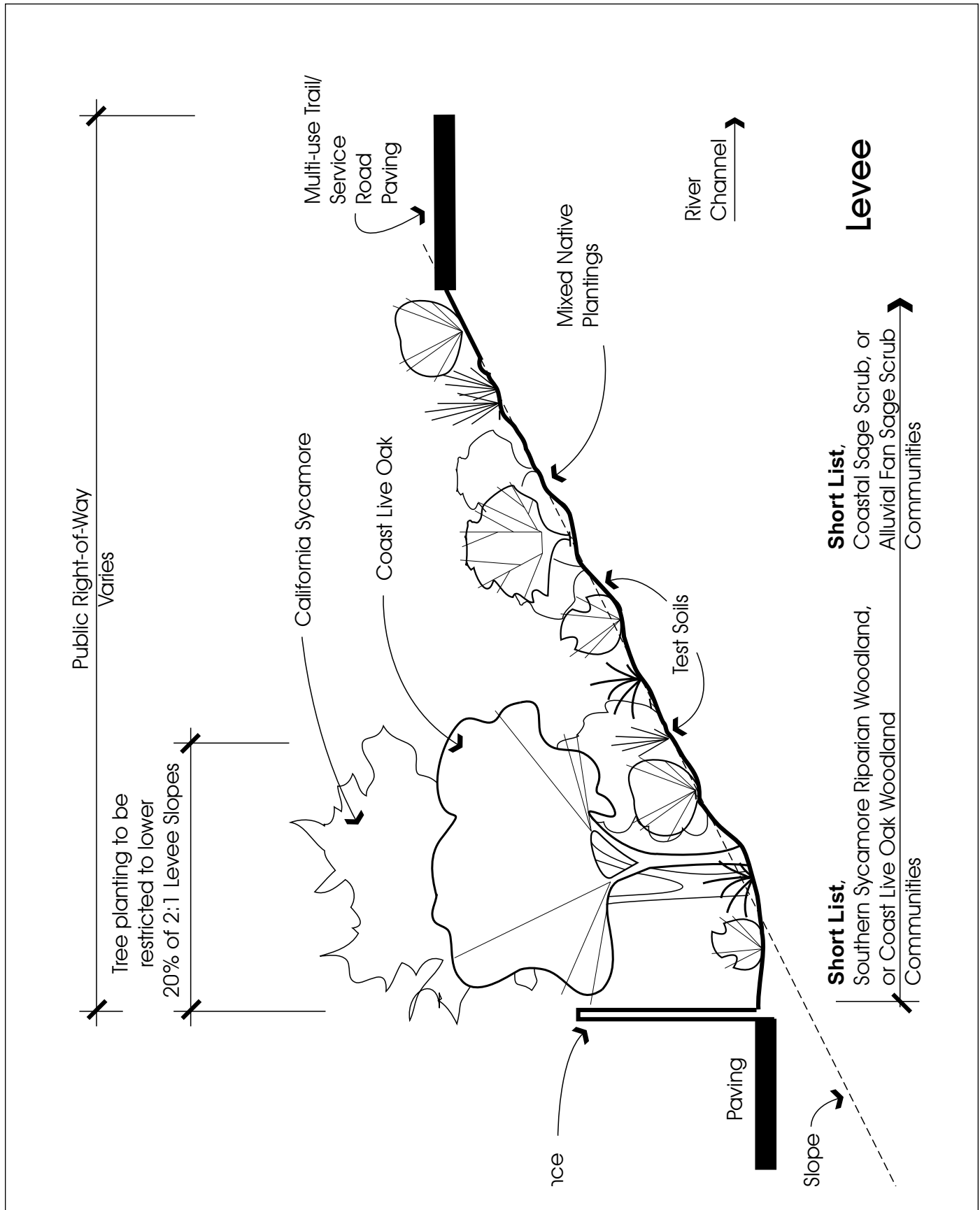


Figure 8.14 Design Guideline 3 - 3:1 Levee Slope Planting (Cross-Section View)

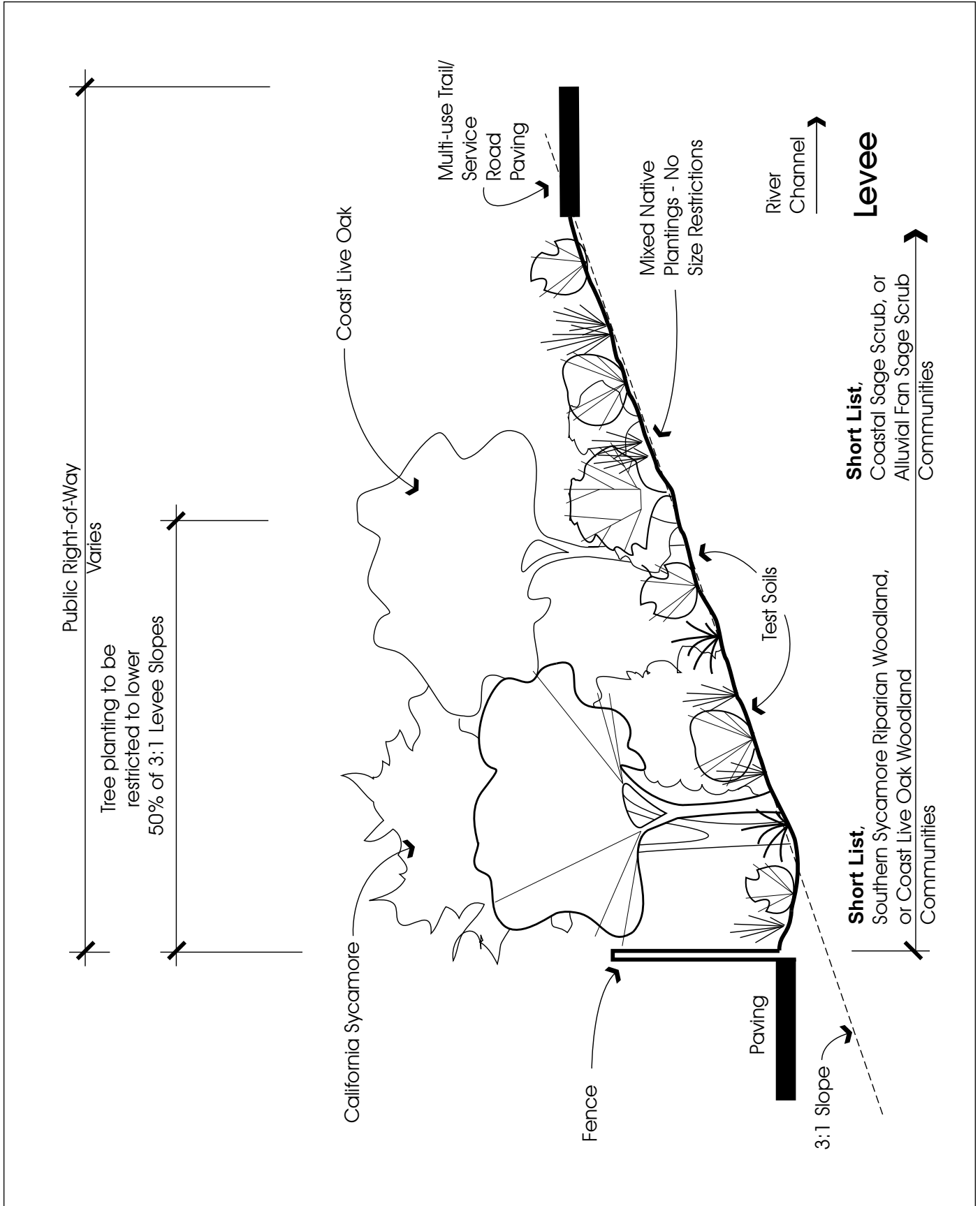
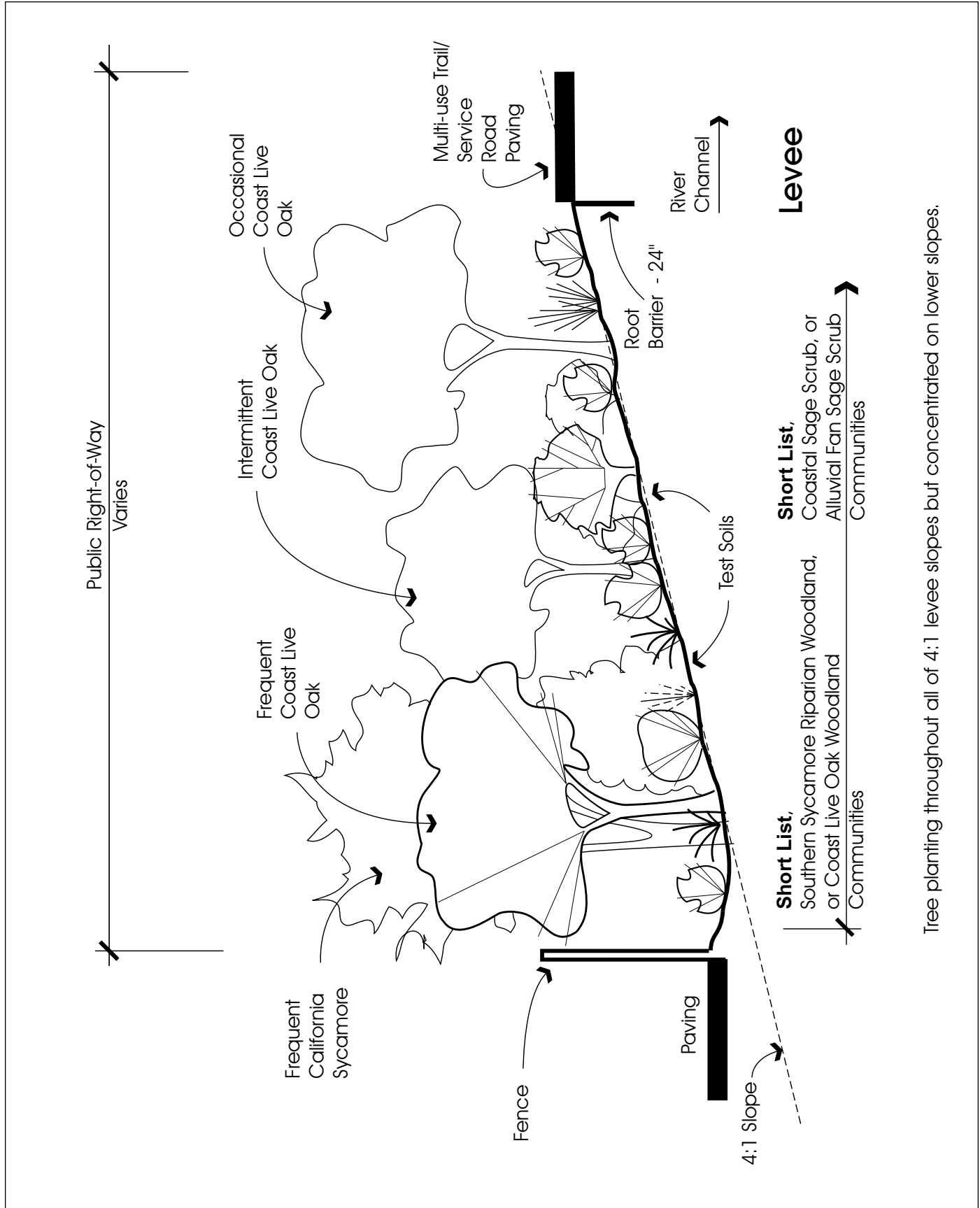


Figure 8.15 Design Guideline 3 - 4:1 Levee Slope Planting (Cross-Section View)



Tree planting throughout all of 4:1 levee slopes but concentrated on lower slopes.

Design Guideline 4 - Species and Structural Diversity

Landscape plantings are to be designed to include a range of native plants with the intent of achieving similar levels of species diversity as occurs in natural landscapes. As a result, plantings are to include a variety of perennials and shrubs as well as long-lived shrubs and trees. The diversity of the landscape plantings are to provide a variety of benefits ranging from soil development, erosion control, resistance to disease, and wildlife value to educational benefit, seasonal character, and community involvement.

In order to achieve the richest wildlife habitat opportunities, designers should seek to achieve diverse vertical structure in their projects by including the full range of vegetative layers present in both the Short List or the native community - from tree canopy where applicable, through mid-layer and understory species as enumerated on the lists. The diversity of bird species, in particular, that may occupy a given landscape is closely related to the structural diversity present. Horizontal structure should be sought by creating mosaics of complementary associations. When designing habitats targeted for specific wildlife species, a qualified wildlife and/or restoration ecologist should be consulted.



Figure 8.16 California wild rose (*Rosa californica*) (Photo by Barbara Eisenstein)

Design Guideline 5 - Existing Landscape Plants

Landscape plants currently existing in the public ROW are to be assessed for their value and role in new landscaping projects. The goal of these guidelines is to achieve native landscape plantings along the Los Angeles River system as completely as possible over time. Existing, non-invasive, exotic species may be retained until senescence then replaced with appropriate native plants. Therefore, long term management actions and replacement plantings are to emphasize strictly indigenous native species.



Figure 8.17 Laurel sumac (*Malosma laurina*) (Photo by Barbara Eisenstein)

Design Guideline 6 - Gateways

Gateways serve the important function of being a visitor's first point of contact with the parkway beyond. Because they are both a physical control point and a transitional element, gateways are used to introduce the park's theme -- a recognizable feature that can be associated with a park. Gateways should project a sense of the natural environment that lies beyond the entry point and a theme that is echoed consistently throughout the park, and assist the casual visitor with a sense of feeling at home in the landscape.

Los Angeles River gateways are recognized as special situations and three exceptions have been made to allow greater design latitude in these areas.



Figure 8.18 California walnut (*Juglans californica* var. *californica*)
(Photo by Barbara Eisenstein)

1. The listed indigenous native species can be combined with a limited number of other California species, cultivars and hybrids of natives to achieve greater visual impact. It is anticipated that these will occur at street intersections, trail crossings, and access points from parks. For these gateways (and other exceptional situations), plants that are not native to the Los Angeles River watershed may be considered on a case-by-case, plant-by-plant basis by the County. However, the total number of plants that are not native to the Los Angeles River watershed shall not exceed 5% of the total number of plants of the same pot size in any given project. (Example: A project designer wants to use 10-15 gallon sized California buckeyes (*Aesculus californica*) in a gateway planting. Since this plant does not naturally occur within the Los Angeles River watershed, there must be a minimum of 200-15 gallon sized plants that are native to the watershed in the project for this request to be considered by the County.)

2. Other indigenous native plant species that are not included on the Short List or Community Lists in Appendix B may be used, such as:

- Species normally included in one of the associations but eliminated for Los Angeles River ROW landscaping (annuals, bulbs) due to higher maintenance requirements;
- Species native to Los Angeles County, but not present in the Los Angeles River watershed such as, redbud (*Cercis occidentalis*), Califor-

nia buckeye (*Aesculus californica*), foothill pine (*Pinus sabiniana*), and bush anemone (*Carpenteria californica*).

3. Gateways are areas where larger trees, including 24" box specimens rather than the 1 and 5 gallon trees may also be appropriate. Visitors can gain a sense of the mature landscape as the smaller trees in the rest of the area grow.

Design Guideline 7 - Plants That Should Never Be Planted Along The River

Despite recent efforts to restore native plant communities along the river, miles of riverside landscapes are currently dominated by exotic weedy plants. Many of these are “escapes” from landscape plantings, such as Mexican fan palm (*Washingtonia robusta*) and fountain grass (*Pennisetum setaceum*) that are adapted to disturbed soil conditions. Such species may be attractive to the uneducated eye, but their aggressive domination of riverside landscapes displaces opportunities for native plant species and the habitats they shape. The resultant simplification of riverside habitats reduces the diversity of plant and wildlife species that may be supported there. Aggressive exotic plant species shall not be allowed in new plantings and all new projects shall include measures to eradicate on-site weeds prior to planting and through follow-up maintenance. In short, only plant species included among the accompanying Short List or Plant Community Lists shall be allowed in plantings along the river, without specific recommendations from a qualified restoration ecologist.

The California Invasive Plant Council (Cal-IPC) is an excellent source for the most current information on invasive plant species threats and management techniques. For more information, including the most recent Cal-IPC list, Exotic Pest Plants of Greatest Ecological Concern in California consult the Cal-IPC web site: www.cal-ipc.org

Additional information is available through the California Native Plant Society website: www.cnps.org



Figure 8.19 Decorative tubular steel fence along the Los Angeles River in Studio City



Figure 8.20 River rock edging between decomposed granite path and raised planting bed on the Los Angeles River



Figure 8.21 Outdoor classroom amphitheatre along the river in Studio City

Hardscape Elements - An Overview

The development of recreational open space along the river and wash requires the provision of certain basic amenities that provide security, safety, and information to the public. Fencing and lighting are essential where public security is an issue, and should be the first elements to be considered where project implementation is to be phased (Fig 8.19). Aesthetic elements provide inspiration and have special appeal as an attraction that fosters a unique character for a place.

Guidelines for quality control and durability of materials have been developed to offer suggestions in the design process, and to promote a sense of visual character that is in keeping with the river environment. They are intended to stimulate imagination, innovation, and variety. Basic standards that meet minimum requirements are provided for several types of amenities including fencing and lighting. This selection is more generic, and is potentially lower in cost than custom pieces.

To establish a meaningful urban river identity, the selection and design of river amenities should be in keeping with a riparian character. A material palette has been developed to provide direction at the site design level. While the primary design goal is to suggest an overall continuity to the river corridor, local character in terms of an urban, rural, natural, or coastal flavor can be explored within each individual city and river reach through the use of indigenous materials where appropriate. Universally appropriate construction materials are stone, metal, and, to a limited extent, concrete. Each provides longevity and maximum durability, particularly in heavy use areas. Creative use of these materials should recognize site context in the design process.

Construction Materials

Stone: Stone, particularly local river rock, is and historically always has been the material of choice along the river and wash (Fig 8.20 - 8.23). Its inherent natural beauty provides strong aesthetic

character, and is useful for walls and custom site furnishings (Fig 8.21 - 8.23). Other indigenous types of stone, including granite, sandstone, Bouquet Canyon related types, Santa Maria related types, and conglomerates are also appropriate.

Metal: Metal is a utilitarian material with tremendous creative potential (Fig 8.19, 8.24). Wrought iron and steel are particularly useful for fencing, structures, site furnishings and artwork and can be integrated in any design scheme from the “rustic” to the “sleek”.

Concrete: This is an extremely durable and versatile material with a wide array of earthy colors, patterns and textures that can be useful in certain circumstances (Fig 8.25, 8.26). It is a very urban material that requires thoughtful and sparing use on the river, particularly in natural areas.

Permeable Surfaces

Decomposed Granite (D.G.): a stable, “natural looking” paving material suitable for most kinds of recreational pathways. It is inexpensive, easy to install and readily available in its common form. D.G. can be found in a variety of different colors, and granular sizes. A larger granular size is recommended, as fine D.G. becomes slippery when wet. Where erosion is a concern, D.G. should be protected with a binder such as “Polypave”, “Stabilizer”, or approved equal. D.G. should not be used on sloped areas unless a drainage system is installed.

Non-grouted pavers, or puddle mortared stone pavers: There are many types of paving block, designed to be installed on a permeable sand base which are being used in urban areas instead of concrete. The flexible quality has advantages over time in being able to handle earth movement. Manufacturers offer a wide selection of colors and shapes to be used creatively in public facilities.

Porous asphalt / porous concrete: open, coarse aggregate held together by asphalt concrete or cement.



Figure 8.22 Example of stone boulder bollard, stone header, and other appropriate materials in Egret Park



Figure 8.23 Stone steps with metal railing on the Los Angeles River at Rattlesnake Park

Problems can occur with silting which reduces permeability if surfaces are not cleaned and maintained regularly to allow maximum water percolation.

Gravel pavers: made of recycled plastic, comes in rolls, easily installed, and the spaces filled with gravel.



Figure 8.24 Curved steel bench and river rock wall on the Los Angeles River



Figure 8.25 Concrete, textured parapet wall along the Los Angeles River in Long Beach



Figure 8.26 Broken concrete seatwall at Los Angeles Riverwalk at Los Feliz Boulevard

Grasspavers or Turf Block: made of recycled plastic or concrete blocks, comes in rolls, easily installed, good for eroded or high traffic areas, and considered ADA accessible. Although turf is not recommended in the river easement, the spaces can be seeded or plugged with native grasses and wildflowers. Use sparingly.

Recycled Materials

Recycled Plastic Lumber: Because plastic based materials can be burned, they are not suitable as a building material on the river. There are a few products such as Trex, for example, that have value in limited applications such as header board. The product is made of recycled plastic and wood shavings and has a natural appearance. It is available in most lumber sizes and is durable, low cost and easy to install with wood working tools. Although it cannot replace wood, structurally it is more flexible and considered very low maintenance. For sources see Appendix C.

Recycled Broken Concrete: Broken concrete pieces provides an interesting, durable, and environmentally-friendly alternative to paving stones, stepping stones or river rock walls (Fig 8.26). Check with local concrete recyclers for an inexpensive supply.

9.0 Site Preparation Guidelines

Site Preparation Guideline 1 - Capture and Infiltration of Rainfall

All project sites are to be studied to identify optimal locations and possible grading actions that will increase the capture and retention of rainfall to help sustain the growth of the native plantings* (Fig 9.1-9.3). Areas that are determined to have high retention potential are best suited to riparian species such as California sycamore and Fremont cottonwood.

Infiltration of rainfall can be enhanced by the installation of perforated pipes within the dripline of larger shrubs and tree species. However, adequate drainage of the area may be required for heavier storms or clogged systems.

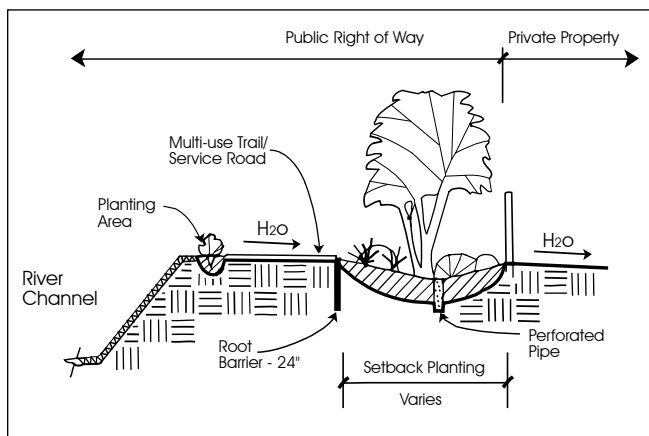


Figure 9.1 Proposed water management in public easement applying the landscape and plant palette standards with participation from adjacent land owners. (Also see Fig 8.12, page 33)

Site Preparation Guideline 2 - Weed Abatement

All weeds should be removed by hand and mechanical means where feasible. When hand and mechanical means cannot be used, herbaceous grasses and forbs can be removed after seed germination and foliage growth is initiated by seasonal rainfall or irrigation applications. EPA approved, glyphosate based, systemic herbicides

such as Roundup or Rodeo can be applied to weeds in compliance with manufacturer guidelines. Woody and thick-stemmed exotics can be eradicated with the cut-and-dab technique and with herbicides. This weed abatement technique requires plant stems to be cut and a herbicide application of 33% solution of Roundup or Rodeo applied to the fresh cuts. All treated weeds need to be removed as much as possible from the site to discourage resprouting or delayed seed dispersal. Layers of mulches (organic or inorganic) can also be used to cover exposed soil and further inhibit the growth and survival of weeds.

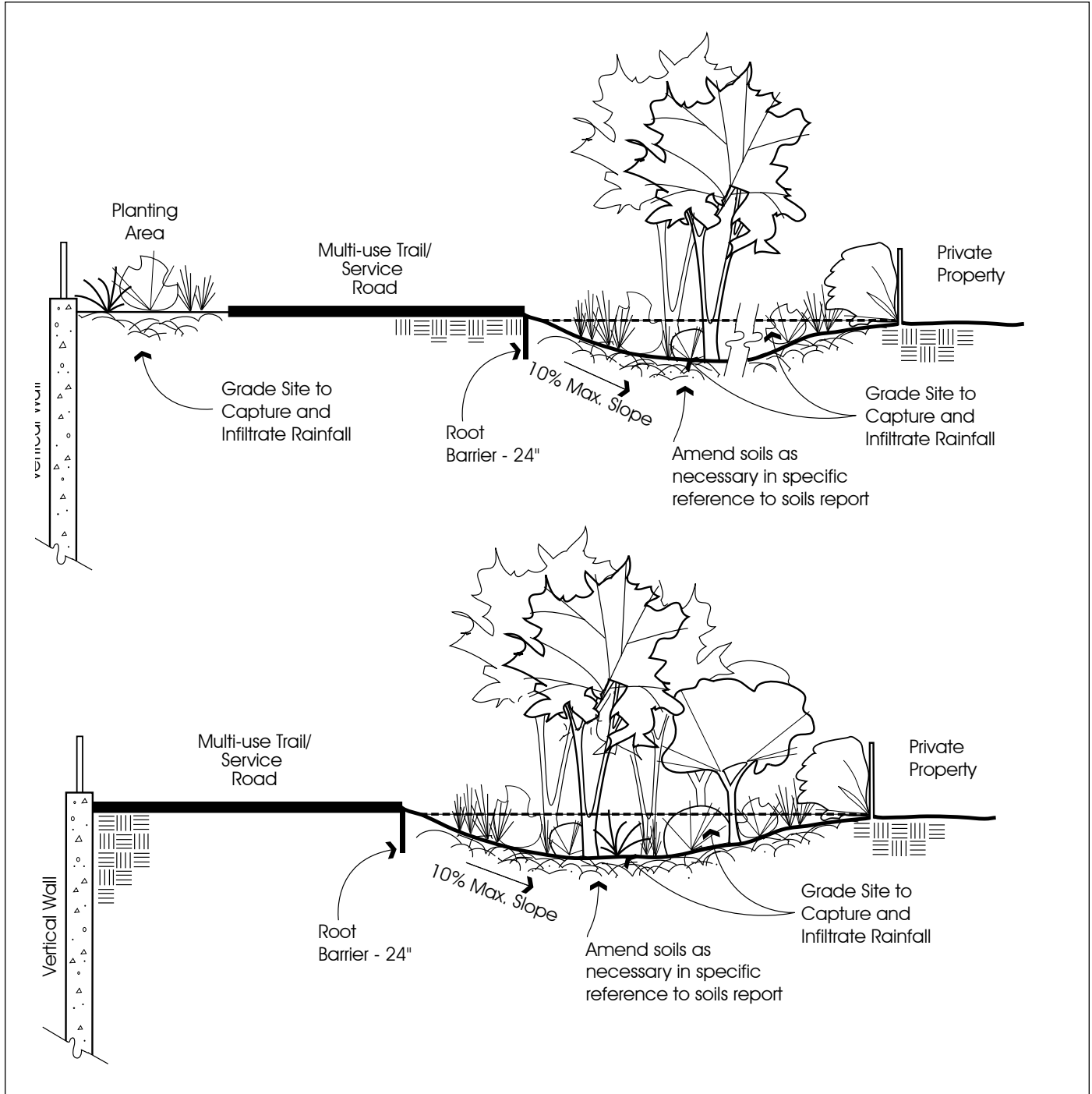
Site Preparation Guideline 3 - Soil Amendment

Soil testing results are to be used to provide guidance for container planting soil amending and backfill conditioning. Organic and biological approaches to soil improvement are to become part of the landscape planting and management program. These approaches can include the addition of mycorrhizal inoculation, gypsum, and composted organic matter. If necessary, the project plant or restoration ecologist should prepare a mycorrhizal inoculation program for site soils, including specific types and quantities of inocula, as well as appropriate installation techniques. Recommended guidelines for mycorrhizal inoculation are provided in Appendix A, pages 59-61.

Note: Most soil analysis is referenced to *commercial agricultural crops* (though this is often not stated). California native plants typically inhabit (and thrive in) areas with *relatively* low soil fertility. Therefore, the soils report fertility section must be interpreted by someone who is experienced and knowledgeable of California native plant horticultural requirements/parameters.

* CASQA, Stormwater Best Management Practice Handbooks, June 2003.

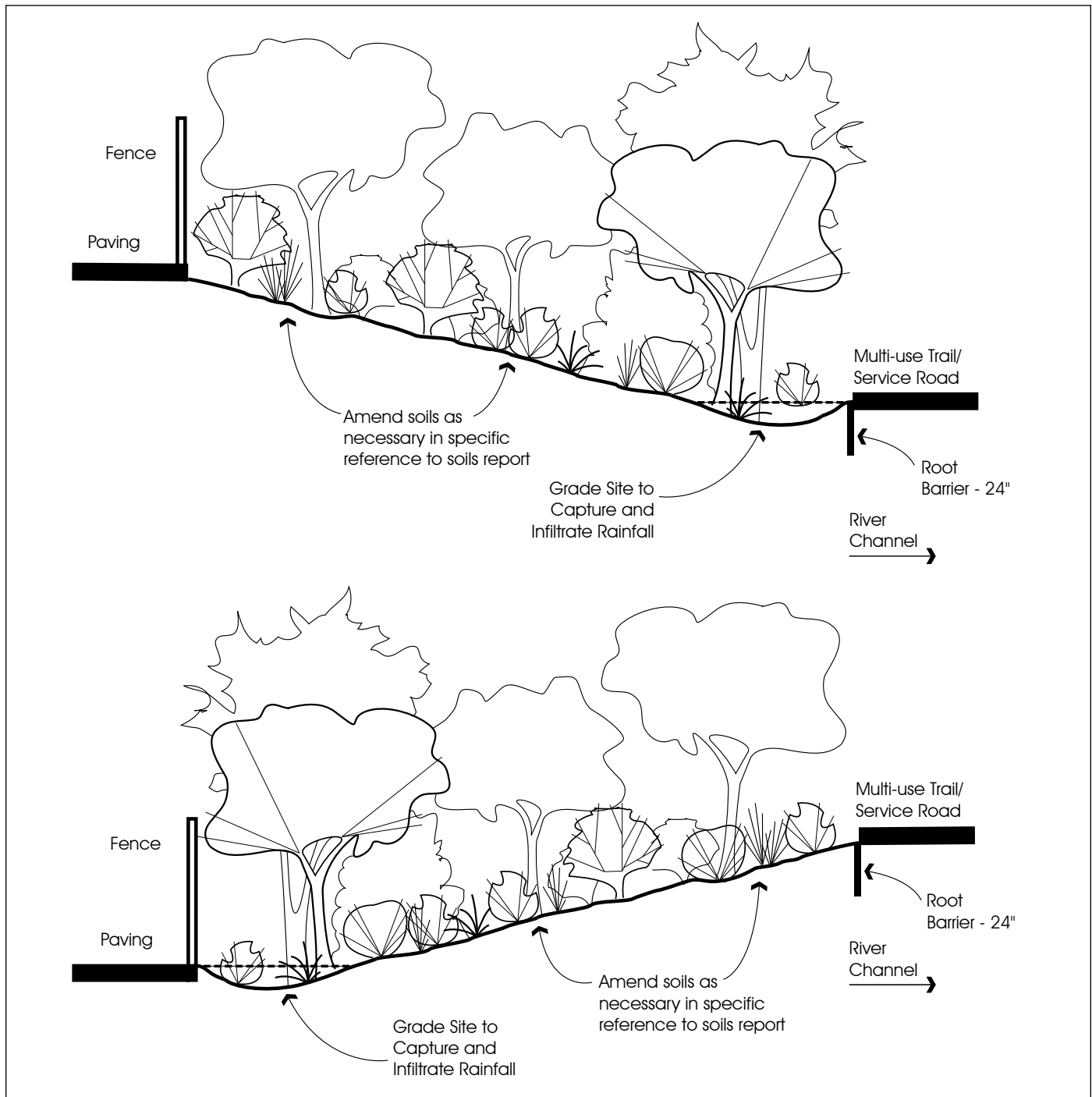
Figure 9.2 Site Preparation Guidelines 1-3: Swale (Cross-Section View)



NOTES:

- Grade site to capture and infiltrate rainfall
- Provide mycorrhizae, when necessary
- Complete weed eradication and site clearing

Figure 9.3 Site Preparation Guidelines 1-3: Slope (Cross-Section View)



NOTES:

- Grade site to capture and infiltrate rainfall
- Provide mycorrhizae, when necessary
- Complete weed eradication and site clearing

10.0 Landscape Planting Guidelines

Planting Guideline 1 - Contract Collecting and Growing

Seed and container plants of indigenous natives are to be obtained through contracts with qualified seed companies and nurseries. Each project is to be managed to provide adequate lead time for collection and propagation with the assistance of the project planting expert. Contractors should be prepared to show seed collection permits for propagule collection, and documentation that tracks the plants through the growth process (Appendix A).

Planting Guideline 2 - Container Plant Sizes and Installation Guidelines

Landscape plants are to be established from smaller plant sizes where practical. Preferred container sizes range from bands, 1 gallon and 5 gallon containers for grasses, perennials, and shrubs; trees can be planted from 1, 5 and 15 gallon containers (Fig 10.1-10.2). Gateways are special situations that may require larger container sizes, such as 24" box, to more quickly attain the look of a mature landscape (Also see Design Guideline 6 - Gateways, pages 37-38).

A combination of staking and installation of protective wire cages is recommended for small trees and shrubs to protect plants from vandalism and herbivory damage (Fig 10.2).

In ground gopher cages may be necessary to protect plant roots underground from squirrels, pocket gophers and gophers (Appendix C).

Planting Guideline 3 - Installation Schedule

Planting of seed and container plants is to occur in late fall through winter to benefit from seasonal rains. The project plant or restoration ecologist is to prepare a specific planting schedule for each

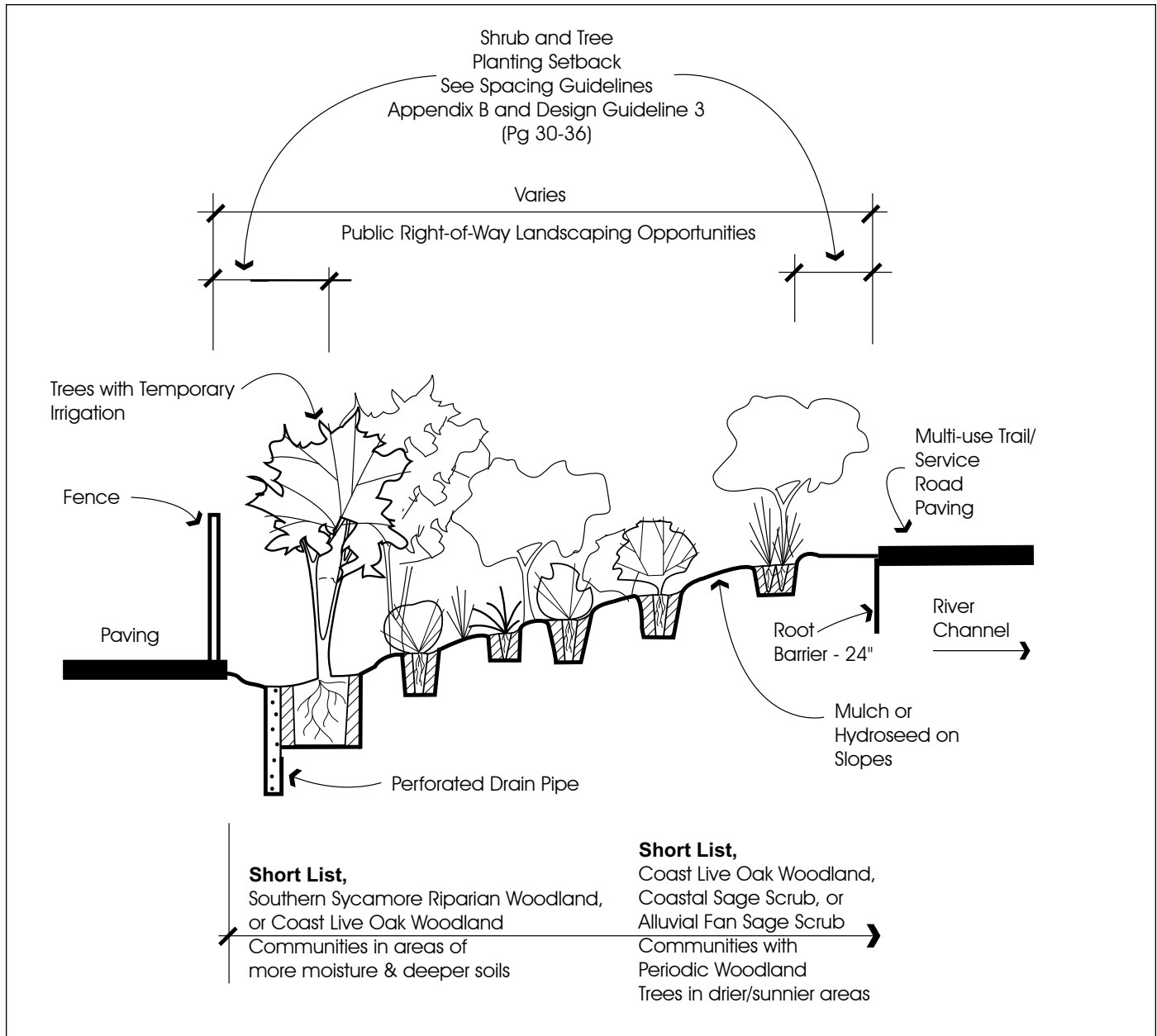
project.

All plants are to be thoroughly watered upon installation to compact soil and settle plants to natural soil depth. Planting areas that are not seeded are to be covered with 3-6" of organic mulch in compliance with the attached Planting Specifications in Appendix A.

Planting Guideline 4 - Seed Planting

Though often erratic and generally less dependable, seed planting of native grasses, perennials, and shrubs can be successfully established through various seeding techniques including imprinting, hand broadcasting, and hydroseeding. Seeds from species such as oaks and walnuts can be established through direct seeding techniques. Specific seed planting actions are to be recommended by the project plant or restoration ecologist. Guidelines for seed planting are provided in the Planting Specifications in Appendix A.

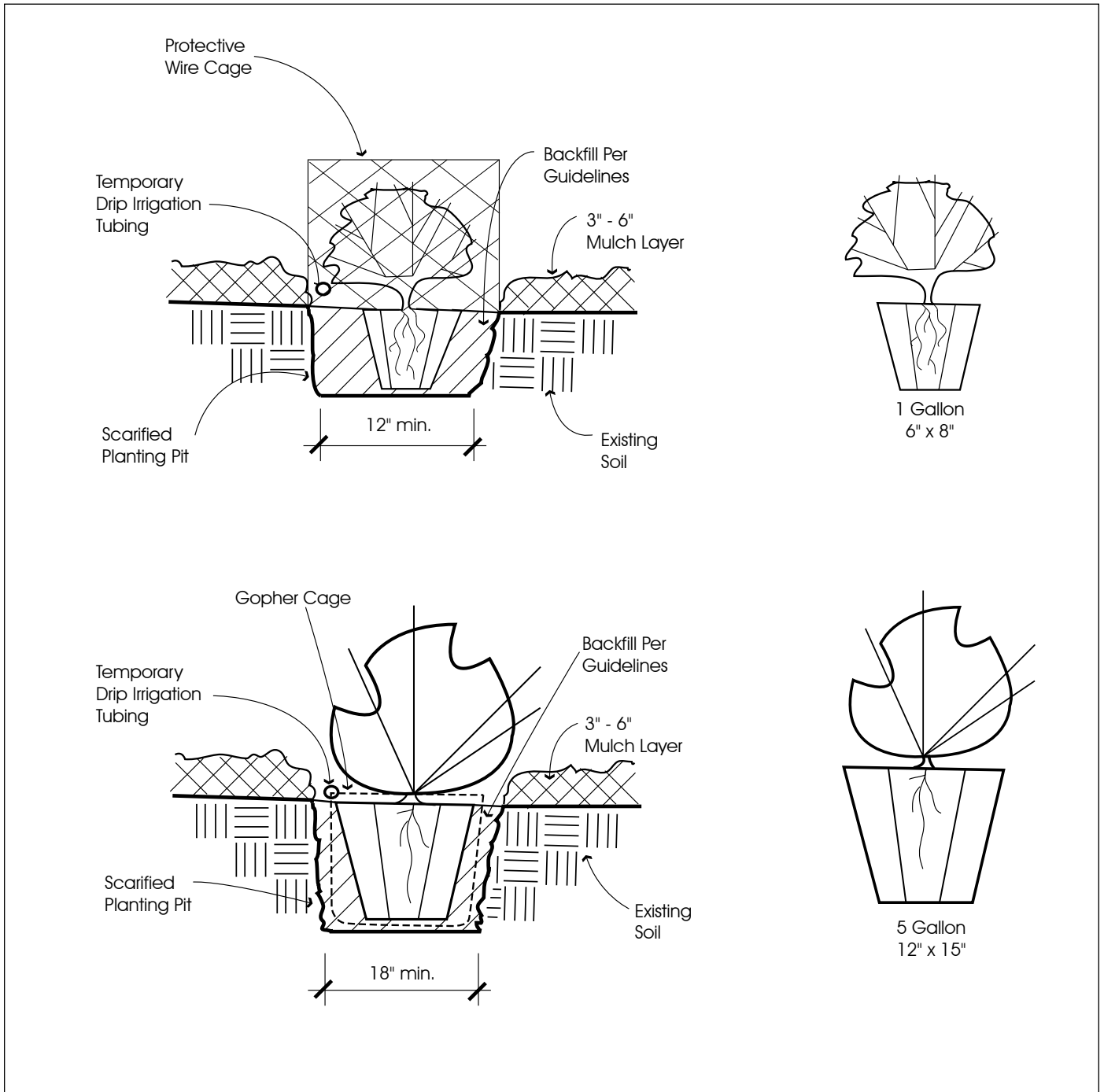
Figure 10.1 **Planting Guideline 1: Plant Communities of California Native Species**



NOTES:

- Contract to collect Los Angeles River watershed seed and grow native species
- Small container sizes are preferred
- Locate most trees in areas that have deeper soils and receive more moisture
- Install seed and container plants in late fall to winter per planting specifications
- Locate container plants according to setback guidelines in Design Guideline 3 (pages 30-36) and Appendix B

Figure 10.2 **Planting Guideline 2: Individual Container Plants**



NOTES:

- Contract to collect and grow native species
- Small container sizes are preferred
- Install gopher cages where necessary

- Install container plants in late fall to early winter per planting specifications
- Add 3-6" layer of mulch to within 6" of plant base

11.0 Landscape Maintenance Guidelines

NOTE: For a complete discussion of maintenance, consult the Los Angeles River Landscape Maintenance Manual (draft).

Maintenance Guideline 1 - Supplemental Irrigation

The design and installation of supplemental irrigation systems to sustain new landscape plantings is discretionary. The landscaping goal is to establish communities of native plants in a manner that encourages self-reliance and survival after the first three years of planting. In this regard, low volume drip and overhead spray irrigation systems may be designed to assist in the initial plant establishment stages, but long term watering is to be discouraged. Overhead spray systems should be used only when necessary and should be designed to use heads with low-precipitation rate nozzles to reduce possible problems with run-off and erosion.

The application of supplemental irrigation water for California native species is recommended primarily during the winter months with the intent to avoid winter drought stress to newly planted plants. Winter irrigation can be very helpful in maintaining soil moisture when there are long periods of time between winter rains. Summer and fall watering may be limited in accordance with prevailing site and environmental conditions until the following winter rain cycle begins. After the first year of establishment, the decision to provide additional supplemental irrigation during the summer should be made by the project plant or restoration ecologist.

Specialty plantings in high use recreation areas, at road intersections, or in highly paved areas may require additional supplemental irrigation for an extended number of years to maintain the vitality of the landscape. In these instances, the use of bubbler and drip irrigation systems is recommended where feasible. As-built drawings of all irrigation systems shall be completed and submitted to the County for future use.

Maintenance Guideline 2 - Extended Maintenance Program

The project proponent is required to prepare a 3-5 year monitoring and maintenance program for all landscape plantings and to designate who will be in charge of all short and long-term maintenance actions. This program is to define a schedule for observing and recording landscape performance with the goal of identifying actions that are needed to improve planting success. Such actions may include replacement plantings needed to replant areas where container plants have died or insufficient seed germination has occurred. The project plant or restoration ecologist is to help prepare this program and to incorporate appropriate elements of the maintenance specifications provided in Appendix A.

Maintenance Guideline 3 - Pruning and Removal of Plants

Landscape plantings are to be maintained in a manner that helps achieve natural form, diversity and density among plants. Trimming, pruning and removal of plants is to be done under the guidance of a qualified native plant specialist and to avoid shearing and out-of-season cutting and pruning. Additional pruning and removal of plants shall be done to maintain public safety and access for service and emergency actions.

Maintenance Guideline 4 - Weeding and Supplemental Mulching

The monitoring and maintenance program shall provide for routine landscape inspections to inspect and test irrigation systems, manage weed growth and to assess the need to provide periodic augmentation of mulches (to maintain a depth of 3-6"). Removal of weeds by hand and mechanical means is recommended where feasible. EPA approved, glyphosate based, systemic herbicides such as Roundup or Rodeo can be applied to weeds in compliance with manufacturer guidelines when hand and mechanical means are not possible. Additional mulch is recommended to cover exposed soil and further inhibit the growth of weeds.

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Appendix A

Supplemental Planning Information

12.0 The Permit Process for Project Implementation

The design of recreational amenities and landscape plantings for the Los Angeles River requires a series of steps and procedures to achieve optimum success. These include the development of plans and specifications that meet the permit criteria of the County of Los Angeles Department of Public Works. Project proponents must submit plans for approval by the County on a project by project basis. Permittee is responsible for adhering to all requirements. Requirements for jurisdictional reviews and permits procedural issues are as follows:

Background Review

- 1. Review Los Angeles River Master Plan documents to identify local, site-specific opportunities
- 2. Meet with County and City staff
- 3. Review other relevant documents
- 4. Meet with sponsoring group and community

Evaluate Site for Opportunities and Constraints

- 1. Determine maintenance jurisdiction
- 2. Determine all land ownerships and easements/ROWs
- 3. Contact all agencies and owners for concept approval
- 4. Identify water source (point of connection) and funding responsibility
- 5. Perform functional and aesthetic assessment of the site
- 6. Assess topographic, hydrologic and microclimate conditions
- 7. Conduct agronomic and biological activity soil test
- 8. Determine existing utilities (gas lines, water lines, electric lines)
- 9. Hire professionals for plan development including landscape architect and ecologist

Conceptual Design Stage

- 1. Develop a site specific program
- 2. Develop preliminary plant palettes per planting guidelines
- 3. Develop conceptual planting patterns and grading actions
- 4. Prepare section-view illustrations of planting program
- 5. Summarize key plant palettes, planting and irrigation techniques
- 6. Submit to County for review
- 7. Begin contract growing process

Schematic Design Stage

- 1. Prepare design and irrigation plans with preliminary details
- 2. Consult with existing municipalities regarding irrigation equipment and design guidelines
- 3. Identify seed and container planting techniques
- 4. Prepare comprehensive plant palettes including species types, quantities, sizes
- 5. Continue contract growing process
- 6. Prepare preliminary cost estimate and project specifications

Monitoring and Maintenance Program

- 1. Prepare irrigation schedule and checklist of maintenance activities in accordance with The Los Angeles River Landscape Maintenance Manual (in preparation).

- 2. Prepare inspection and replacement planting program
- 3. Prepare pruning and mulching guidelines
- 4. Prepare a 3-5 year extended monitoring and maintenance program
- 5. Responsible agencies maintaining the landscape must be listed

Technical Drawings and Specifications

- 1. Prepare complete set of technical drawings and specifications for bid purposes.
- 2. Submit technical drawings and specifications to County for review and approval. Landscape plans, irrigation plans and specifications to be prepared by a registered landscape architect licensed to practice in California. The design drawings and specifications shall conform with the County of Los Angeles Department of Public Works and/or American Public Works Association (APWA) Standard Plans and Specifications requirements. For structural amenities not shown in the County or APWA standard plans, the designer should provide detailed drawings and design calculations, prepared, signed, and stamped by a California Registered Civil or Structural Engineer.
- 3. Submit maintenance and monitoring programs both 12-month and 3-years as part of the technical specifications required for project approval (see pages 64-66 and Maintenance Manual (in preparation)).
- 4. Require underground service alert (see below).

As-Built Drawings

- 1. Provide updated planting plan and irrigation schematics (as-builts or record drawings) to the County as necessary.

The County's Role

The County of Los Angeles Department of Public Works has the broadest influence and is therefore the logical agency to continue the leadership role in the implementation of a continuous river greenway corridor as specified in the Master Plan. The achievement of a continuous river greenway corridor will take a concerted and sustained effort by the County and each river municipality. The public right of way provides limited area for corridor improvements. Modifications of existing land use conditions, zoning changes, and lease agreements initiated by others will be necessary to implement the directives of both flood management agencies as published in two documents 1) The Los Angeles River Master Plan issued by the Los Angeles County Department of Public Works in 1996, and 2) the "Los Angeles River Recreational Development Master Plan and Environmental Assessment" as mandated by the United States Army Corps of Engineers, adopted in 1998.



DigAlert

Sponsored by the Underground Service Alert of Southern California (USA/SC), a non-profit mutual-benefit organization dedicated to ensuring public safety and that of workers of underground utility lines. Check their web site for current rate structure.

www.digalert.org

13.0 Supplemental Project Specifications For Contractors

These specifications are provided to help project proponents achieve the goals and purposes of the Los Angeles River Planting Guidelines. These specifications are not complete by themselves. They have been prepared to include specific materials, installation guidelines, and maintenance actions that are to be integrated into the full project specification package submitted by a project proponent.

Planting and Irrigation Materials

Container Plants:

The contractor shall acquire all plant material of the required type, sizes and quantities through sources approved by the project proponent's plant or restoration ecologist. The contractor shall furnish evidence to County of Los Angeles Department of Public Works that the plant material was grown exclusively from propagules indigenous to the Los Angeles River watershed. Substitutions or changes to the planting program will not be permitted without written approval from the project proponent's plant or restoration ecologist.

Plants shall be well shaped, vigorous, with healthy, well developed root systems. Plants shall not be rootbound. Plants shall be healthy, and free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement and abrasion. Plants shall be typical of the species or variety as conforming to the Plant Palettes of the these Landscaping Guidelines. Plants shall be furnished in sizes indicated on the drawings.

Seed:

The contractor shall acquire all seed material of the required type, sizes and quantities through sources approved by the project plant or restoration ecologist. The contractor shall furnish evidence that the collected seed is exclusively from Los Angeles River watershed sources. Seed not required to be labeled under the California Food and Agricultural Code shall be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts, or a seed technologist certified by the Society of Commercial Seed Technologists. Seed shall have been tested for purity and germination not more than one year prior to application of seed. Results from testing seed for purity and germination shall be furnished to the project restoration ecologist prior to applying seed.

Seed treated with mercury compounds shall not be used.

Legume seed shall be pellet-inoculated with a viable bacteria compatible for use with that species of seed. All inoculated seed shall be labeled to show the mass of seed, the date of inoculation, and the mass and source of inoculant materials. Legume seed shall be pellet-inoculated in accordance with the provisions in Bulletin 1842, "Range-Legume Inoculation and Nitrogen Fixation by Root-Nodule Bacteria," of the University of California, Division of Agriculture and Natural Resources. Inoculant shall be added at the rate of 2 kg of inoculant per 100 kg of legume seed. Inoculated seed shall be sown within 90 days of inoculation.

Seed shall be delivered to the site in original sealed packages bearing the supplier's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS-01 and applicable state seed laws. Weed seed shall not exceed 1 percent by weight of the total mixture. Wet, moldy, or otherwise damaged seed shall be rejected.

Compost:

Compost shall be derived from green material consisting of chipped, shredded or ground vegetation or clean processed recycled wood products, or a Class A, exceptional quality biosolids compost, as required by US EPA, 40 CFR, part 503c regulations, or a combination of green material and biosolids compost. The compost shall be processed or completed to reduce weed seeds, pathogens, and deleterious material and shall not contain paint, petroleum products, herbicides, fungicides or other chemical residues that would be harmful to plant or animal life. Other deleterious material such as plastic, glass, metal or rocks shall not exceed 0.1 percent by weight or volume. A minimum internal temperature of 135 degrees F shall be maintained for at least 15 continuous days during the composting process. The compost shall be thoroughly turned a minimum of five times during the composting process, and shall go through a minimum 90 days curing period after the 15 day thermophilic compost process has been completed. Compost shall be screened through a minimum 1/4-inch screen.

The moisture content of the compost shall not exceed 25%. Moisture content shall be determined by California Test 226. Compost products with a higher moisture content may be used provided the weight of the compost is increased to equal compost with a maximum moisture content of 25%.

Compost shall be tested for maturity/stability with a Solvita Test Kit supplied by the compost producer. The compost shall measure a minimum of 7 on the maturity/stability scale.

Nitrogen (N) content of the compost should not exceed 6% and should preferably be much lower, as guaranteed by the compost producer. A low nitrogen compost is recommended as a precaution to reduce weed encroachment onto the planting area.

Stabilizing Emulsion:

Stabilizing emulsion shall be a concentrated liquid chemical that forms a plastic film upon drying and allows water and air to penetrate. The film shall be nonflammable. Stabilizing emulsion shall be nontoxic to plant or animal life and nonstaining to concrete or painted surfaces. Stabilizing emulsion shall be in a dry powder form, may be re-emulsifiable, and shall be a processed organic adhesive used as a soil binder. Stabilizing emulsion shall be miscible with water at the time of mixing and application.

The ratio of total water to total stabilizing emulsion in the mixture shall be as recommended by the manufacturer.

Note that at least one manufacturer produces a stabilizing emulsion which can facilitate localized water retention. Such potentially suitable properties should be considered in selecting the stabilizing emulsion.

Hydroseed Fiber:

Fiber shall be produced from natural or recycled (pulp) fiber, such as wood chips or similar wood materials or from newsprint, chipboard, corrugated cardboard or a combination of these processed materials, and shall be free of synthetic or plastic materials. Fiber shall not contain more than 7 percent ash as determined by the Technical Association of the Pulp and Paper Industry (TAPPI) Standard T 413, shall contain less than 250 parts per million boron, and shall be otherwise nontoxic to plant or animal life.

Fiber shall have a water-holding capacity by mass of not less than 1200 percent as determined by the procedure used in the California Department of Transportation's Final Report, CA-DOT-TL-2176-1-76-36, "Wa-

ter-Holding Capacity for Hydromulch,” available at the Transportation Laboratory, 5900 Folsom Boulevard, Sacramento, CA 95819.

Fiber shall be of such character that the fiber will disperse into a uniform slurry when mixed with water. Water content of the fiber before mixing into slurry shall not exceed 15 percent of the dry mass of the fiber. The percentage of water in the fiber shall be determined by California Test 226. Commercially packaged fiber shall have the moisture content of the fiber marked on the package. Fiber shall be of a natural color to blend aesthetically with the area on which the fiber is to be applied, and shall not stain concrete or painted surfaces.

Straw:

Straw shall be derived from rice, wheat, or barley. Wheat and barley straw shall not be derived from dry farmed cereal crops. The contractor shall furnish evidence that clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw obtained from outside the County is delivered to the site of the work. Straw that has been used for stable bedding shall not be used.

Erosion Control Material:

Surface mulch for erosion control and weed abatement may comprise composted wood derivatives such as ground bark, chipped tree trimmings, or other wood waste material free of stones, sticks, and toxic substances harmful to plants and stabilized with nitrogen.

Erosion control netting shall be heavy, twisted jute mesh weighing approximately 1.22 pounds per linear yard and 4 feet wide with mesh openings of approximately 1 inch square.

Endomycorrhizal Inoculum:

Arbuscular mycorrhizal inoculum shall consist of spores, mycelium, and mycorrhizal root fragments in a granular calcined clay carrier. 80% of root fragments shall not exceed 1 inch in length. Inoculum shall not contain significant quantities of leaves, stems, seeds, coarse roots, pebbles, perlite, vermiculite or other materials of such size or in such quantity as to interfere with the proper operation of inoculum dispensing equipment.

Commercial inocula shall contain at least 50 propagules of a suitable arbuscular mycorrhizal fungus per cc of bulk inoculum. A propagule is a spore, fragment of fungal mycelium, or piece of mycorrhizal root capable of colonizing host plant roots on the restoration site. The inoculum shall contain one or more species of fungi from the genus *Glomus*, and may contain one or more species of the genera *Sclerocystis*, *Gigaspora*, *Scutellospora*, *Entrophospora*, or *Acaulospora*.

Arbuscular mycorrhizal inoculum shall be viable and healthy, and have sufficient time remaining in its recommended shelf life to compensate for any potential delays in planting.

Ectomycorrhizal Inoculum:

Ectomycorrhizal inoculum shall contain *Pisolithus tinctorius* and one or more species of *Rhizopogon* and shall have no less than a live spore count of 400 propagules per ml of bulk inoculum. No antagonistic pathogens shall be present at significant levels.

Irrigation Components:

All pressurized pipe and fittings shall be RTR pipe with solvent welded joints conforming to ASTM D2996, Type Grade 1, Class F, or SAMSS-034, Class 1; or ASTM D1785 and SASO 14 and 15 Class V standards. Lateral and main lines less than 1-1/2" and including 1-1/2" shall be PVC Schedule 40 and meet the requirements of PVC Type 1, Grade 1, and Type 1, Grade II, as determined by ASTM D-1784 and comply with ASTM D-2444 impact test. Lateral and main lines 2" and larger shall be PVC Schedule 80 or Class 315. Fittings shall conform to ASTM D-2466. All pipe and fittings shall be free of holes, cracks, blisters, wrinkles, dents and other irregularities.

Remote Control Valve Boxes shall be constructed of fiberglass, colored green, with rigid base and sides, and supplied with key, slide, or bolt lock cover. Remote control valve boxes installed within 8 feet of the service road shall be concrete with steel-hinged lockable cover.

Irrigation Controller Cabinet shall be locking, weatherproof, antirust, corrosion resistant, and seamless.

Solenoid Valve Wire from controller to valves shall be terminated at the controller itself, and shall be of the size and type recommended by the valve manufacturer, with a minimum size of 14 AWG. Wire shall be of the direct burial type. Wire connections at the remote control valves shall be accomplished with molded waterproof PVC plastic connectors. PVC wire connectors shall be UL listed or equivalent.

Installation Guidelines

Planting Times and Conditions:

Installation of landscape plantings shall occur between November 1st to March 15th as specified in the schedule prepared by the project plant or restoration ecologist. Planting operations for both container species and seed materials shall be performed only when beneficial results can be obtained. When special conditions warrant a variance to the specified planting schedule, alternative planting times shall be submitted to and approved by the project plant or restoration ecologist.

Site Preparation and Grading:

The project plant or restoration ecologist shall verify the finished grades as indicated on drawings, and appropriate weed abatement actions have been taken. Areas to be seeded or planted with container plants shall be filled as needed or have surplus soil removed to attain the finished grade. Surface drainage shall be maintained as indicated on drawings. Seeded areas shall be lightly scarified. Finished grade shall be 1/2-inch below the adjoining grade of any paved area. New surfaces shall be blended to existing areas.

Biological Soil Testing:

Soil samples shall be taken and tested in accordance to the program prepared by the project plant or restoration ecologist upon completion of site grading actions.

Mycorrhizal Inoculum:

Storage - Mycorrhizal inoculum is living material and must be protected from extreme temperatures. Store it in cool, dry, and well-aerated conditions. All biological material has a shelf life. Determine the expected shelf life and current age of the material from the supplier at the time of purchase.

At no time during storage or application shall inoculum be exposed to temperatures above 90 degrees or below 32 degrees F. Inoculum shall be stored out of direct sunlight and in conditions that assure that the temperature of the inoculum remains below 90 degrees and above 32 degrees F. The inoculum dispensing mechanism shall not be allowed to heat in the sun to temperatures above 90 degrees F.

Application - Broadcasting shall be carried out by hand or mechanical device that distributes the inoculum evenly and at the specified rate. Any broadcasting machinery shall not crush, grind, or subject the inoculum even momentarily to excessive pressure or temperature. Broadcast seeders, fertilizer boxes such as those manufactured by Gandy or Clampco, motorized blowers, hydraulic seeders, and even agricultural aircraft have been successfully used to broadcast inoculum.

Hydroseeding may be used as an alternative method to apply mycorrhizal inoculum to a project site, particularly on steep slopes and where seed planting is the primary means of establishing new vegetation.

Depth of Incorporation - Mycorrhizal inoculum shall be incorporated into the upper 2 to 6 inches of soil by the method described above, or by other approved means that provide similar results. Shallow incorporation (1 to 3 inches) is likely to be advantageous during cool weather, and deeper incorporation (3 to 6 inches) is likely to be advantageous during warm weather.

In no case shall the inoculum be allowed to remain on the soil surface longer than 6 daylight hours during cool weather (maximum temperature below 70 degrees F) or one daylight hour during warm weather (maximum temperature above 70 degrees F). Inoculation shall not be carried out if the soil surface temperature is above 90 degrees or below 32 degrees F.

Where space permits, inoculum shall be broadcast throughout the site after ripping (disking) to a minimum depth of 6 inches, with ripping teeth spaced not more than 18 inches apart. Broadcasting of inoculum shall be followed by treatment of the soil surface with a spring-tooth harrow implement. (Alternatively: 1.) drag a timber or piece of chain link fence; 2.) trackwalk; 3.) roll the surface with a low-pressure wheel tractor.)

In smaller planting spaces, inoculum shall be incorporated by slicing the soil with a blade or spading fork to a depth of four to six inches and dropping inoculum into the resulting openings. Openings in the soil shall be no more than 10 inches apart. Inoculum shall be broadcast on the surface of loose, well-worked soil and incorporated by back-and-forth motions of a garden rake or similar implement.

Rate of Inoculation - Inoculation rate shall correspond to 3,600,000 propagules per acre (8,900,000 propagules per ha), or 8300 propagules per 100 square feet (900 propagules per square meter). The application rate of bulk inoculum shall be calculated from the supplier's guarantee of propagule count per unit volume of bulk inoculum.

Container Plants:

Excavation of Plant Pits - Plant pits shall be dug to produce roughened sides and flat, uncompacted bottoms. When pits are dug with an auger and the sides of the pits become glazed, the glazed surface shall be scarified. The size of plant pits shall be as shown on drawings. When obstructions below ground or poor drainage affect the contract operation, proposed adjustments to plant location, type of plant and planting method or drainage correction shall be submitted to and approved by the project plant or restoration ecologist.

Percolation Test - Tests for percolation shall be done to determine positive drainage of all plant pits. The project plant or restoration ecologist shall be notified in writing of all soil and drainage conditions detrimental to growth of plant material and shall submit proposal for correcting the condition.

Backfill and Inoculation of Container Plants - Backfill for planting pits shall comprise 80% site soil, 20% compost depending on soil analysis results.

If necessary, areas where mycorrhizal inoculum has not been applied to the site, container plants shall be treated at time of planting by applying inoculum to the root surface within the root zone. During the planting operations, contractor shall ensure that the inoculum is directly interfacing with living roots or placed reasonably close to assure rapid movement of root growth to the inoculum.

Application rate for container plants, assuming VAM 80 or comparable granulated inoculum is used:

- Small containers (liners, etc.) - a “pinch”
- 1 gallon - approximately 1 teaspoon
- 5 gallon - approximately 1 tablespoon
- Larger containers - apply according to above approximate ratios

Container Installation - Plants shall be set plumb and held in position until sufficient soil has been firmly placed around roots or ball. Plants shall be watered immediately upon installation to eliminate air pockets and to establish a plant elevation that matches the surrounding grade (never lower) at the depth at which they were grown in the nursery, or container.

Mulching - Areas not planted with seed shall be covered with minimum of 3" to 6" of mulch. No organic mulch shall be placed within 6" of the trunk or stem of container plants.

Hydroseeding and Hydromulching:

A minimum two step process shall be implemented for applying seeds and endomycorrhizal inoculum by hydraulic seeder. The seed mix and inoculum shall be applied in the first pass by the hydraulic seeder; a protective layer of hydromulch fiber and low nitrogen compost shall be applied on top of this mixture in a second pass.

A third step may be considered optional, depending on site conditions. A layer of straw and tackifier can be applied to the project site for additional protection.

The hydroseeding method opens the possibility of mycorrhizal inoculation on slopes too steep even for hand labor.

Hydroseeding shall consist of mixing and applying, as specified hereafter: seed, mycorrhizal inoculum, and stabilizing emulsion with water to the planting areas.

Hydromulching shall consist of mixing and applying compost, fiber, and stabilizing emulsion with water in a second pass over areas that have received the hydroseed mixture.

The hydroseed and hydromulch mixtures should ideally be applied during the fall to take advantage of not only winter rains, but also the cold stratification that may enhance germination of many native plant seeds.

Hydroseed and hydromulch materials shall be applied in two (or three) separate applications in the following sequence:

- a. Seed, endomycorrhizal inoculum, stabilizing emulsion and water
- b. Compost, fiber, stabilizing emulsion and water
- c. (Optional) Straw, stabilizing emulsion and water

The type and quantity of seed and inoculum shall be determined by the project plant or restoration ecologist.

When applicable, rice straw shall be applied at the rate of 3 metric tons per hectare or wheat or barley straw shall be applied at the rate of 4 metric tons per hectare. Incorporation of straw will not be required. The ratio of total water to total stabilizing emulsion in the mixture shall be as recommended by the manufacturer.

The equipment to be used and the methods of seeding shall be subject to the inspection and approval of the Contracting Officer prior to commencement of seeding operations. Immediately prior to the commencement of seeding operations, the contractor shall conduct seeding equipment calibration tests in the presence of the project plant or restoration ecologist.

Irrigation:

Coverage - All drip irrigation systems shall be installed in a manner that is capable of providing multiple emitters to each container plant. At a minimum, the following schedule of emitters is required:

- Liners, etc. - 1 micro-emitter
- 1 gallon plants - 2 micro-emitters, one placed at rootball, other at edge of dripline
- 5 gallon plants - 4 micro-emitters, two placed at rootball, others at edge of dripline
- 15 gallon plants - 8 micro-emitters, four placed at rootball, others at edge of dripline

All spray irrigation systems shall be installed to achieve head-to-head coverage within the limits of the available water pressure, operating standards of the specific irrigation components, and site conditions.

Where possible, lateral lines of low volume irrigation systems shall be placed parallel to the contours of sloping sites to maintain uniform water pressure. Excessive watering shall be minimized to prevent erosion. Details shall provide for appropriate use of in-line filters, pressure regulators, and end-flush valves.

Clearance - New plantings shall be adjusted in the field to permit spray heads to operate without obstruction.

Anchor and Protection - Above-ground micro-emitter lines and tubing shall be secured to the ground with heavy wire staples to secure lines in the landscape. All emitter lines and tubing shall have minimum 4" of soil cover below mulch layer.

12 Months Maintenance Program

Plant Establishment Period:

On completion of the last day of the planting operation, the plant establishment period for maintaining installed plants in a healthy growing condition shall commence and shall be in effect for 12 months. When the planting operation extends over more than one season or there is a variance to the planting times, plant establishment periods shall be established for the work completed, as directed. Written calendar time period shall be furnished to the Contracting Officer for the beginning of the plant establishment period. When there is more than one plant establishment period, describe the boundaries of the planted area covered for each period.

Interim Maintenance Actions:

In instances where project landscaping extends for several weeks or months, all installed plantings shall be maintained in a healthy growing condition. Maintenance operations shall begin immediately after each plant is installed and shall continue until the plant establishment period commences as approved by the contracting officer. The maintenance includes watering, pruning, installing protective wire cages, straightening and other necessary operations. Plants shall be checked for settlement and shall be reset at proper grade as necessary. Actions shall be taken to provide adequate moisture and weed management during planting operations.

12 Month Maintenance Actions:

A focused maintenance program is to be established for a minimum of 12 months following the planting stages. This maintenance program emphasizes proper application of supplemental water, replacement planting, and weed management to achieve an increased rate of vegetation establishment and growth. Details of this program include:

- a. Ideally, after the first year of landscape establishment has been completed, additional supplemental irrigation shall be restricted to late fall through early spring to reduce periods of winter drought when seasonal rains are below average. No supplemental water shall be applied unless directed by the project plant or restoration ecologist.
- b. All irrigation systems shall be inspected twice monthly during the late fall through early winter to discover and repair broken and dysfunctional pipes and heads. Each fall, a thorough inspection of the system will be performed while in operation to make it ready for seasonal use.
- c. Germination and growth of plants is to be inspected on a weekly basis for the first three months following planting to monitor progress and observe problems as they arise.
- d. Weed growth shall be continuously monitored during the landscaping process. Although unnecessary weeding is to be avoided and the contractor shall make an effort to minimize the disturbance to the establishment of native vegetation and soil mycorrhizae, newly-planted areas shall be kept clean and weed-free all the time. The specific methods, products, and areas where weeding is proposed shall be approved by the project plant or restoration ecologist.
- e. All trees and shrubs shall be allowed to grow to their natural genetic form and size, unless specifically excepted. Pruning shall promote structural strength and accentuate the natural form and features of plants. Stripping of lower branches of young trees shall not be permitted. Thinning of

certain species may be required to prevent overcrowding or wind damage.

- f. Clearing and pruning of plants adjacent to service roads shall be limited to a maximum distance of 6 inches from the edge of pavement.
- g. Staking of trees shall be inspected monthly, and be maintained to support and protect trees until they are able to stand alone.
- h. Additional applications of mulch may be required to mitigate weed growth, reduce erosion, and cover exposed soils.
- i. All maintenance actions are to be managed by the project plant or restoration ecologist who is responsible to conduct regular inspections, maintain written records, and to make decisions that will further improve the establishment of the vegetation. The project plant or restoration ecologist shall maintain once a month coordination with the contracting officer.
- j. Damage to landscape plantings by acts of vandalism, storms, heavy equipment or other causes shall be repaired or replaced in a manner that is consistent with the original planting program.

3 Year Monitoring and Maintenance Program

A 3 year monitoring program is to be established to provide for regular inspections and decisions regarding weed management, supplemental irrigation, and additional planting actions. The emphasis of this program is to be placed at the beginning stages of the establishment process and at the beginning stages of subsequent planting activities that result from disturbance or inadequate plant establishment. The details and management of this program are to be determined by the project plant or restoration ecologist, and as approved by the contracting officer.

General Recommendations:

Following the initial landscape planting program, twice monthly visits by a qualified plant or restoration ecologist are to be scheduled in the first sixteen weeks of planting establishment to observe landscape performance. A brief summary report shall be prepared for each visit. The visits may be altered in their intervals or more visits may be required at various times, for the best management of the project.

Based on site observations, decisions will be made by the project plant or restoration ecologist regarding supplemental irrigation, weeding, and any other prudent actions that will help achieve the objectives of the landscaping plan. Subsequent visits during this first year shall be made to the site on a monthly basis to continue to observe and report upon the establishment and performance of both seeded and container plant species. By end of summer of the first year, the project plant or restoration ecologist is to prepare a detailed program and schedule of supplemental planting actions that must be implemented by fall or early winter to work with the best climate and planting season for native species. These actions may include protective staking, adding protective wire mesh, additional seeding, installing container plants, mulching, and/or weeding in response to disturbance, vandalism and inadequate plant establishment. All supplemental planting and weeding actions are to be done with care and in a manner that minimizes the disturbance to the adjacent soils and vegetation.

All management actions shall be implemented by experienced crews with knowledge and familiarity of native plants.

For years two and three of the establishment period, monitoring visits will be conducted on a monthly basis to continue to observe and report upon the establishment and performance of both seeded and container plant species. Decisions will be made and carried out regarding seeding, container planting, weeding, thinning of excess growth and any other prudent actions that will help achieve the objectives of the landscape program. Adjustments to the types of replacement plants may be decided if a particular species is showing inadequate suitability to the conditions of the site.

All programs, schedules of maintenance action, and summary reports shall be submitted to the County/contracting officer.

14.0 Catalog of Hardscape Elements/Selected Amenities

The following chapter contains the hardscape elements that should be considered for public ROW projects. Technical diagrams and examples are presented for each element (Fig 14.1-14.61).

FENCES AND GATES

Use of the river corridor for public activities requires the re-evaluation of fencing in terms of function, aesthetics, and the perception of safety vs. real hazard. Barrier fences to keep the public away from the channel are not applicable to an open space corridor, except where public safety is a concern.

The reduction of fencing along the Los Angeles river is reliant on: 1) the reduction of public hazards, 2) the implementation of other types of buffers and barriers, 3) safety/warning notification system including a comprehensive signage system, and 4) the development of a coordinated authority to close gates as necessary.

Fences and gates to ensure public safety during a period of flooding are to be placed at major arterials and are to be connected to adjacent fencing, vehicular and pedestrian gates with the ability to close and lock. Gate closure at access points for flood protection is necessary in the case of a flood condition.



Figure 14.1 Heron Gate by artist Brett Goldstone funded by FoLAR (Friends of the Los Angeles River) through a partnership with the Mountains Recreation Conservation Authority. Gate located at Rattlesnake Park in Silver Lake at Fletcher Drive and the Los Angeles River.

Rectangular Channel Condition

- Pedestrian-
60" min. height, as per Los Angeles County Code Chapter 21.32.130
- Class I Bike Path-
60" min. height, as per Los Angeles County Code Chapter 21.32.130
- Equestrian-
72" height - only on exclusively designated trails or bridges

Entrenched/Trapezoidal Condition

- Pedestrian-
fencing needs to be determined case-by-case
- Class I Bike Path-
fencing needs to be determined case-by-case
- Equestrian-
fencing needs to be determined case-by-case

Leveed Condition

- Fencing needs to be determined case-by-case

LACDA Condition

- Existing maximum 4' parapet wall along the trapezoidal channel

Gated Access

- 60" min. height fence and locking gate required at access points.

FENCE, TUBULAR STEEL

- 60" min. height along rectangular channel, and any slope greater than 2:1
- Footings-
36" deep by 12" dia. minimum
- Posts-
4" square, 3/16" thick steel tube, maximum 8' o.c.
- Top and Bottom Rails-
2" square, 3/16" thick steel tube
- Pickets-
1" square, 11 ga. steel tube, 4 1/2" o.c. Pickets less than 3/4" to be solid and pickets greater than 1" to be 1/8" wall

Design Considerations

- All fence materials to have galvanize finish. Color optional.
- Consider artistic opportunities (see fence and gate alternatives).

Maintenance

- Periodic checks for corrosion, bent or damaged pickets. Replace as necessary.

Available from

- See Appendix C



Figure 14.2 Tubular steel fence application with arroyo stone accents. Installation to be done in accordance with manufacturers specifications.

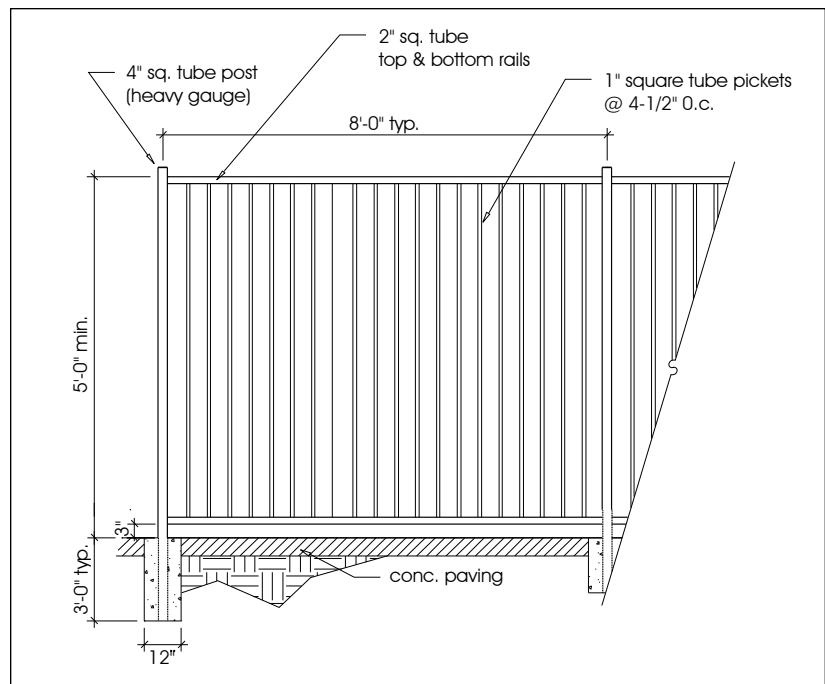


Figure 14.3 Tubular Steel Fence (N.T.S.)



Figure 14.4 Custom wrought iron gate used in conjunction with tubular steel fence. Installation to be done in accordance with manufacturers specifications.

GATES, TUBLULAR STEEL

- Gate Height-
 - Match fence height
- Top Crossbar Height (if applied)-
 - 7'-6" min. for pedestrians
 - 8' min. for bicycles
 - 14' min. for equestrians
 - 14' min. for vehicles
 - 15' min. for all maintenance access gates
- Gate Width-
 - 3' min. for pedestrians (ADA access 4' min.)
 - 4' min. for bicycles
 - 8' min. for equestrians
 - 12' min. for vehicles
- Posts-
 - 4" square, 3/16" thick steel tube, maximum 12' o.c.
- Footings-
 - 36" deep by 18" wide
- Frames-
 - To be determined
- Hinges-
 - To be determined

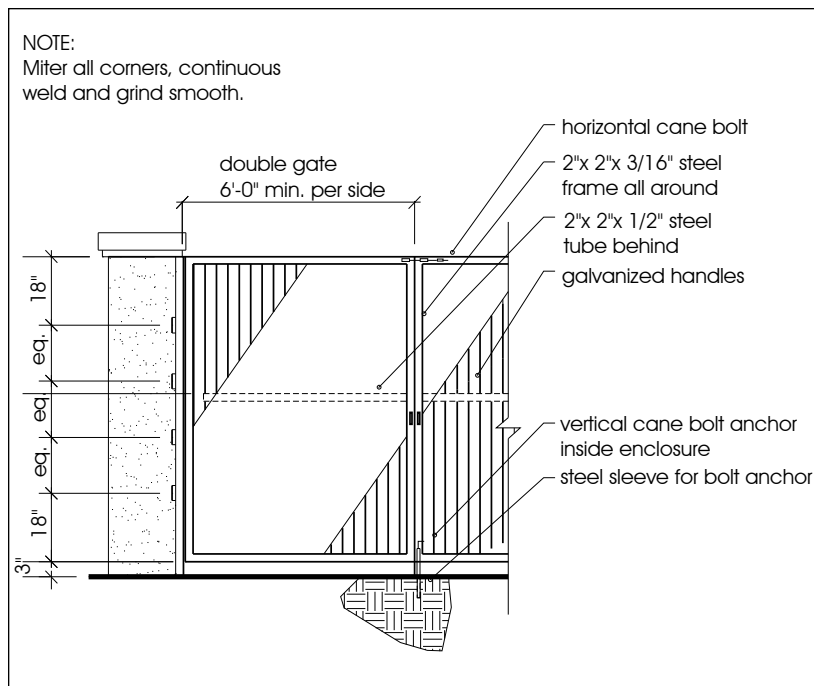


Figure 14.5 Tubular Steel Gate (N.T.S.)

Design Considerations

- Color optional
- All gate materials to be electrostatically painted to match fence.
- Consider artistic opportunities such as in combination with wrought iron.

Maintenance

- Periodic checks for corrosion, bent or damaged pickets

Available from

- See Appendix C

FENCE, WELDED STEEL WIRE MESH

- 60" min. height along rectangular channel, and any slope greater than 2:1
- Footings-
36" deep by 12" dia. minimum
- Posts-
2-3/8"x 2-3/8" rectangular tubing galvanized steel 10' o.c. 3/32" wall thickness
- Top and Bottom Rails-
2" square, 3/16" thick steel tube
- Mesh Pickets-
13/64" hardened steel wire, spaces 2" wide by 6" high
- Finish-
Galvanized. Apply cold galvanizing to field-welded joints.

Design Considerations

- Color optional
- Mesh dimensions should reflect safety codes.

Maintenance

- Periodic checking for broken, missing or damaged posts, bracing, or fasteners. Replace as necessary.

Available from

- See Appendix C

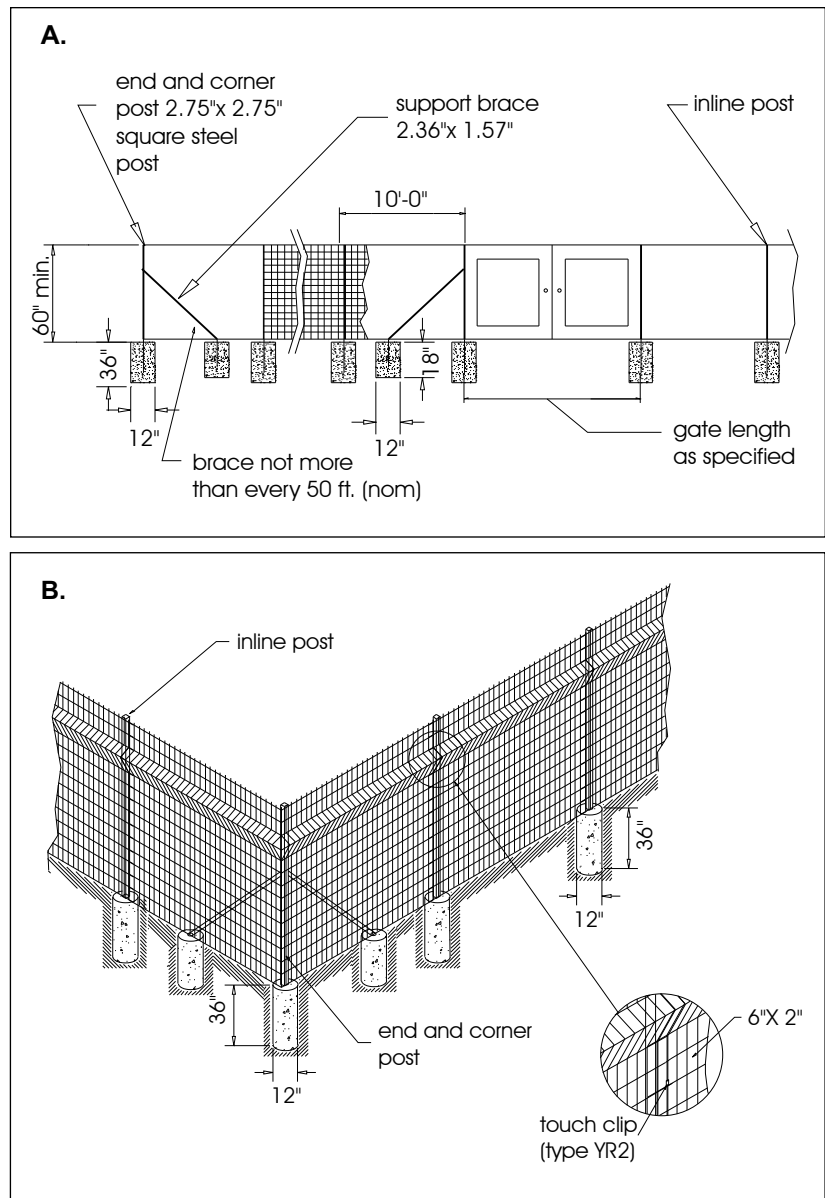


Figure 14.6 Welded steel wire mesh fence (N.T.S.) - Detailed provided by Secure Technology, Inc. Installation to be done in accordance with manufacturers specifications.

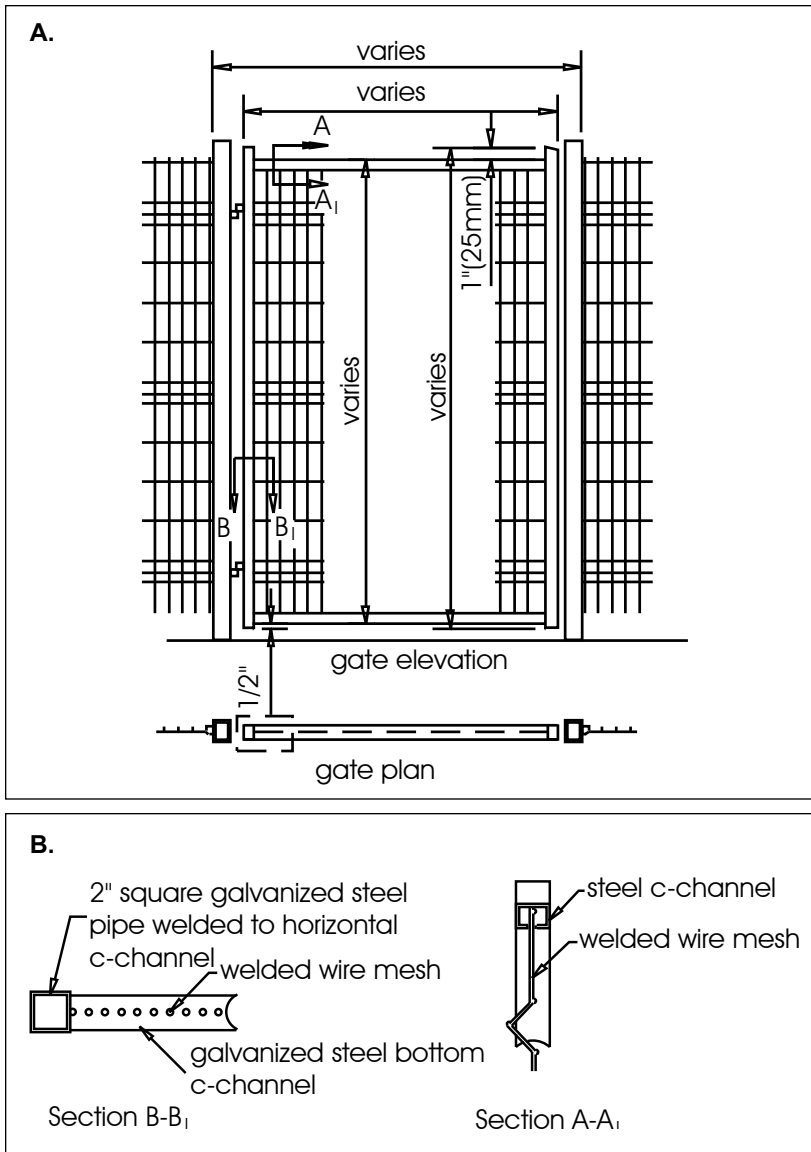


Figure 14.7 Welded wire mesh gate (N.T.S.) - Detailed provided by Omega Fence Systems, Inc. Installation to be done in accordance with manufacturers specifications. Double gates required for vehicular access.

GATES, WELDED WIRE

- Gate Height-
Match fence height.
- See optional top crossbar height under gates: chain link.
- Gate Width-
See gates: chain link
- 60" min. height along rectangular channel, and any slope greater than 2:1
- Footings-
36" deep by 12" dia. minimum
- Posts-
2 3/8" x 2 3/8" rectangular tubing galvanized steel 10' o.c. 3/32" wall thickness
- Bracing and Fasteners -
1st and last post, and every 5th post.
Mesh attached to post by stainless steel fasteners
- Fabric-
13/64" hardened steel wire, spaces 2" wide by 6" high
- Finish-
Galvanized: Apply cold galvanizing to field-welded joints.

Design Considerations

- Color optional

Maintenance

- Periodic checks for fabric tension and/or tears in the fence fabric, damaged or broken hinges

Available from

- See Appendix C

FENCE, CHAIN LINK

- All fence materials to have a standard galvanized finish
- 60" min. height along rectangular channel, and any slope greater than 2:1
- Footings-
36" deep by 12" dia. minimum for corner posts, 36" deep by 8" dia. for line posts.
- Posts-
End post: 2-7/8" O.D.
Line post: 2-3/8" O.D.
- Fabric- (chain link mesh)
9 gage, 2" mesh
Knuckle top and bottom, place on activity side of posts
Bottom of fabric to be placed 1" above finish grade
- Barbed wire not applicable. Eliminate existing barbed wire.

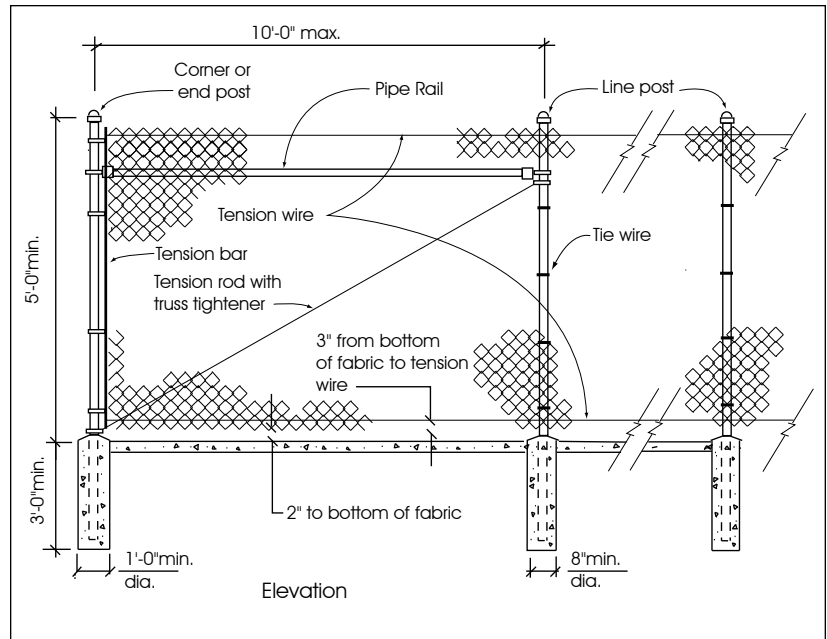


Figure 14.8 Chain link fence (N.T.S.) - APWA Standard Plan 600-1

Design Considerations

- Color optional
- All fence materials to be electrostatically painted to match the fabric color.

Maintenance

- Periodic checks for fabric tension and/or tears. Replace as necessary.

Available from

- See Appendix C



Figure 14.9 Maintenance gate alternative by City of Los Angeles Department of Transportation. Five bar vehicular maintenance gate at Los Feliz Bike Path.

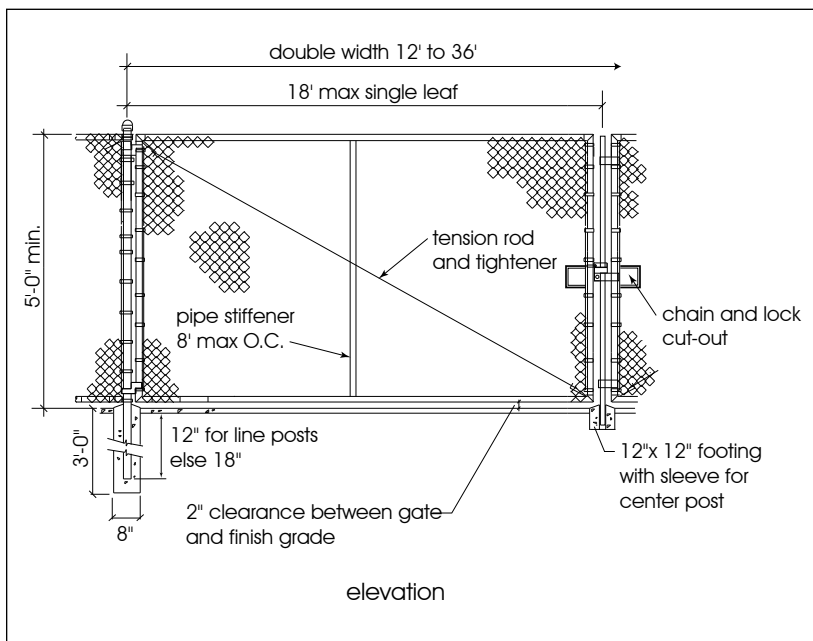


Figure 14.10 Chain link gate (N.T.S.)

GATES, CHAIN LINK

- Gate Height-
 - Match fence height
- Optional top crossbar height-
 - 7'-6" min. for pedestrians
 - 8' min. for bicycles
 - 14' min. for equestrians
 - 14' min. for vehicles
 - 15' min. for all maintenance access points
- Gate Width-
 - 3' min. for pedestrians
 - 4' min. ADA access
 - 4' min. for bicycles
 - 8' min. for equestrians
 - 12' min. for vehicles
- Posts-
 - Galvanized steel 3-1/2" O.D.
 - Post caps shall be malleable iron or pressed steel
- Footings-
 - 3'-0" deep x 1' wide.
- Gate frames-
 - Galvanized steel
 - Top, bottom and side members 2-3/8" O.D., mid rails 1-5/8" O.D.
 - Lock mechanism 2 bar min.
- Fabric-
 - (see fence chain link mesh)
- Hinges-
 - Industrial "bulldog" hinge (180 degrees swing)
 - 2 hinges per gate

Design Considerations

- Color optional
- All fence materials to be electrostatically painted to match fence color.

Maintenance & Availability

(see chain link fence)

FENCE, CUSTOM ALTERNATIVES

- 60" min. height along rectangular channel, and any slope greater than 2.2:1
- Footings-
24" deep by 12" wide minimum
- Posts-
6' o.c. recommended, 10' o.c. maximum
- Top Rail Smooth, no sharp edges
- Pickets/ size of openings-
Spacing - 4-1/2" o.c. horizontal and vertical

Design Considerations

- Cut Steel Panels - 1/4" to 3/8"
- Mixed metals
- Concrete and metal
- Stone
- Wrought Iron
- Color optional
- Opportunity to insert riparian related designs and patterns into site
- Apply KrystalKote (or equal)

Maintenance

- Periodic checking for broken pipe connections, missing or damaged posts, rails or pickets. Replace as necessary.



Figure 14.11 Custom Fencing at Union Station. Artist: Michael Amescua. Image courtesy of: <http://www.usc.edu/isd/archives/la/pubart/UnionStation/guardians/>



Figure 14.12 Cut steel panel over a tubular steel fence. Artist: Elliott Pinkney. Courtesy of the Los Angeles County Metropolitan Transportation Authority, Washington Station, Metro Blue Line.

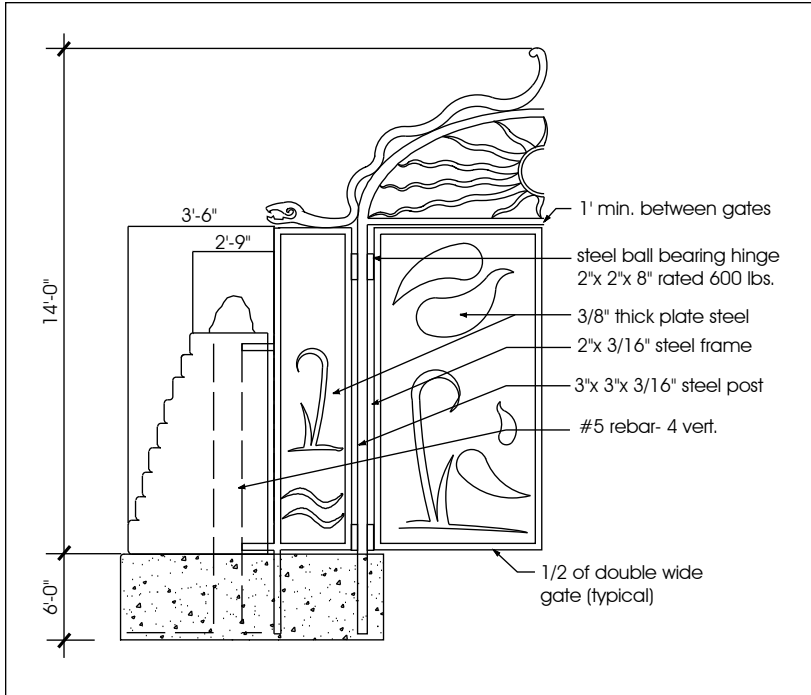


Figure 14.13 Custom gate (N.T.S.) - Detail courtesy of North East Trees (redrawn)

GATE, CUSTOM ALTERNATIVES

- Gate Height-
 - Match fence height
- Top crossbar height if applied is-
 - 7'-6" min. for pedestrians
 - 8' min. for bicycles
 - 14' min. for equestrians
 - 14' min. for vehicles
 - 15' min. for all maintenance access
- Gate Width-
 - 3' min. for pedestrians (ADA access 4' min.)
 - 4' min. for bicycles
 - 8' min. for equestrians
 - 12' min. for vehicles
- Posts-
 - Dependent on gate width, 6' o.c. recommended, 12' o.c. maximum.
- Footings-
 - To be engineered; size will be dependent on design
- Top Rail-
 - Smooth, no sharp edges
- Pickets/ size of openings-
 - Spacing - 4 1/2" o.c. horizontal and vertical

Design Considerations

- Cut Steel Panels - 1/4" to 3/8"
- Mixed metals
- Concrete and metal
- Stone
- Wrought Iron
- Color optional
- Apply KrystalKote (or equal)

Maintenance

- Periodic checking for broken pipe connections, missing or damaged posts and rails. Replace as necessary.

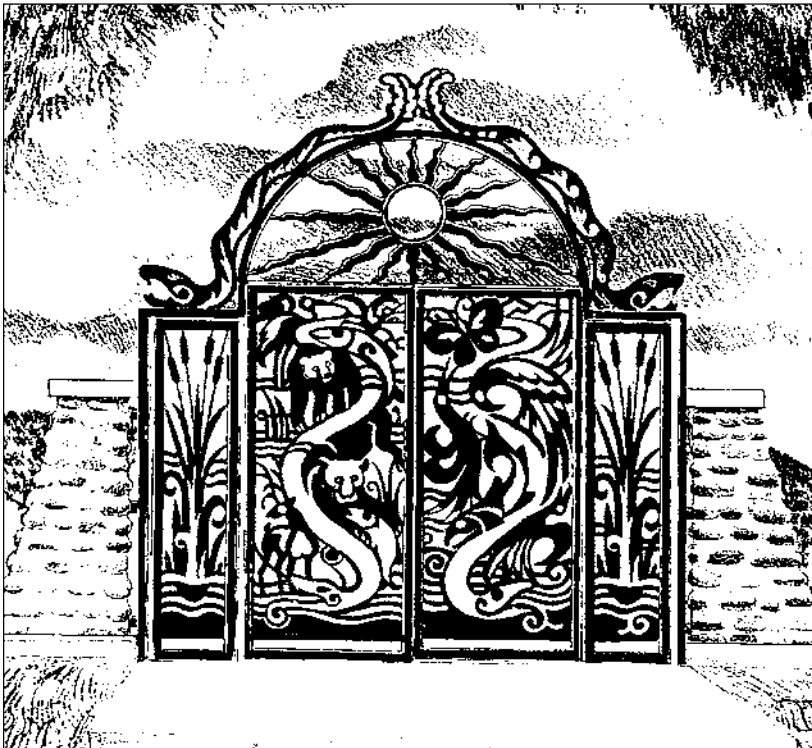


Figure 14.14 Gate on the Los Angeles River Walk at Los Feliz Boulevard by artist Michael Amescua. Illustration is by Rudy Gerargo. The design & installation is by North East Trees

FENCE, ALTERNATIVE (TRAIL OR FUNCTION DIVIDER)

- Simulated wood concrete or steel posts and railings
- 39" minimum height
- Posts-
 - 5" square concrete post, 8' o.c. or 5" square steel tube post
- Footings-
 - 18" min. deep by 12" wide
- Rails-
 - 2" x 51/2" concrete or steel rails

Design Considerations

- Color to be medium brown or as approved by governing agency.
- Locate posts and footings to facilitate ease of replacement as necessary
- Lowest fence heights recommended wherever possible. Three rail fence applied outside of 17' maintenance zone only (refer to page 15)
- Use of split rail aesthetic to separate functional spaces while allowing clear views into all areas
- Fencing not to be used adjacent to equestrian trails

Maintenance

- Periodic checking for broken, missing or damaged posts and rails. Replace as necessary.

Available from

- See Appendix C



Figure 14.15 Two rail simulated wood concrete fence at Los Angeles Riverwalk installed by North East Trees and the City of Los Angeles. Installation to be done in accordance with manufacturers specifications.

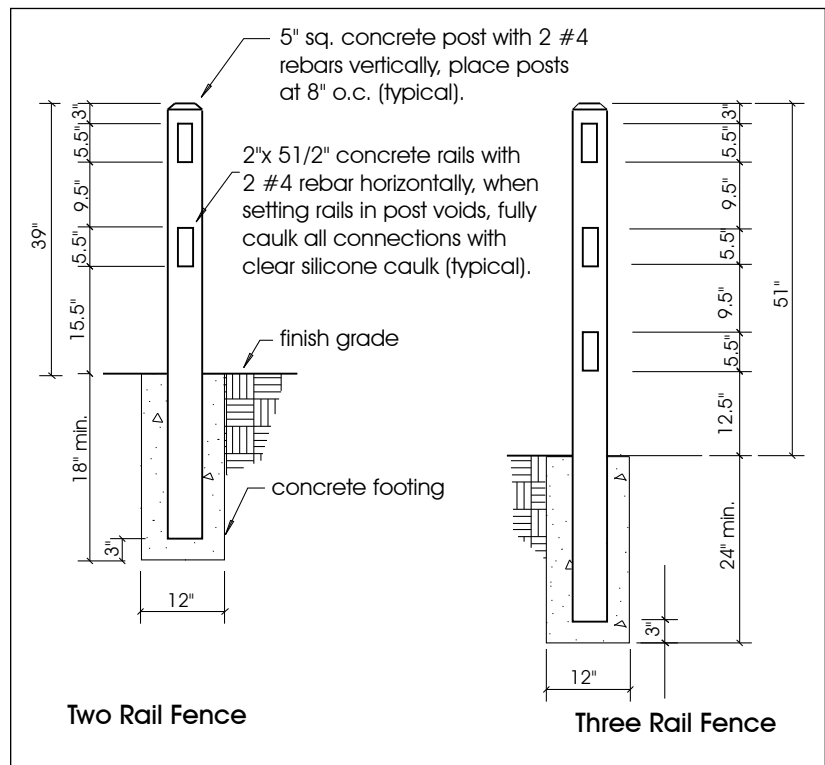


Figure 14.16 Simulated wood concrete fence (N.T.S.)



Figure 14.17 Custom steel swing gate designed and installed by North East Trees at Los Feliz Boulevard for equestrians.

GATES, STEEL TUBE SWING BARRICADE FENCE

- Gate Height-
Match divider fence height at 39" where applicable. Minimize overall fence heights wherever possible.
- Gate Width-
3' min. for pedestrians (ADA access 4' min.)
8' min. for equestrians
12' min. for vehicles
- Posts-
6" x 6" square 3/16" steel
- Footings-
24" deep by 12" wide
- Rails-
2" x 5 1/2" rails, 3/16 steel
- Finish-
Galvanized: Apply cold galvanizing to field-welded joints.
- Paint-
Industrial oil-based primer and exterior enamel

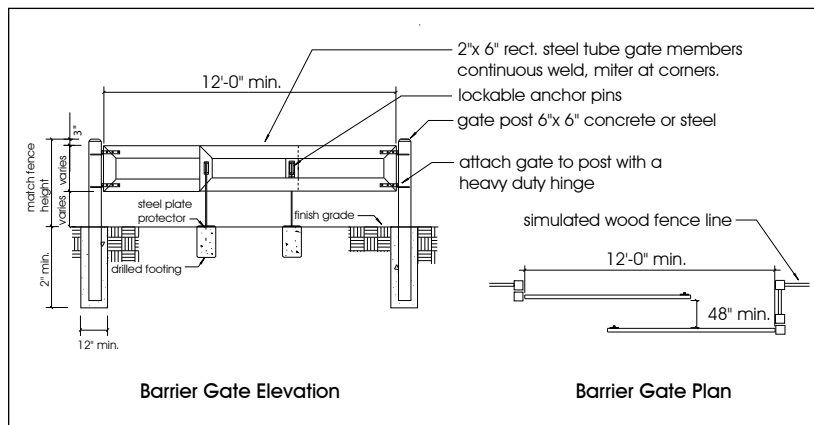


Figure 14.18 Steel barrier gate (N.T.S.)

Design Considerations

- Use to control access to major arterials from service road/trail.
- Not recommended for bicycle use.
- Color optional; match color of adjacent fencing where applicable.

Maintenance

- Periodic checking for broken connections, missing or damaged posts and rails. Replace as necessary.

Available from

- Custom only

Pedestrian

- Placement optional: to be determined by local agency.
- Minimum fixture height to be 16'.
- Setback to be 2' from 12' min. service road or path width.
- Avoid locating fixtures adjacent to objects which would obstruct light.
- Consider solar power for light fixtures in areas not requiring continuous lighting.
- Protect neighbors from light disturbance through the use of fixtures with sharp cutoffs

Bike Path

- Space light fixtures according to national standards, or local codes for bike path.
- Setback to be 2' off 12' minimum path width.
- Increase lighting at over/underpasses, intersections and trailheads for safety.

Amenity/Ambiance

- Accent lights optional for highlighting kiosks, gathering spaces and public art.
- Consider up-lighting for trees and site amenities at entrances and exits to the river.
- Consider solar power for light fixtures in areas not requiring continuous lighting.
- Light poles to function for other uses including emergency call boxes, bike locks, banners, and signs. Placement and functions to be determined by local agency.

LIGHTING

The most important function of lighting is the establishment of a safe and enjoyable night time recreational environment for the public. In addition, lighting provides direction to guide bicycle transportation flow and highlight special areas such as major access points, emergency call boxes and information kiosks. Areas of general concern are trail underpasses, future overpasses and street ends. Design and placement are to function at the pedestrian scale. Matching light fixtures with other site amenities such as benches and kiosks creates a unified theme, that relates to the river context. Valuable habitat areas such as the soft bottom reaches of the river and settling basins in Tujunga Wash may require the re-evaluation of existing lighting in order to minimize local light pollution at night. Light intrusion into these ecologically sensitive areas should be avoided.



Figure 14.19 Test lighting along the bike path near Griffith Park.

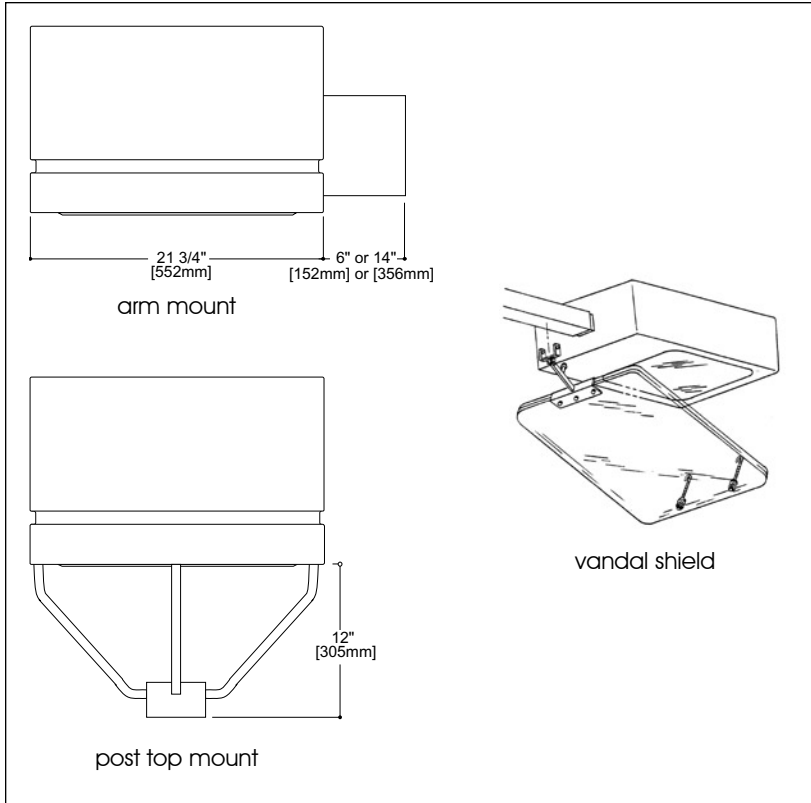


Figure 14.20 Shoebox luminaire

LIGHTING, BASIC STANDARD LUMINAIRE (SHOEBOX)

- Shoebox luminaire by Cooper; GS Galleria 16" x 16" luminaire (or equal) with optional lens protector
- Mounting-
 - arm mount (GMA)
 - spider mount (GMB)
- Housing-
 - formed aluminum
- Pole-
 - Height 16' minimum
 - Shown with Gardco straight square steel 5" pole (SSS5).
 - Alternative: Stresscrete straight square concrete pole (P-175-AAPN-G).

Design Considerations

- Additional brackets, hardware, and electrical or solar requirements for banners, signs, and emergency call box as approved by governing agency (see page 85 for placement)
- Color optional, to be approved by governing agency

Maintenance

- Monitor for bulb replacement and vandalism.
- Poles, and amenities on poles to be anti-graffiti coated by KrystalKote or equal (sacrificial - to be reapplied as necessary).

Available from

- See Appendix C



Figure 14.21 Shoebox luminaire at MetroLink Station, Pomona.

LIGHTING, BIKE PATH LUMINAIRE

- Hardtop Luminaire by Gardco (or equal)
- Mounting-
 - arm mount (MA)
 - post top mount (MP)
- Housing-
 - spun aluminum
- Pole-
 - Height 16' min, 20' shown.
 - Shown with Gardco 5" straight round aluminum pole (RA5-20).
 - Alternative; Gardco straight round steel (SRS-20- 4.0).

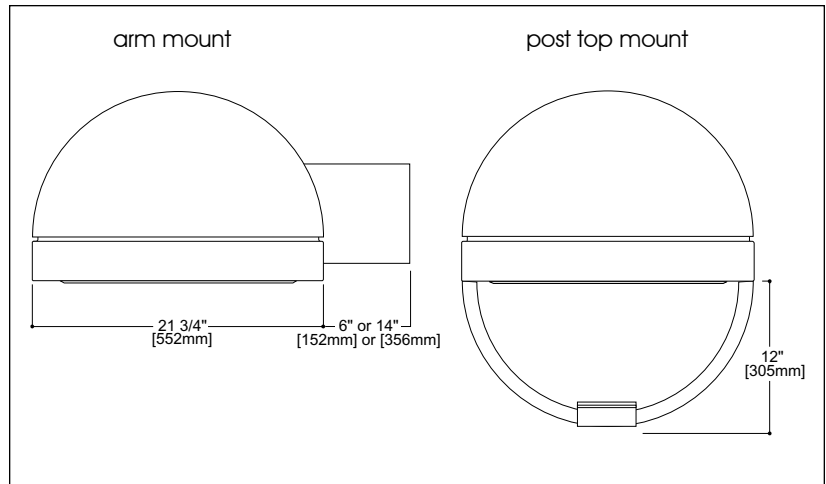


Figure 14.22 Shoebox luminaire at MetroLink Station, Pomona.

Design Considerations

- Additional brackets, hardware, and electrical or solar requirements for banners, signs, and emergency call box as approved by governing agency (see page 103 for placement on pole)
- Color optional, to be approved by governing agency

Maintenance

- Monitor for bulb replacement and vandalism.
- Poles, and amenities on poles, to be anti-graffiti coated by KrystalKote or equal (sacrificial - to be reapplied as necessary).

Available from

- See Appendix C



Figure 14.23 Selected luminaire on bike path near Griffith Park.

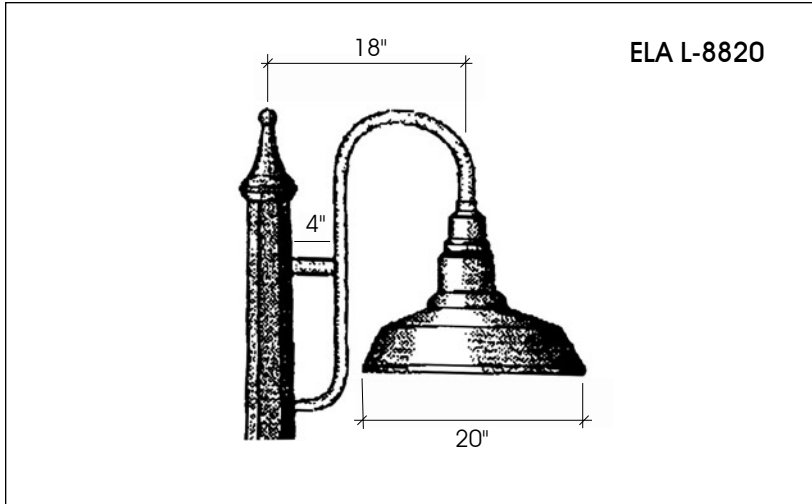


Figure 14.24 ELA L-8820 Lighting

LIGHTING, ARM MOUNTED LUMINAIRE ALTERNATIVES

ELA Lighting L-8820 with acrylic refractor lens with wire grate (or equal)

- Mount-
Shown with ELA CR- 19A Arm mount
- Housing-
N/A
- Pole-
Stresscrete octagonal concrete pole as shown (E 200 APR-G 20' 0")

King Luminaire Viscount K 204 (or equal)

- Mount-
Shown with Stresscrete 204 S low rise clamp on arm
- Housing-
Cast and spun aluminum
- Pole-
Stresscrete octagonal concrete pole as shown (E 200 APR-G 20' 0")
- Application recommendation-
Mini-park/community gathering areas, and neighborhood street ends.

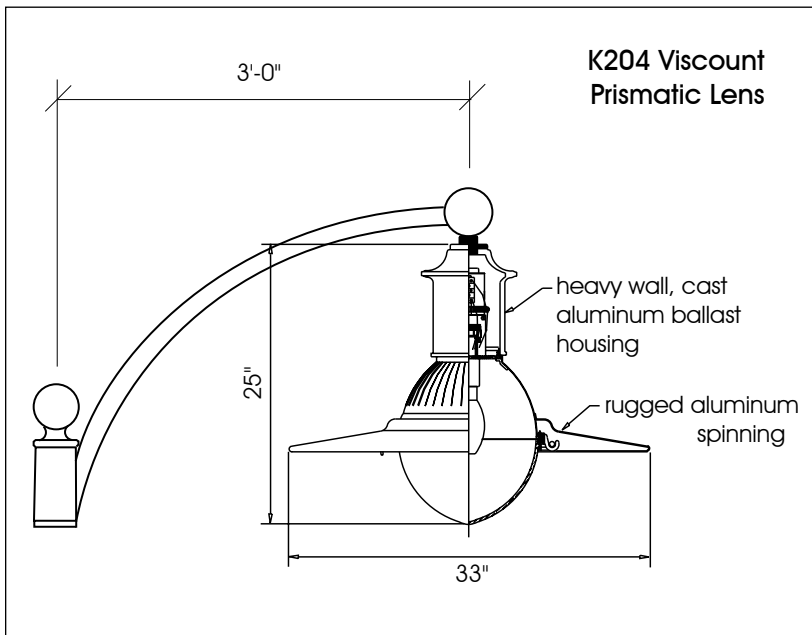


Figure 14.25 K204 Viscount Lighting

Maintenance

- Same as other luminaires

Available from

- See Appendix C

POLES, STRAIGHT ROUND STEEL

- Gardco SRS-20-5.0 (or approved equal)
- Mount-
 - Surface mount with base plate on footing
- Application-
 - Luminaire selections (or approved equal)
 - Gardco Hardtop post top mounted
 - Gardco Hardtop arm mounted
 - King Luminaire Viscount K204 arm mounted
- Placement-
 - Site specific: to be determined by governing agency and project proponents.

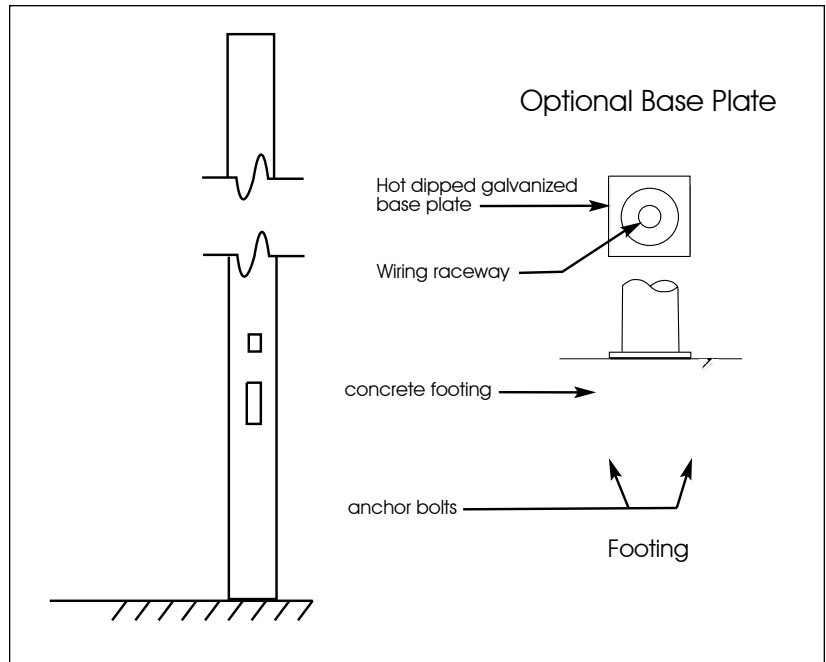


Figure 14.26 Straight Round Steel Pole (N.T.S.)

Design Considerations

- Additional brackets, hardware, and electrical or solar requirements for banners, signs, and emergency call box as approved by governing agency (see page 103 for placement on pole)
- Color optional, to be approved by governing agency

Maintenance

- Poles, and amenities on poles to be anti-graffiti coated by KrystalKote or equal (sacrificial - to be reapplied as necessary)

Available from

- See Appendix C

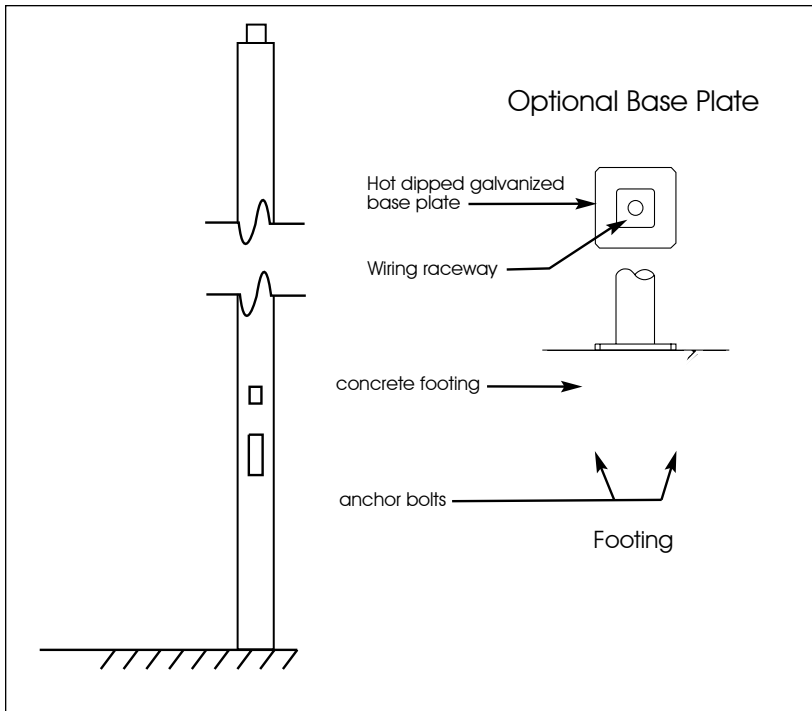


Figure 14.27 Straight Square Concrete Pole (N.T.S.)

POLES, CONCRETE SQUARE AND OCTAGONAL

Stresscrete straight square conc. pole - 16'- 0" min. ht.

- Mount-
 - Surface mount with base plate on conc. footing
- Luminaire Recommendation- Mc Graw Edison Galleria
- Placement-
 - To be determined by agency and project proponent.

Stresscrete octagonal conc. pole - 16' 0" min. ht.

- Mount-
 - Surface mount with base plate on concrete footing
- Luminaire Recommendations- ELA L-8820 King Luminaire Viscount K204 (see page 81)
- Placement-
 - To be determined by agency and project proponent.

Design Considerations

- See page 103
- Color optional, to be approved by governing agency
- Pole to be anti-graffiti treated by Amer-Shield or equal (non-sacrificial)

Maintenance

- Ensure that pole is graffiti free using non paint options

Available from

- See Appendix C

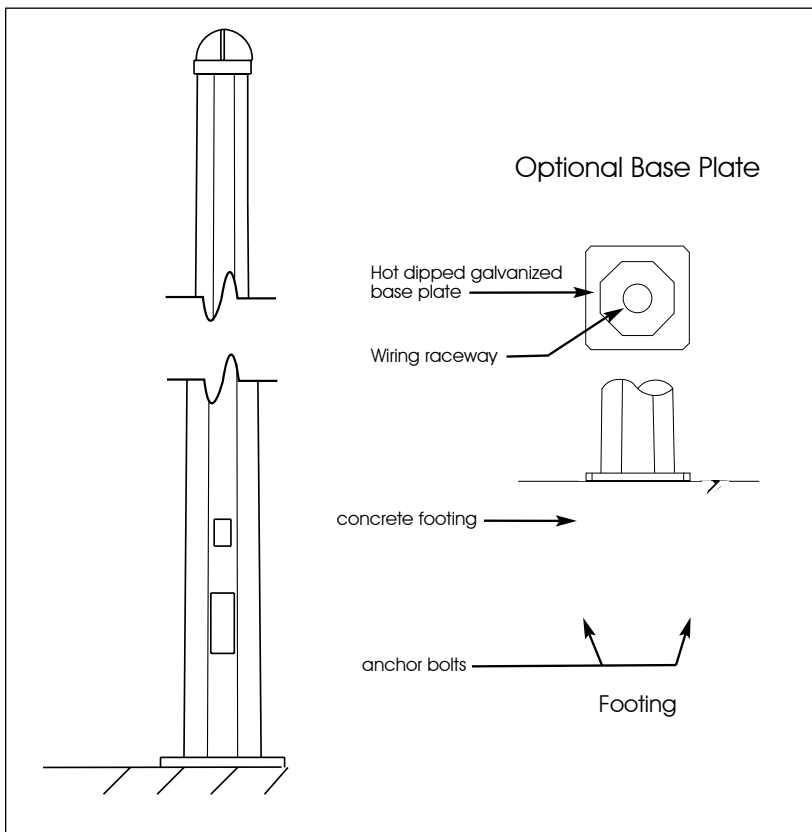


Figure 14.28 Octagonal Pole (N.T.S.)

SITE AMENITIES - GENERAL GUIDELINES

Standards for quality and appropriate materials have been developed to offer guidance in the design process and to promote a sense of visual character that is in keeping with the overall character of the river environment. Site amenities offer an excellent opportunity for creative vernacular input by individual communities developing specific projects. All amenities are to comply with ADA requirements to the maximum extent feasible. The materials promoted are concrete, metal and stone to maximize durability.



Figure 14.29 Site amenities at Egret Park, by North East Trees with the Mountains Recreation and Conservation Authority and County of Los Angeles.

Benches

- Easily accessible from trail.
- Locate at trail intersections, special views.
- Group benches to promote social interaction.
- Provide a variety of exposures.
- Includes seating elements such as seatwalls, seatsteps and rock outcroppings.

Trash Receptacles

- Necessary to maintain health, safety and general aesthetic quality of the trail.
- Locate at entrances, rest stops, major access points and near benches.
- Install recycling receptacles.
- Maintenance program is necessary.

Bollards

- Necessary to keep unauthorized motorized vehicles off trails.
- Can be used in place of fences in some areas.
- Large boulders can be used as bollards.

Bike Racks

- Locate at entrances to the river and access points.

Drinking Fountains

- Locate at major gathering spaces and at regular intervals along the pedestrian trail and bikeway.

Equestrian Amenities

- Holding corrals and hitching posts encouraged where adjacent amenities are located.

Emergency Call Boxes

- Located along bike path every mile minimum.
- TTY equipped.
- ADA accessible: Surface pad 36" x 36" min., flush with grade. Concrete, asphalt or decomposed granite w/ stabilizer.
- Cellular or hard lined to be determined.

AMENITIES, WELDED STEEL BENCH

- Welded Steel Bench (back optional)
- Dimensions-
 - Seat height: 17"
 - Seat width: 24"
 - Back support (optional): 18"-24" height
 - Bench length: 48"-72"
 - Footings: 6" dia. x 12" deep. Tack weld and cut red head bolts (see footing detail, page 46).
- Finish-
 - Color KrystalKote (or equal), or industrial oil-based primer and exterior enamel, or powder coat
- Placement-
 - 2'-0" minimum setback from trails & paths.



Figure 14.30 Curved steel bench with custom back designed by Michael Amescua at Los Angeles Riverwalk, City of Los Angeles.

Design Considerations

- Color optional, or as approved by governing agency.
- Options: Bench shown with custom equestrian motif arm rests and back.
- Locate benches in high visibility areas.

Maintenance

- Ensure that bench is graffiti free using non paint options.
- Inspect paint for rust and flaking. Prime and repaint as necessary.

Available from

- See Appendix C

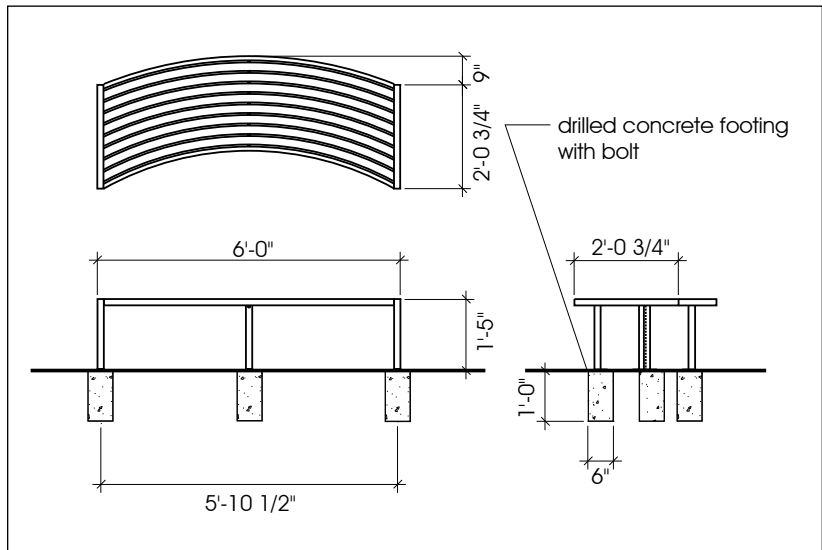


Figure 14.31 Curved steel bench (N.T.S.)



Figure 14.32 Steel strap bench provided for the public in Glendale.

AMENITIES, WELDED STEEL STRAP BENCH

- Welded Steel Strap Bench
- Dimensions-
 - Seat height: 17"
 - Seat width: 19"
 - Bench length: 48"-72"
 - Footings: 6" dia. x 12" deep. Tack weld and cut red head bolts (see footing detail).
- Finish-
 - Color KrystalKote (or equal), or industrial oil-based primer and exterior enamel, or powder coat.
- Placement-
 - 2'-0" minimum setback from trails & paths.

Design Considerations

- Color optional, or as approved by governing agency.
- Options: Bench shown with arm rest divider sections.
- Locate bench in high visibility areas.

Maintenance

- Ensure that bench is graffiti free using non paint options.
- Inspect paint for rust and flaking. Prime and repaint as necessary.

Available from

- See Appendix C

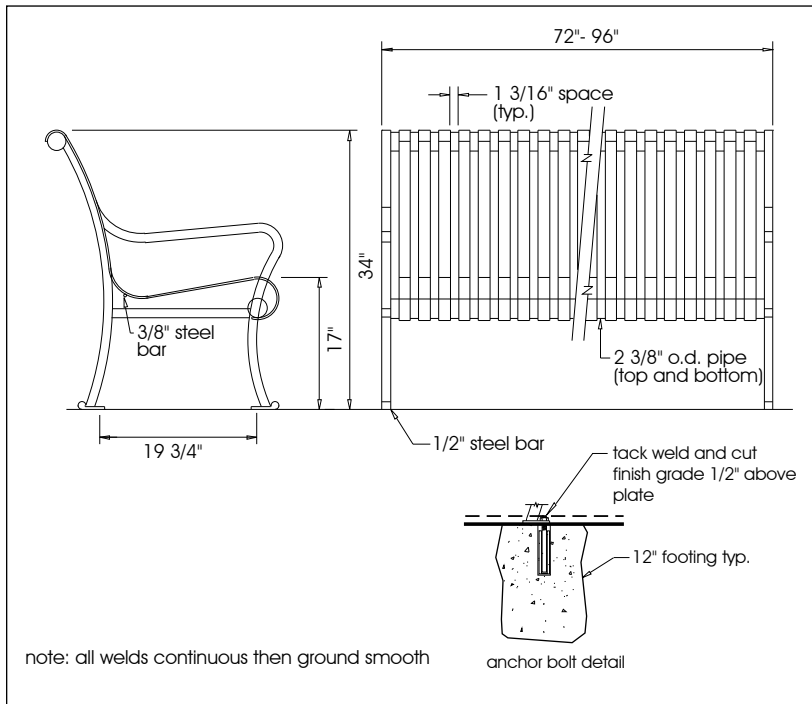


Figure 14.33 Steel bench (N.T.S.)

AMENITIES, RETAINING SEATWALL

- Stone or broken concrete seatwall.
- Dimensions-
Seat height: 16"-24"
Seat width: 14"-24"
- Finish-
Natural color, or as approved by governing agency.
- Placement-
2'-0" minimum setback from trails & paths to control slope erosion.

Design Considerations

- Use to control erosion on slopes.
- Use seatwalls in low visibility areas instead of benches.
- Deep rake grout joints for visual interest and shadowing.
- Select flat stones for seating.

Maintenance

- Ensure that seatwall is graffiti free using non paint options.
- Apply KrystalKote (or equal) sacrificial anti-graffiti coating as necessary or spray clean with water jet.
- Check for loose veneer. Grout as necessary.



Figure 14.34 Broken concrete seatwall at Los Angeles Riverwalk at Los Feliz Boulevard, City of Los Angeles.

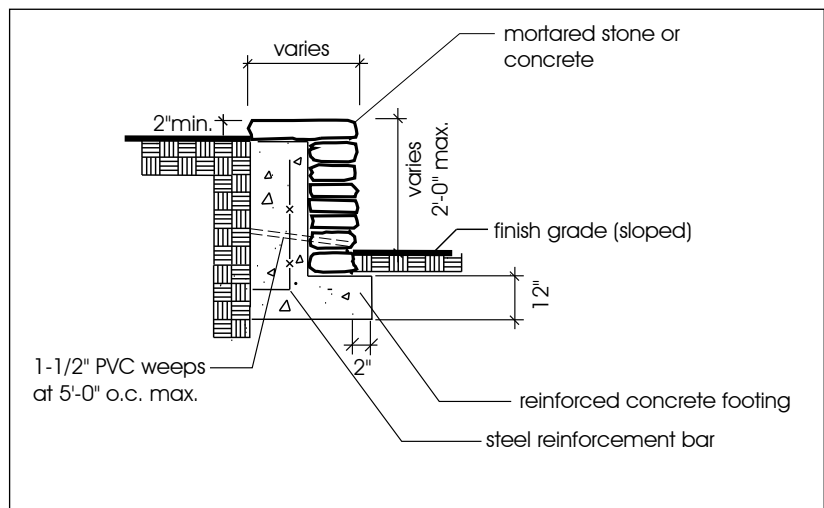


Figure 14.35 Seatwall with weepholes (N.T.S.)



Figure 14.36 Freestanding stone seatwall at Egret Park at Riverside Drive, City of Los Angeles.

AMENITIES, SEATWALL (NON-RETAINING)

- Stone or broken concrete veneer wall.
- Dimensions-
 Seat height: 16"-24"
 Seat width: 14"-24"
- Finish-
 Natural color, or as approved by governing agency
- Placement-
 2'-0" minimum setback from trails & paths

Design Considerations

- Use seatwalls in low visibility areas instead of benches.
- Deep rake grout joints for visual interest and shadowing.
- Select flat stones, or provide concrete cap for seating.

Maintenance

- Ensure that seatwall is graffiti free using non paint options.
- Apply KrystalKote (or equal) sacrificial anti-graffiti coating as necessary or spray clean with water jet.
- Check for loose veneer. Grout as necessary.

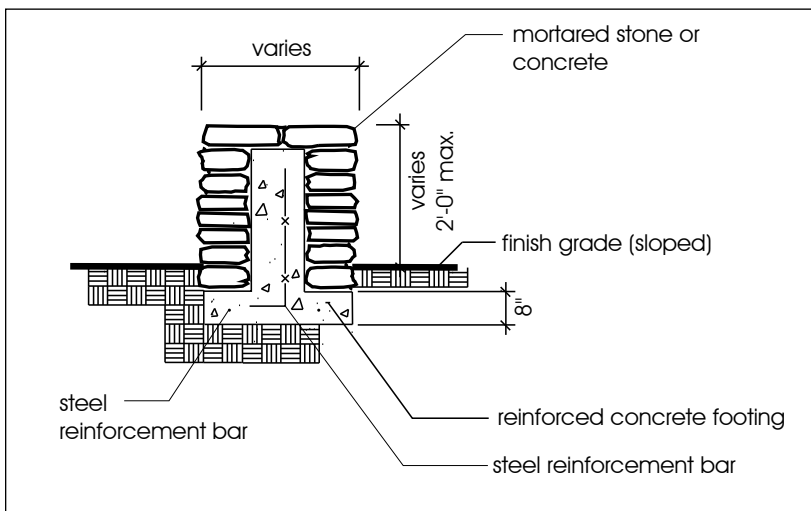


Figure 14.37 Seatwall (N.T.S.)

AMENITIES, TRASH RECEPTACLE

- Quick Crete #QR-CAL2632W (or equal)
- Materials-
 - Lockable, removable steel lid
 - Removable steel liner
 - Permanently attached to surface (epoxy or anchor bolt)
 - 2" drain hole
 - Crushed stone sump
- Finish-
 - Sandblast w/non sacrificial anti-graffiti coating (Amerishield or equal).
- Placement-
 - Site specific at gathering spaces and access points.
 - 2'-0" minimum setback from trails & paths.
 - Do not place where vegetation will grow to obstruct views of the receptacles.
- Application-
 - Provide concrete slab as shown when placed in decomposed granite.



Figure 14.38 Trash receptacle amenity in La Canada/Flintridge

Design Considerations

- Color optional; Match to color of amenities and other materials used.

Maintenance

- Remove trash at regular intervals. Twice weekly is recommended.
- Sump cleanout as necessary.
- Ensure graffiti removal on a regular basis using non-paint options.

Available from

- See Appendix C

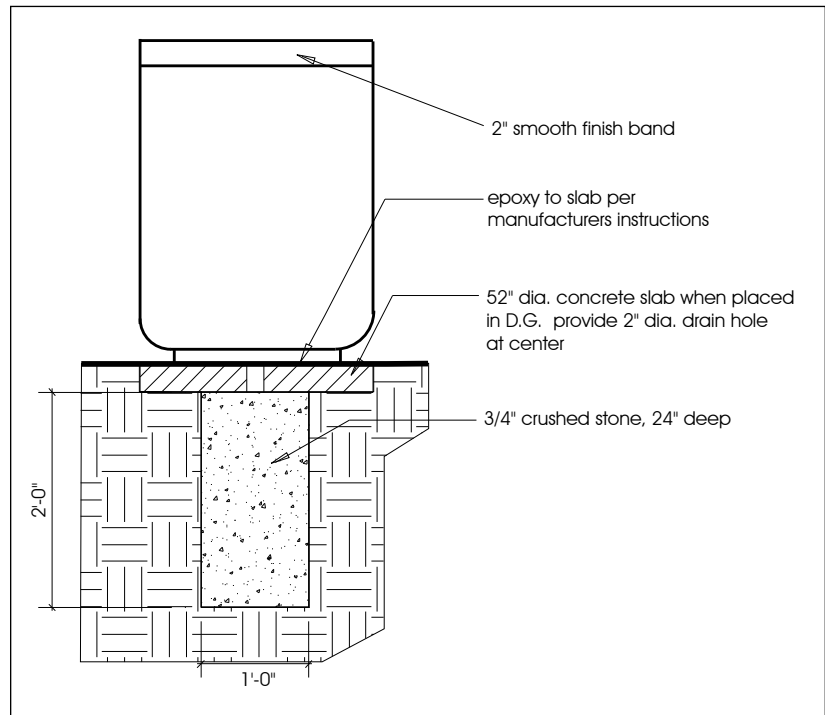


Figure 14.39 Trash receptacle (N.T.S.) - Detail provided by Quick Crete Product Corp.



Figure 14.40 Trash receptacle street amenity in Glendale

AMENITIES, TRASH RECEPTACLE

- Cast aluminum barrel with side opening
- Materials-
 - Lockable, removable lid
 - Removable plastic liner,
 - Footing: see steel bench footing detail
- Placement-
 - Site specific at gathering spaces, & access points
 - 2'-0" minimum setback from trails & paths
 - Do not place where vegetation will grow to obstruct views of the receptacles
- Application-
 - Optional recyclables barrel to be used in addition to trash barrel in high use areas

Design Considerations

- Color optional; match to color of other amenities and materials used.

Maintenance

- Remove trash at regular intervals. Twice weekly is recommended.
- Ensure graffiti removal on a regular basis by repainting with exterior enamel paint.
- Inspect paint for scratches or flaking. Prime and repaint as necessary.

Available from

- See Appendix C

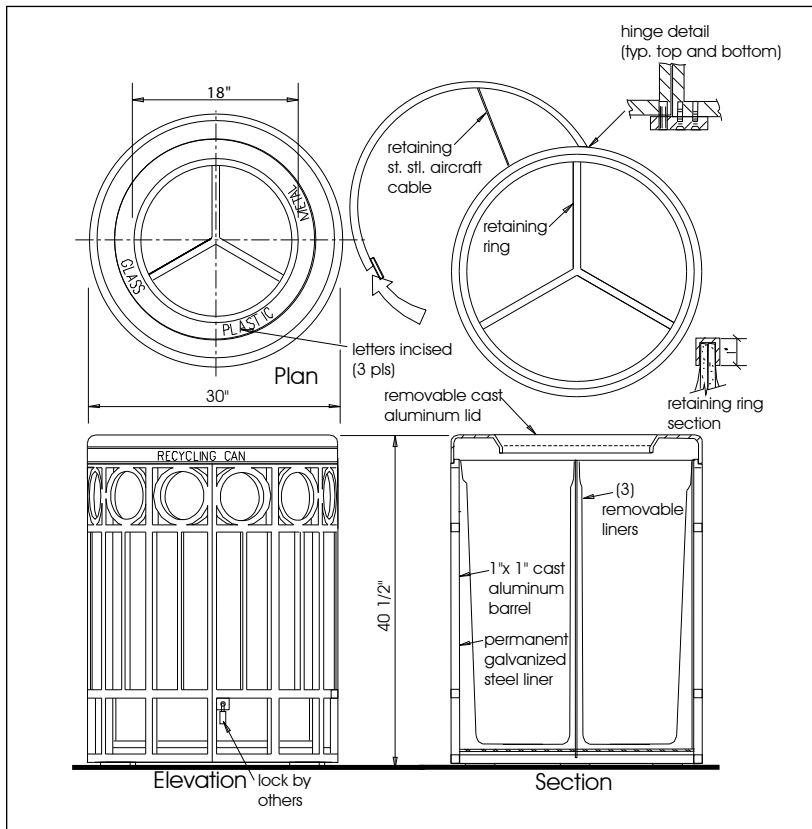


Figure 14.41 Recyclables receptacle alternative (N.T.S.) - Detail provided by Canterbury International

AMENITIES, BICYCLE RACK

- Bollard Cycloops two bike minimum (or equal)
- Material-
Steel tubing
Footing: embedded mount
- Finish-
Color KrystalKote (or equal), or industrial oil-based primer and exterior enamel or powder coat.
- Placement-
Site specific at gathering spaces and access points.
2'-0" minimum setback from trails & paths.
- Additional amenities-
On a case by case basis

Design Considerations

- Provide additional bollards as deemed appropriate based on expected volume of bicycle use.
- Additional bicycle rack alternative show as light pole amenity (see page 103) or check the City of Los Angeles Department of Transportation Bike-ways Division for other recommended options.
- Color optional, or as approved by governing agency.

Maintenance

- Inspect paint for scratches or flaking.
Prime and repaint as necessary.

Available from

- See Appendix C

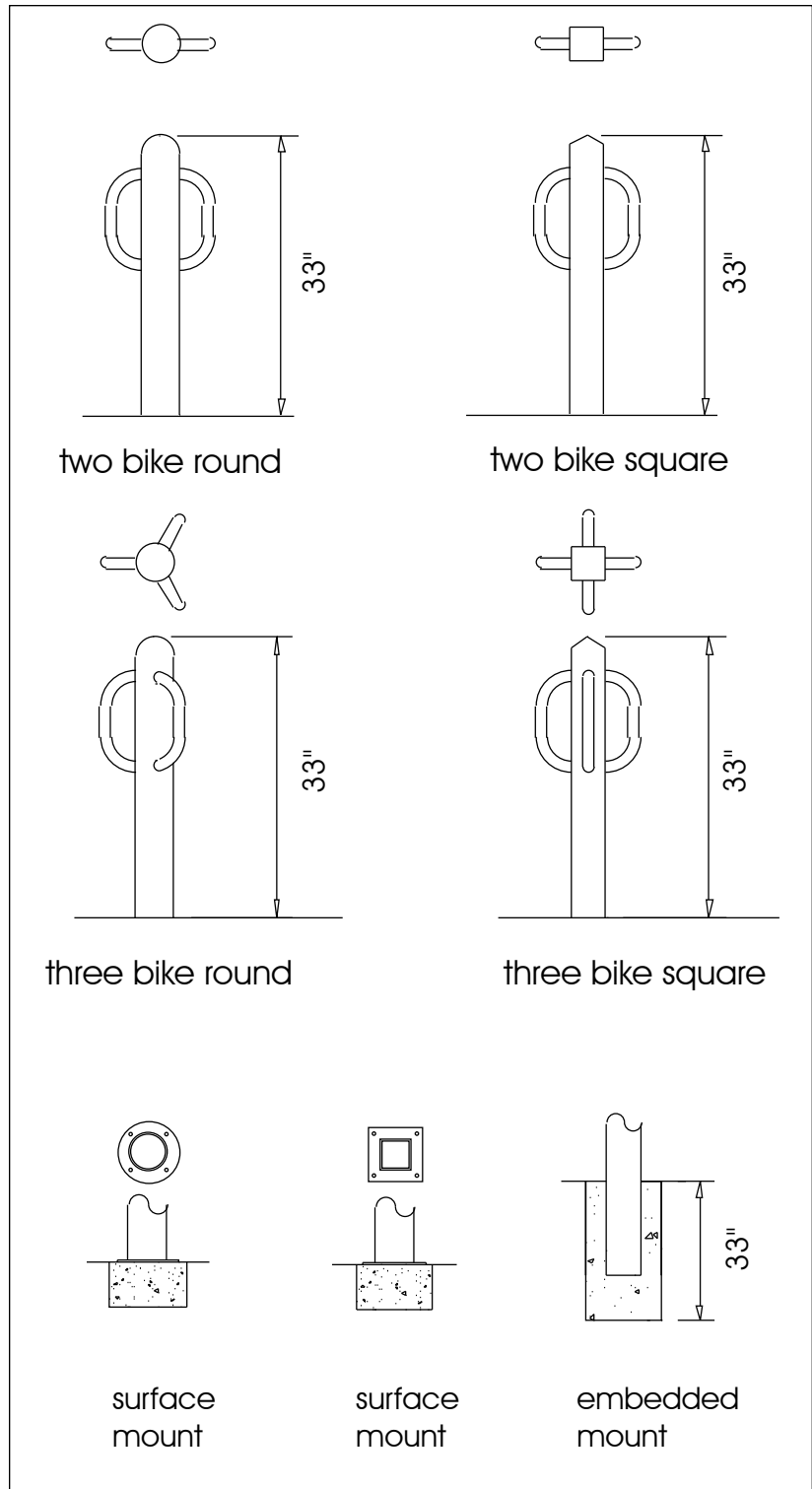


Figure 14.42 Bicycle rack, bollard (N.T.S.) - Detail provided by BRP Enterprises



Figure 14.43 Bicycle rack at Zanja Madre Park

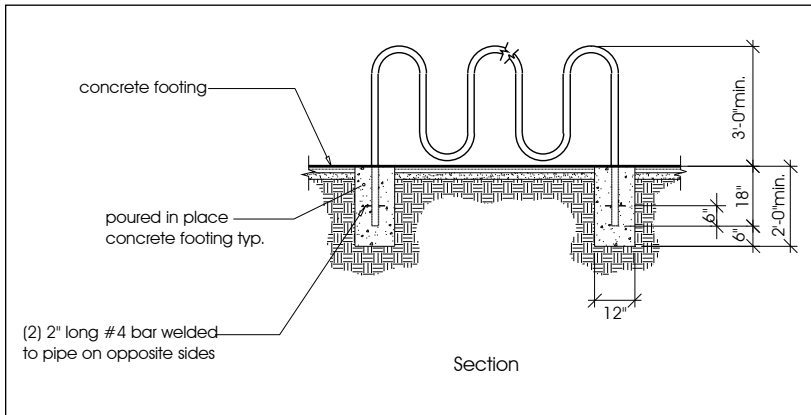


Figure 14.44 Steel bike rack (N.T.S.) - Detail provided by Timberform

AMENITIES, BICYCLE RACK ALTERNATIVE

- Cycloops model number 2170-11 (or equal)
- Material-
 - Steel tubing
 - Footing: embedded mount
- Finish-
 - Color KrystalKote (or equal), or industrial oil-based primer and exterior enamel or powder coat.
- Placement-
 - Site specific at gathering spaces and access points.
 - 2'-0" minimum setback from trails & paths.
- Additional amenities-
 - On a case by case basis

Design Considerations

- Provide additional wheel blocks as deemed appropriate based on expected volume of bicycle use.
- Additional bicycle rack alternative show as light pole amenity (see page 103) or check the City of Los Angeles Department of Transportation Bikeways Division for other recommended options.
- Color optional, or as approved by governing agency.

Maintenance

- Inspect paint for scratches or flaking. Prime and repaint as necessary.

Available from

- See Appendix C

AMENITIES, DRINKING FOUNTAIN

- Haws one piece model #3177 or two piece #3150 (or equal).
- Materials-
 - Precast concrete base and arm Galvanized aluminum fixtures.
 - Concrete bubbler shield
- Dimensions-
 - 27" from finish grade to bottom of arm (ADA compliant).
 - Footing: to be engineered or as recommended by manufacturer.
- Finish-
 - KrystalKote anti-graffiti sacrificial coating (or equal).
- Placement-
 - 2'-0" minimum setback from trails & paths.

Design Considerations

- Color optional
- Depending on location, waste line tie-in or sump pit may be necessary.

Maintenance

- Inspect weekly for clogged drain system or broken fixtures.
- Sump cleanout as necessary
- Ensure graffiti removal on a regular basis. Reapply sacrificial coating.

Available from

- See Appendix C

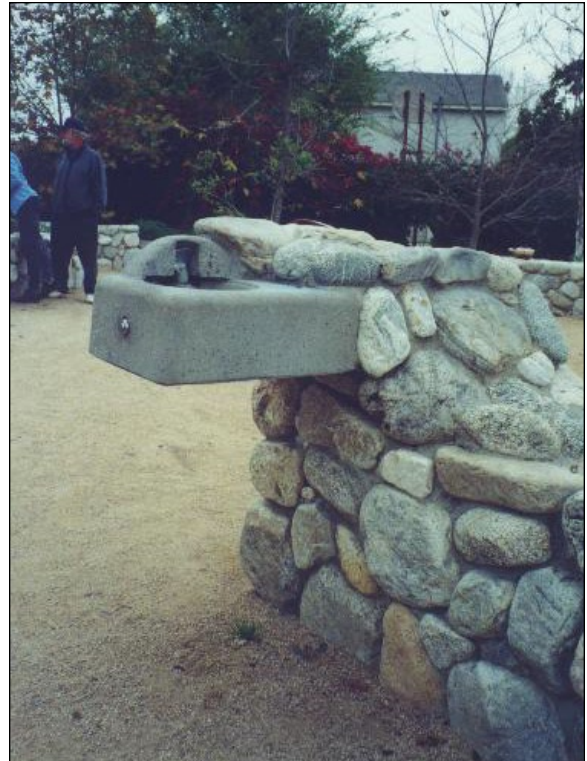


Figure 14.45 River rock clad drinking fountain at Egret Park designed and installed by North East Trees.

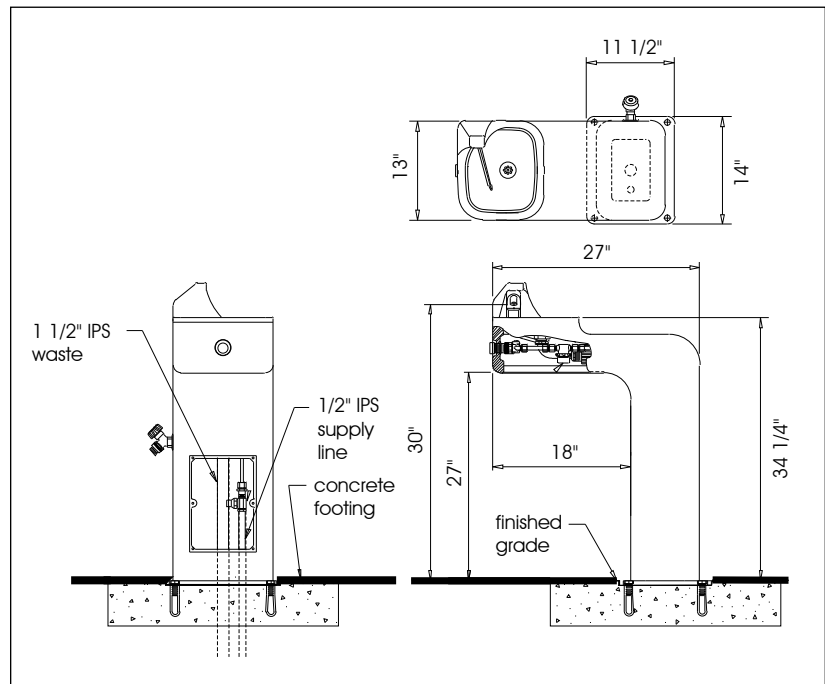


Figure 14.46 Drinking fountain (N.T.S.) - Detail provided by Haws Corporation

TRAILS AND PATHS

Due to the existing conditions of the flood control channel, its maintenance requirements, and auxiliary functions, service road access must remain on both sides of the river and wash. Future bicycle path expansion along the west side of the river is compatible with maintenance operations, as road and path width requirements are equal.

For all other paths and trails, general views, viewsheds and important structures such as historic bridges can be emphasized in trail layout, creating a pleasant environment wherever possible. Different materials are applicable depending on existing site conditions and demand of use. Service roads on rectangular channel reaches can remain native soil or decomposed granite surfaces. Other permeable surfaces such as Grasspave, Gravelpave, and porous asphalt may be considered provided they support H-20 loading.



Figure 14.47 Class I Bike Trail, City of Los Angeles.

General Guidelines

- Trail widths kept to minimum to maximize landscape areas.
- Use permeable surfacing wherever possible.
- Where asphalt is required, grade towards infiltration strips (planting areas) alongside trail.

Pedestrian

- Largest user group of the river.
- Directional paths should be linear in form.
- Paths for recreation, contemplation or exercise should be meandering.
- Clear visibility surrounding paths is important for safety.
- Must meet current ADA standards to the maximum extent feasible (see page 62501 of 36CFR Part 1191 Part IV of Architectural and Transportation Barriers Compliance Board, October 18, 2000).

Bicycle Path

- Continuous Class I bike path along entire river with a design speed of 20 mph (asphalt paved).
- Caltrans Class 1 bike path minimum standards.
- Provide trees where possible for shade and aesthetic purposes.
- Provide rest areas with water and bicycle racks at regular intervals.
- Path layout to be mainly linear with long sight lines.

Equestrian Trails

- Keep separate from other recreational uses when possible.
- Provide safe access across river bed and to other recreational areas.
- 8' minimum width, 12' preferred
- soft surfaces such as native soil, or decomposed granite.

TRAILS, CLASS I BIKE PATH

Example

- Los Angeles Department of Transportation: Caltrans Class I bike path standards
- Dimensions-
 - 12' minimum paved surface
 - Two 4' lanes minimum 2' minimum setback from paving for all stationary objects i.e. signs, fence, amenities, etc.
- Materials-
 - Asphaltic concrete paving
- Finish-
 - Include striping and surface stencils marking bike path as necessary.



Figure 14.48 Class I Bike Path with fence at Glendale Narrows.

Design Considerations

- Fencing to be determined by governing agency.
- Width of edge of asphalt past 2' minimum fall zone varies based on site conditions.
- Emergency Call Box pad to be ADA accessible from bike path; flush with path surface, expansion joint width not to exceed 3/4 inch.

Maintenance

- Ensure path is free of litter and any object hazardous to high speed bicyclists.

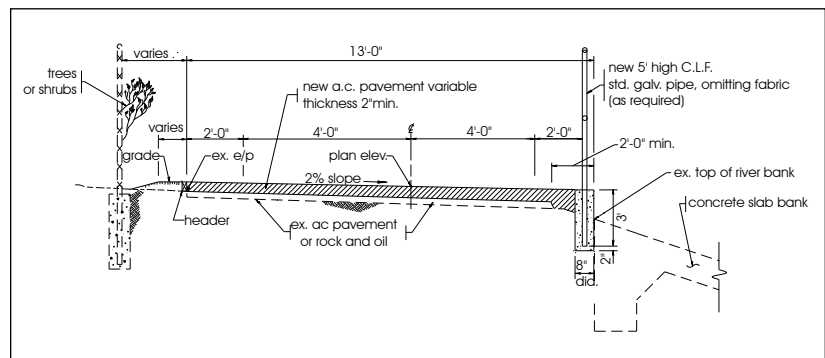


Figure 14.49 Class I bike path typical section (N.T.S.)



Figure 14.50 Decomposed granite paths at Los Angeles Riverwalk Yoga Park designed and installed by North East Trees.

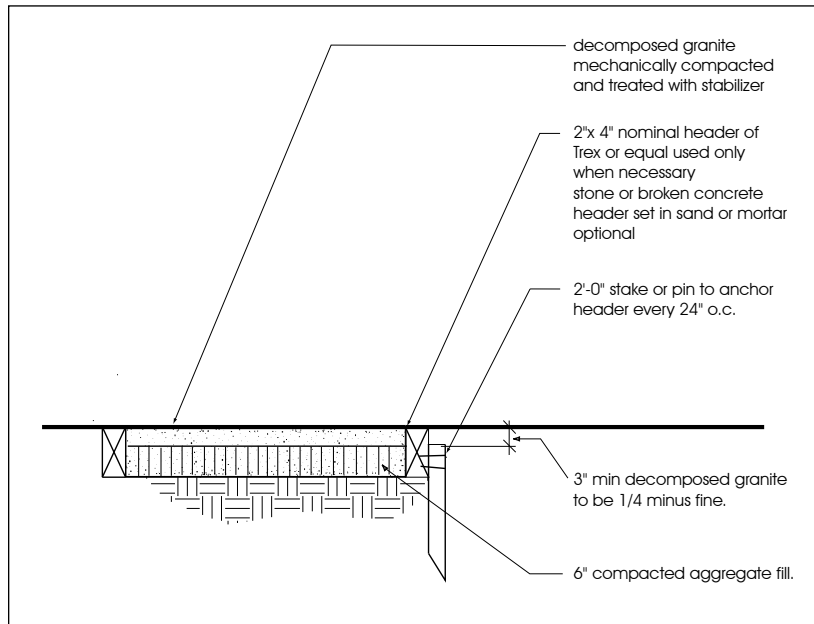


Figure 14.51 Decomposed granite paving (N.T.S.)

TRAILS, DECOMPOSED GRANITE SERVICE ROAD OR PATH

Example

- Decomposed Granite, compacted. Soil stabilizer application to be used in high use areas, and for ADA accessibility
- Dimensions-
Width: 3' min. pedestrian, 4' min. width ADA accessibility
- Thickness-
Pedestrian: 3" over compacted native soil
Vehicular: 3" over a 3" compacted aggregate sub-base
- Finish-
Natural color, or as approved by governing agency
- Header-
(optional)
- Application-
Service road on rectangular channel
Street end entry to the river

Design Considerations

- Choose color that compliments amenity selection
- Maximize use of decomposed granite in the landscape
- Grade trails to slope back into the landscape beds

Maintenance

- Repair erosion on a regular basis, recompact as necessary

Available From

- See Appendix C

TRAILS, PERMEABLE PAVING ALTERNATIVES

Example

- Pavers (various): selection to meet ADA accessibility standards.
- Dimensions-
Per manufacturer. Broken concrete or stone to vary, pieces averaging 12" x 18" or as approved by governing agency.
- Materials-
Pre-cast, colored concrete pavers
Aggregate pavers
Natural concrete
Broken concrete
Stone
- Application-
In high use areas

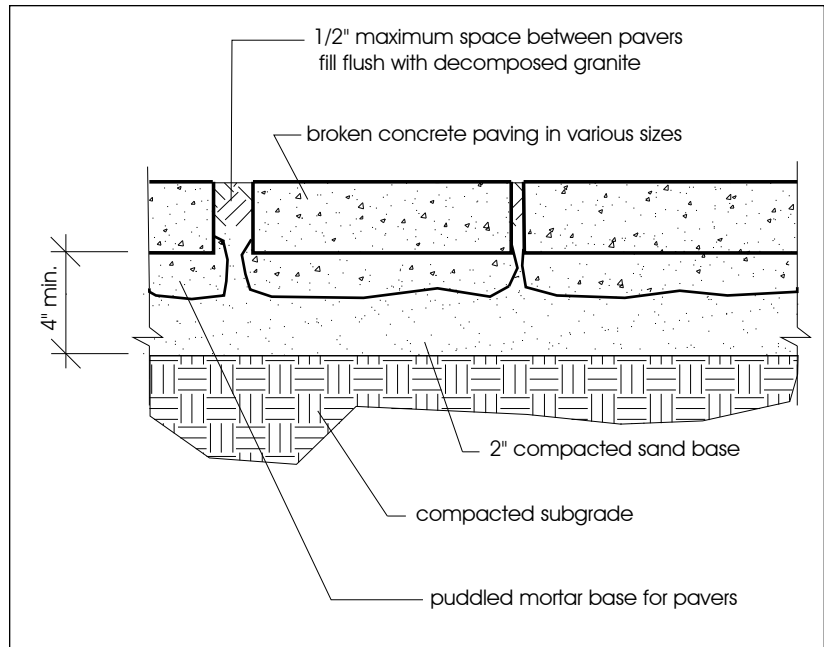


Figure 14.52 Broken concrete paving (N.T.S.)

Design Considerations

- Color optional; Match to color of amenities and other materials used.
- Use on service roads or ramps must be designed for H-20 loading.

Maintenance

- Check level of fill in grid for erosion.
Replenish material as necessary.
- Maintain permeability between pavers.

Available From

- See Appendix C

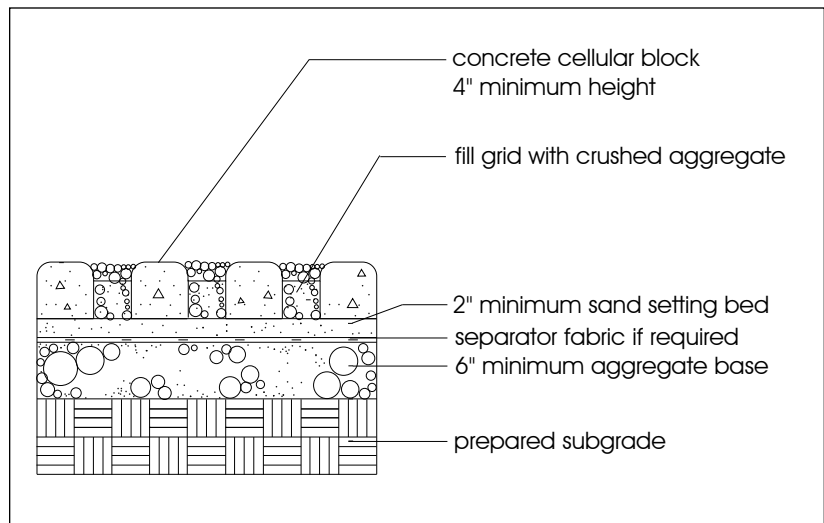


Figure 14.53 Cellular block with aggregate fill (N.T.S.)

SIGNS

An important component of a successful recreation system along the river is signage. The major activities encouraged along the river are bicycling, horseback riding and walking. In order to ensure proper usage of the trails, to guarantee user safety, and to familiarize people with the river and its assets, a variety of signs are needed. Guidelines are in accordance with the Los Angeles River Master Plan Sign Guidelines (Aug 2003), which should be referenced for further information.

Certain criteria for signage are introduced in this document and include general standards for signage such as the following: lettering to be legible from predetermined distances (stationary vs. moving); sign base and frame materials to be metal, stone and/or concrete; signage to be incorporated into overall design to eliminate visual confusion and to increase aesthetic enjoyment. Set-back for sign to be 2' minimum from adjacent bike path or service road. Individual artistic treatments are encouraged. Durability of materials, and meeting ADA requirements are mandatory.



Figure 14.54 Juan Bautista de Anza National Historic Trail markers may incorporate river rock at the base along the Los Angeles River

Directional Signs and Markers

- Promote public use, traffic flow and safety.
- Show locations, destinations, trail designation and amenities.
- Place at entrances, intersections and trailheads.

Interpretive Signs

- Explain historical, cultural and environmental values.
- Provide a connection to the river with potential to teach, motivate, and touch people.
- Locate in areas of high visibility, offset from trail.
- Bilingual text is encouraged. Include languages used in adjacent communities.
- Graphic illustrations encouraged.

Kiosks, Plaques, Flags

- Provide a community connection to users of river trails and open spaces.
- Add local flavor and focus to the river.
- Recognize individual's or group's special involvement with the river.
- Signal special events such as river clean-ups, Earth Day, farmer's markets or city fairs.
- Locate at major trail connections, trailheads and open spaces.
- Clear visibility from the street and major access points.

Safety Warning Signs

- Post at every entrance
- Critical to safe public use.
- Highly visible at all times.
- Examples include: horse crossing, grade change, curve and end of pavement.
- Flood warnings, personal liability disclaimers.
- Multiple signs to be mounted on one post.

SIGNS, DIRECTIONAL, REGULATORY STANDARD

Example

- Dimensions-
Fence mounting: Minimum heights-
4'-0" for bicycles, 5'- 0" for equestrian.
Post mounting: 7'-0" min.
- Mounting-
Use existing amenities for mounting
purposes whenever possible, use
one post for multiple signs.
- Text-
Capital letters, 2" high min. Limit to
four lines of text
- Graphics-
Use visual symbols alone or with text
whenever possible to reach the re-
gional multilingual audience.
- Materials-
Post, frame, and sign to be steel
- Finish-
Reflective surface on warning or
regulatory signs only KrystalKote (or
equal) or industrial oil-based primer
and exterior enamel or powder coat.
- Placement-
Setback: 2'-0" min. from road or trail.

Design Considerations

- Names of cities and historic bridges
mounted on the bridge underpass.
- Addition of each city logo and govern-
ing agency into regulatory signs.

Maintenance

- Ensure graffiti removal on a regular
basis using non-paint options.



Figure 14.55 Proposed directional bike path sign



Figure 14.56 Bicycle dismount sign mounted on light pole
at Los Feliz Boulevard.

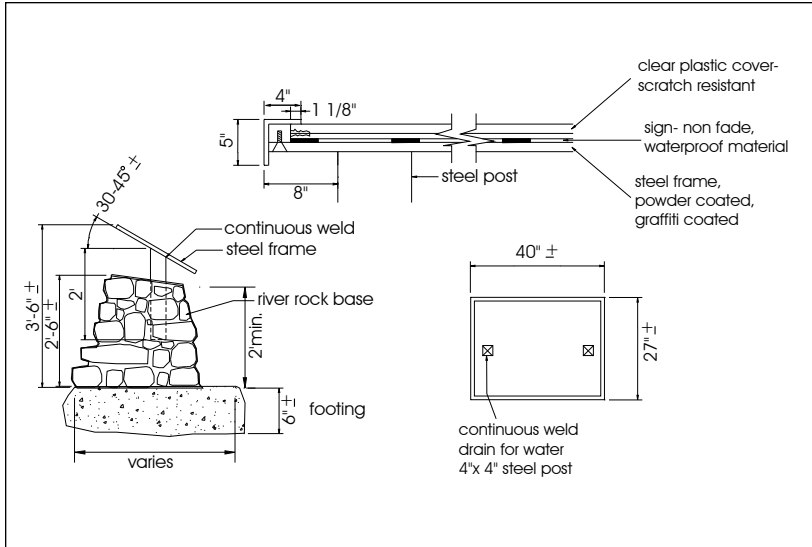


Figure 14.57 Interpretive sign details (N.T.S.) - courtesy of North East Trees (redrawn)



Figure 14.58 National Park Service Anza Trail interpretive sign, mounted in stone wall at Los Angeles Riverwalk looking across the river to Griffith Park. Designed and installed by North East Trees.

SIGNS, INTERPRETIVE STANDARD

Example

- Dimensions-
Signage design to meet ADA standards as shown. Sign angle from 30-45 degrees depending on overall size height from bottom of sign: 27"-30"
- Text-
Readable from 2' distance
Text block 50-75 words
Titles to be 60-72 pt., subtitles 40-48 pt., text to be 16-24 pt.
- Language-
Language should be concise with short sentences, vivid active verbs, and personal touches.
Multi-language text encouraged
- Graphics-
Use visual symbols alone or with text. Illustrations are encouraged. Colors should be bold and relate to the site.
- Finish-
Color Krystalkote (or equal) or industrial oil-based primer and exterior enamel or powder coat.
- Placement-
Setback 2' min from service road

Design Considerations

- Themes-
Historic- De Anza Trail
Local- city history
Natural systems- watershed, plant communities, wildlife

Maintenance

- Check for scratches on sign. Replace top plastic layer as needed.

SIGNS, CUSTOM ALTERNATIVES

- Match local aesthetic when appropriate
- Dimensions-
Size to be appropriate for the situation. To be viewed by vehicular traffic 30"x 24" min.
- Text-
Viewed from moving vehicle at 20 mph 3" min. letters
Viewed from a stationary position from 4' or less use 5/8" lettering
from 5'-7' use 3/4" lettering
from 8'-12' use 1" lettering
from 20' use 3" lettering
- Language-
Do not exceed four lines of text.
- Graphics-
Use visual symbols alone or with text whenever possible to reach the regional multilingual audience.
- Placement-
Setback minimum 2' from service road or path.

Design Considerations

- Materials-
High quality: tile, bronze, brass, marble, granite
- Private logos or agency logos may be incorporated.

Maintenance

- Ensure signs are graffiti free. Reapply KrystalKote (or equal) as necessary or spray clean with water jet.
- Restore or replace sign if significant damage occurs.

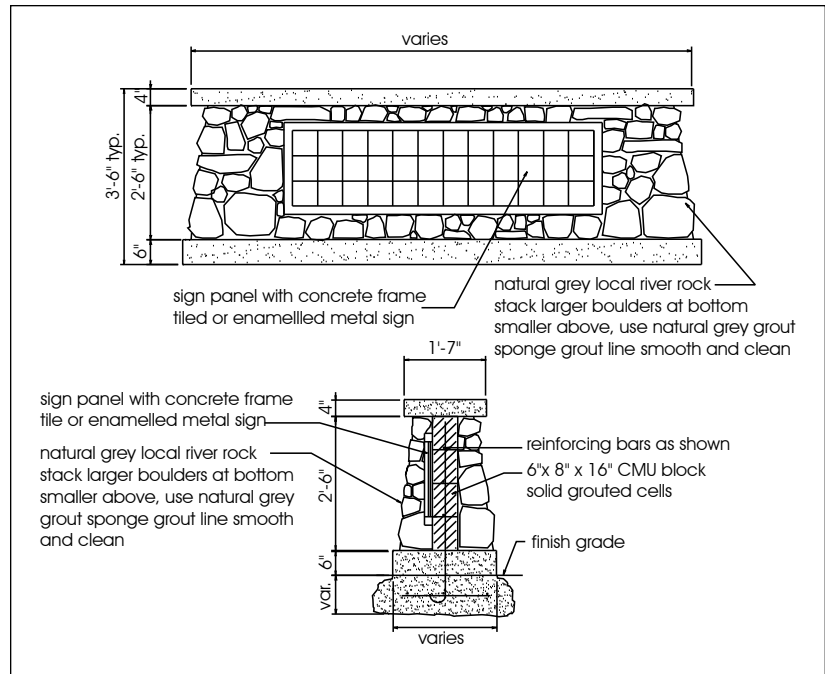


Figure 14.59 Stone wall sign detail (N.T.S)



Figure 14.60 Stone entry marker with granite plaque at end of Sunnynook Street in Atwater Village. Designed and installed by North East Trees.

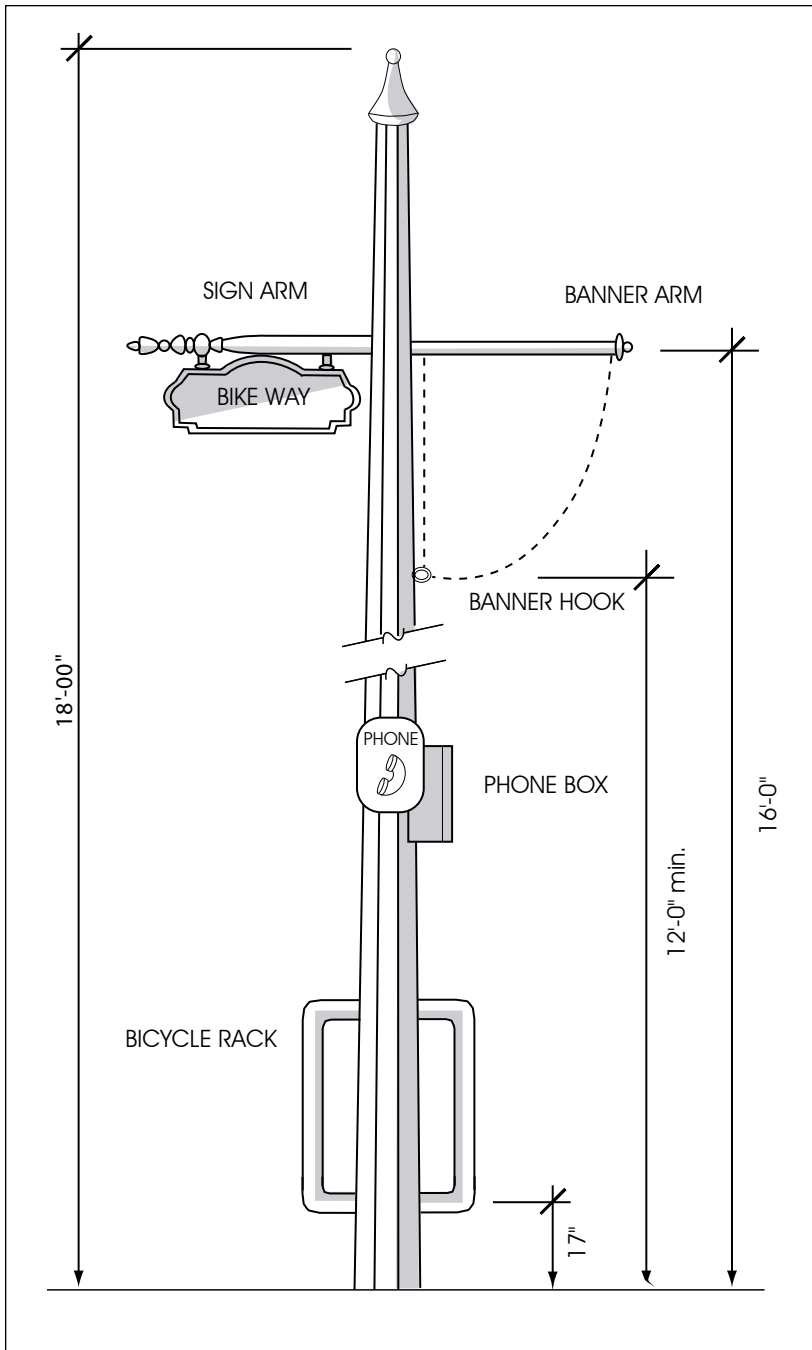


Figure 14.61 Octagonal pole with accessories (N.T.S.)

SIGNS, BANNERS/FLAGS, POLE MOUNTED

- Stresscrete octagonal light pole (shown with accessories)
- Dimensions-
Freestanding post (flag pole): 18' high
Allow 16' clearance from finish surface to banner arm (break away banner arm optional).
- Mounting-
Attach banners to light pole mounted brackets.
Maintain 12' clearance from finish surface to bottom of banner. Attach banners both top and bottom.
- Placement-
2'-0" minimum setback from trail, path, or access road.

Design Considerations

- Optional materials-
Provide one set of banners (minimum) to be displayed throughout the year.
- Color and design-
Banner and flag color and subject should match the overall theme of the site.

Maintenance

- Ensure graffiti removal using non-paint options.
- Replace banners as necessary.
- Ensure emergency call boxes are in working order at all times.

Appendix B

Plant Communities

Preface

The plant community lists have been developed through systematic review of several published sources regarding species distribution (refer to Bibliography), in combination with review of nursery and seed vendor lists to determine whether species may be commercially available. Most lists are primarily limited to species that are, or have been available commercially, with the exception of certain species which may be ecologically important within the community and have been included here to encourage their propagation. In most cases, these lists do not document every plant species that may be present within a native community, and hence desirable among native community plantings. Most likely to be omitted are smaller herbaceous species, and in some cases larger key shrubs that are not available in the nursery trade to date.

For example, many species of the alluvial fan sage scrub community are not available commercially, including some of its signature species. However, this is the most appropriate community to install in the vicinity of Tujunga Wash and potentially other downstream locations. To facilitate reintroduction of this unusual community, additional coordination should be conducted to allow for collection of plant propagules from native sources.

Generally, plantings along the river shall consist of communities of species as designated on the accompanying lists. However, additional species may be included with the explicit, documented recommendation of a qualified plant or restoration ecologist. For alluvial fan sage scrub and other communities, propagules of appropriate additional species may become more readily available in the future.

Plant list nomenclature primarily follows Hickman, James C., ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley and Los Angeles.

15.0 Plant Community Descriptions

While restoration of riparian plant communities along the river is highly desirable ecologically, environmental conditions resulting from the existing infrastructure and maintenance requirements may preclude the self-sustainability of such communities along much of the river. Therefore, many planting areas along the river will not be suitable for the historic riparian plant associations and other local native communities must be used.

Note that the term **forest** refers to a community of plants with a nearly closed tree canopy at maturity and thus understory species adapted to at least partial shade. Locally, forests may grow in areas of greater moisture and/or north-facing slopes. Trees in a **woodland** are less dense, with larger spaces between tree canopies. This allows for a higher diversity of shrub and herbaceous species that require more direct sunlight than would be available in a mature forest.

In the following section community/association names are after Holland (1986) followed by Sawyer and Keeler-Wolf (1995).

Alluvial fan sage scrub (AFSS)(Scalebroom Association): This community is found in rarely flooded, low-gradient deposits along streams. AFSS is a community that tolerates very dry conditions and is considered a ‘disturbance’ community. Alluvial fan sage scrub should be the signature community along the Tujunga Wash and is appropriate on particularly sandy, silty or gravelly soils.

Coastal sage scrub (CSS)(California Sagebrush Associations): This ecologically important community should be interspersed with tree communities along the length of the river, especially in situations where environmental or infrastructure conditions (e.g., utility corridors or other confined spaces) are

not suitable for trees. Coastal sage scrub is an appropriate complement to the sycamore riparian and coast live oak communities and can be used with them as a transitional planting prior to maturation of tree canopies. Along the lower reaches of the river, this community may be augmented with coastal bluff species, and other salt tolerant native species adapted to heterogeneous soil conditions along the levees. Augmentation to this plant palette should be made only with the approval of a qualified plant or restoration ecologist.

Chaparral (CH)(Chaparral Associations): Chaparral is considered an upland or drier community that is found on all slope aspects. CH soils are typically shallow and often nutrient-poor. It is suitable as an occasional alternative to the coastal sage scrub and California walnut woodland communities within the utility corridors. This community includes tree-like shrubs that can provide some shading in tree-restricted zones. Again, augmentation to this plant palette should be made only with the approval of a qualified plant or restoration ecologist. Rigorous design and maintenance of CH plantings can minimize fire hazards associated with this plant community.

Southern coast live oak riparian forest (CLORF)(Coast Live Oak Association): This forest community is found along bottomlands and outer floodplains along larger streams on fine-grained, rich alluvium. This community differs structurally from coast live oak riparian woodland in having a relatively closed tree canopy at maturity, and thus supports understory species adapted to partial or full shade. CLORF may be appropriate for relatively moist zones, particularly with north-facing slopes, such as in the Sepulveda Basin vicinity.

Coast live oak woodland (CLOW)(Coast Live Oak Association): CLOW is commonly found on slopes that are often very steep or on raised stream banks and terraces. Its soils are mostly sandstone or shale-derived. Coast live oak woodland is a tree-dominated community comprising fewer trees and

considerably drier soils than southern coast live oak forest.

Southern cottonwood-willow riparian forest (CWRF)(Cottonwood-Willow Association):

This water-loving community is found where soils are intermittently or seasonally saturated: riparian corridors, floodplains subject to high intensity flooding, low-gradient depositions along rivers, streams, seeps, stream and river banks, and terraces. Generally a depth to perennial ground water of not more than ten feet is required to support this cottonwood-willow community, which may achieve either forest or woodland structure at maturity.

Southern sycamore riparian woodland (SRW) (California Sycamore Association):

This community is found along riparian corridors where soils are permanently saturated at depth. SRW is normally appropriate to braided, depositional channels of intermittent streams, gullies, springs, seeps, streams and riverbanks, and terraces adjacent to floodplains subject to high-intensity flooding. Soils supporting this community are alluvial, open, and rocky. This water-loving community should dominate river landscapes where water is available naturally.

Valley oak woodland (VOW)(Valley Oak Association):

This community is typified by its majestic signature tree (valley oak), limited shrub layer and generally grassy understory. VOW occurs in deep, well-drained alluvial soils that may be intermittently or seasonally flooded. This community is found on floodplains, valley bottoms, gentle slopes, and summit valleys.

California walnut woodland (WW)(Walnut Woodland Association):

Walnut woodlands are found where soils are intermittently flooded and saturated, such as riparian corridors, floodplains, incised canyons, low-flow river and stream margins, seeps, stream and river banks, and terraces. WW also favor rarely flooded north-facing slopes, terraces and flats. Its soils are generally fine-textured, shale-derived and deep.

Suitable conditions for these communities may be achieved by strategic grading and drainage patterns that guide landscape and urban runoff into artificial “riparian zones”. So-called “deep tillage” of planting holes is strongly recommended for riparian tree species, especially where clay subsoils may prevent the roots of young plantings from readily reaching groundwater. Deep tillage is achieved by auguring the planting hole, preferably to the water table, breaking up and mixing hard subsoil layers to provide a substrate through which developing tree roots can most readily reach the moisture they require for robust growth. The type and timing of supplemental irrigation during the establishment period is also critical. Irrigation should be applied to encourage deep rooting.

16.0 Plant Palette Abbreviations

Explanations of symbols, abbreviations and terms used in the plant community charts:

Plant Form:

Some plants listed appear to have one more than one plant form designation. Their form will depend on its use in the landscape.

t	tree
d	deciduous
s	shrub
sc	succulent
g	grass
gc	groundcover
p	perennial
a	annual
v	vine

Minimum Setback from Pavement:

Recommended distance (in feet) each species should be planted away from pavement and walls.

Estimated Water Needs:

Approximate water needs of each native plant species is estimated in relation to the water needs for tall fescue turfgrass. Supplemental watering should be applied between late November and early March to complement the seasonal rain cycle to avoid winter dry spells and to assist in establishing new plantings. Summer watering is to be avoided in established landscapes where possible; deep watering on a monthly schedule may be applied if determined to be appropriate by the project plant or restoration ecologist.

VL	Performs with no supplemental water
L	Low Supplemental Water, approx. 3-5"
M	Moderate Supplemental Water, approx. 5-10"
H	High Supplemental Water, approx. 10-16"

Sun Exposure:

Ideally, understory species adapted to partial or full shade would be planted after conditions become suitable. But since most landscape projects are installed all at one time, strategic methods are required to ensure that shade-adapted species survive the initial establishment period. Possibilities include positioning shade-requiring species on the north side of boulders or installing temporary shade structures. Such structures should be checked regularly to ensure their ongoing function due to potential vandalism concerns.

su	full sun
ps	part shade
sh	full shade

Height:

Average height in feet (at maturity) or what height can be expected.

Spread:

Average spread in feet; + : indeterminate growth or rhizomatous (spreading) plants.

Frequency of Occurance in Natural Communities:

The following designations are listed in order of their relative proportion within a given plant community.

Dom - Visually dominant in the mature landscape; usually refers to trees or large shrubs.

Subdom - Visually subdominant.

Fr - Refers to the numerical proportion of the species in the landscape. Especially in the case of grasses and herbaceous species, this category may indicate much higher numbers of individual plants than the dominant category, but these species do not dominate the casual vista.

Oc - Refers to plants that occur occasionally in the designated plant community.

17.0 Plant Community Lists

- Alluvial Fan Sage Scrub (AFSS)
- Chaparral (CH)
- Southern Coast Live Oak Riparian Forest (CLORF)
- Coast Live Oak Woodland (CLOW)
- Coastal Sage Scrub (CSS)
- Southern Cottonwood-Willow Riparian Forest (CWRF)
- Southern Sycamore Riparian Woodland (SRW)
- Valley Oak Woodland (VOW)
- California Walnut Woodland (WW)

Plant list nomenclature primarily follows *The Jepson Manual* (Hickman 1993). Some of the genus names on the plant lists have changed. In some instances both names are included on the plants lists: the current name is followed by the previous name in parentheses. For convenience, a list of genera synonyms is presented below. Please note: some names appear more than once; if unsure check both names.

Previous Genus Name	Current Genus Name
Cleome	Isomeris
Corethrogyne	Lessingia
Diplacus	Mimulus
Elymus	Leymus
Haplopappus	Ericameria
Haplopappus	Isocoma
Mahonia	Berberis
Rhus	Malosma
Sitanion	Elymus
Solidago	Euthamia
Stipa	Achnatherum
Stipa	Nassella
Zauschneria	Epilobium

Alluvial Fan Sage Scrub

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in AFSS
Trees									
<i>Platanus racemosa</i>	California sycamore	t-d	6	M	su	40	40	Y	Oc.
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y	Oc.
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Oc.
Shrubs									
<i>Adenostoma fasciculatum</i>	chamise	s	4	VL/L	su	4-8	6		Oc.
<i>Arctostaphylos glauca</i>	bigberry manzanita	t/s	6	VL	su	6-15	6-15		Oc.
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y	Fr. to Oc.
<i>Brickellia californica</i>	California bricklebrush	s	3	L	su/ps	2-4	3-5		Fr. to Oc.
<i>Ceanothus crassifolius</i>	hoaryleaf ceanothus	s	6	L	su	6-15	8-20		Oc.
<i>Ceanothus leucodermis</i>	chaparral whitethorn	s	6	L	su/ps	10-12	10-20		Oc.
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	mountain mahogany	s/t	6	L	su	6-20	12	Y	Oc.
<i>Dendromecon rigida</i>	bush poppy	s	5	VL	su	8-12	10-15		Oc.
<i>Encelia californica</i>	California encelia	s	3	L	su/ps	3-4	3-6	Y	Oc.
<i>Ericameria (Happlopappus) pinifolia</i>	pine goldenbush	s	3	VL	su	3-6	3-6		Fr. to Oc.
<i>Eriodictyon crassifolium</i>	thick-leaved yerba santa	s	2	VL	su	3-6	3+		Oc.
<i>Eriodictyon trichocalyx</i> var. <i>trichocalyx</i>	hairy yerba santa	s	2	VL	su	2-5	3+	Y	Fr.
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	California buckwheat	s/gc	4	VL/L	su/ps	3	2-6		Subdom.
<i>Eriogonum fasciculatum</i> var. <i>foliosum</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	Y	Oc.
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6		Subdom.
<i>Gutierrezia californica</i>	California matchweed	s	2	VL	su	1-3	1-3		Fr. to Oc.
<i>Gutierrezia sarothrae</i>	broom snakeweed	s	2	VL	su	1-3	1-3		Fr. to Oc.
<i>Juniperus californica</i>	California juniper	s/t	6	VL	su	10-15	15-20		Fr. to Oc.
<i>Lepidospartum squamatum</i>	scale broom	s	4	VL	su	4	6		Dom.
<i>Malacothamnus fasciculatus</i>	chaparral bush mallow	s	4	VL	su	6	6+		Oc.
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y	Oc.
<i>Pluchea sericea</i>	arrow weed	s	3	L/M	su	6-8	6+	Y	Oc.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Oc.

Alluvial Fan Sage Scrub (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in AFSS
<i>Quercus berberidifolia</i> (<i>Q. dumosa</i>)	scrub oak	s/t	6	VL/L	su	8	8		Oc.
<i>Rhamnus crocea</i>	spiny redberry	s	4	VL/L	all	4	4	Y	Oc.
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y	Oc.
<i>Rhus ovata</i>	sugar bush	s	6	VL/L	su/ps	8-10	15	Y	Oc.
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y	Fr.
<i>Salvia mellifera</i>	black sage	s	4	VL	su	4	6	Y	Oc.
Perennials									
<i>Croton californicus</i>	California croton	p	1	VL	su	.5-1.5	.5-2		Fr.
<i>Delphinium cardinale</i>	scarlet larkspur	p-d	2	VL	su	2-6	1		Oc.
<i>Dicentra chrysantha</i>	golden ear drops	p-d	1	VL	su	2-6	2-4		Oc.
<i>Eriastrum densifolium</i> ssp. <i>elongatum</i>	woolly star	p	1	VL	su	1-2	1-2		Fr.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2		Oc.
<i>Galium angustifolium</i>	narrow-leaf bedstraw	p	1	VL/L	su/ps	1-2	1-2		Fr.
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3		Fr. to Oc.
<i>Mirabilis californica</i>	wishbone bush	p-d	2	VL	su	1	3		Fr. to Oc.
<i>Pellea andromedifolia</i>	coffee fern	p	1	L	ps	1	2		Oc.
<i>Pellea mucronata</i>	bird's foot fern	p	1	L	ps	1	2		Oc.
<i>Penstemon spectabilis</i>	showy penstemon	p	2	VL	su	3	3		Oc.
<i>Polypodium californicum</i>	California polypody fern	p-d/gc	1	L	ps/sh	.5	1+		Oc.
<i>Solanum xanti</i>	purple or chaparral nightshade	p-d	2	VL/L	su/ps	2	3		Oc.
Grasses									
<i>Achnatherum (Stipa) coronatum</i>	giant stipa	g/p/gc	2	VL/L	su/ps	2-4	1-2		Oc.
<i>Achnatherum (Stipa) speciosum</i>	desert needlegrass	g/p/gc	1	VL/L	su	1-2	1-2		Oc.
<i>Elymus elymoides</i> (<i>Sitanion hystrix</i>)	squirreltail grass	g/p/gc	1	L	su	1-2	1-2		Oc.
<i>Melica imperfecta</i>	coast range melic	g/p/gc	1	L/M	all	2	2		Oc.

Alluvial Fan Sage Scrub (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in AFSS
Succulents									
<i>Dudleya lanceolata</i>	lance-leaved live-forever	sc	1	VL/L	su/ps	1	1		Oc.
<i>Opuntia basilaris</i>	beaver tail	sc	2	VL	su	1-2	2		Oc.
<i>Opuntia littoralis</i>	coastal prickly pear	sc	3	VL	su	3	3+		Fr. to Oc.
<i>Opuntia parryi</i>	cane or snake cholla	sc	4	VL	su	4	4		Subdom.
<i>Yucca whipplei</i>	Our Lord's candle or chaparral yucca	sc	5	VL	su	3	5	Y	Fr.
Vines									
<i>Calyptegia macrostegia</i> ssp. <i>arida</i>	finger-leaf morning glory	v/p	1	VL/M	su/ps	climbs		Y	Oc.
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	showy Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Sarcostemma cyanchooides</i> ssp. <i>hartwegii</i>	twining milkweed	v/s-d	2	VL/L	su/ps	climbs			Oc.
Groundcovers									
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y	Fr. to Oc.
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Fr. to Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.

Chaparral

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CH
Trees									
<i>Adenostoma sparsifolium</i>	red shanks	t/s	5	VL/L	su	8-20	15		Oc.
<i>Juglans californica</i> var. <i>californica</i>	California walnut	t-d	6	VL	su/ps	15-25	20	Y	Oc.
Shrubs									
<i>Adenostoma fasciculatum</i>	chamise	s	4	VL/L	su	4-8	6		Oc.
<i>Arctostaphylos glauca</i>	bigberry manzanita	t/s	6	VL	su	6-15	6-15		Oc.
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y	Fr.
<i>Berberis (Mahonia) nevinii</i>	Nevin's barberry	s	5	VL/L	su	6-12	6-12	Y	Oc.
<i>Ceanothus crassifolius</i>	hoaryleaf ceanothus	s	6	L	su	6-15	8-20		Fr.
<i>Ceanothus leucodermis</i>	chaparral whitethorn	s	6	L	su/ps	10-12	10-20		Oc.
<i>Ceanothus megacarpus</i>	big-pod ceanothus	s	6	L	su	6-15	8-20		Subdom.
<i>Ceanothus oliganthus</i>	hairy ceanothus	s	6	L	su	8-10	8-10		Oc.
<i>Ceanothus spinosus</i>	greenbark ceanothus	s/t	6	VL	su/ps	8-20	10-20		Subdom.
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	mountain mahogany	s/t	6	L	su	6-20	12	Y	Fr.
<i>Dendromecon rigida</i>	bush poppy	s	5	VL	su	8-12	10-15		Oc.
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	Y	Oc.
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6		Oc.
<i>Fremontodendron californicum</i>	flannel bush	s/t	6	VL	su	6-20	15		Oc.
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y	Subdom.
<i>Isocoma menziesii</i> ssp. <i>vernonioides</i> (<i>Haplopappus venetus</i> ssp. <i>vernonioides</i>)	goldenbush	s	2	VL	su/ps	1-3	3		Oc.
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y	Oc.
<i>Mimulus (Diplacus) aurantiacus</i> (<i>M.(D.) longiflorus</i>)	bush monkeyflower	s	2	L	su/ps	2	2	Y	Oc.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Subdom.
<i>Quercus berberidifolia</i> (<i>Q. dumosa</i>)	scrub oak	s/t	6	VL/L	su	8	8		Subdom.
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	Y	Fr.

Chaparral (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CH
<i>Rhamnus crocea</i>	spiny redberry	s	4	VL/L	all	4	4	Y	Fr.
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	VI/L	all	6	6	Y	Fr.
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y	Fr.
<i>Rhus ovata</i>	sugar bush	s	6	VL/L	su/ps	8-10	15	Y	Fr.
<i>Rhus trilobata</i>	basket bush	s-d	4	L/M	su/ps	3-5	4-8		Oc.
<i>Ribes californicum</i> var. <i>hesperium</i>	hillside gooseberry	s-d	4	VL/L	ps	5	5-8	Y	Oc.
<i>Ribes malvaceum</i> var. <i>viridifolium</i>	chaparral currant	s-d	3	L	ps	5-8	5		Oc.
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry	s-d	4	L	ps/sh	5-8	6-8	Y	Oc.
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y	Oc.
<i>Salvia mellifera</i>	black sage	s	4	VL	su	4	6	Y	Fr.
<i>Trichostema lanatum</i>	woolly blue curls	s	3	VL/L	su	2-4	4		Oc.
Perennials									
<i>Asclepias eriocarpa</i>	Indian milkweed	p-d	3	VL/L	su	3	1+		Oc.
<i>Asclepias fascicularis</i>	narrow-leaved milkweed	p-d	2	L	su/ps	3	2+		Oc.
<i>Delphinium cardinale</i>	scarlet larkspur	p-d	2	VL	su	2-6	1		Oc.
<i>Epilobium canum</i> ssp. <i>latifolium</i> (<i>Zauschneria californica</i>)	California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y	Oc.
<i>Epilobium canum</i> ssp. <i>canum</i> (<i>Zauschneria californica</i>)	hoary California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y	Oc.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr.
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6		Oc.
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3		Fr.
<i>Lupinus longifolius</i>	blue bush lupine	p	2	L/M	su/ps	4	4		Oc.
<i>Penstemon centranthifolius</i>	scarlet bugler	p	2	VL	su	1	1-2		Oc.
<i>Penstemon heterophyllus</i> var. <i>australis</i>	foothill penstemon	p	1	VL	su/ps	1	2		Oc.
<i>Penstemon spectabilis</i>	showy penstemon	p	2	VL	su	3	3		Oc.
<i>Solanum xanti</i>	purple or chaparral nightshade	p-d	2	VL/L	su/ps	2	3		Fr.
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2		Oc.

Chaparral (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CH
Grasses									
<i>Achnatherum (Stipa) coronatum</i>	giant stipa	g/p/gc	2	VL/L	su/ps	2-4	1-2		Oc.
<i>Bothriochloa barbinodis</i>	cane bluegrass	g/p/gc	1	VL/L	su	2-4	1		Oc.
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Fr.
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+		Oc.
<i>Melica imperfecta</i>	coast range melic	g/p/gc	1	L/M	all	2	2		Fr.
<i>Muhlenbergia rigens</i>	deergrass	g/p/gc	3	L	su/ps	3	4	Y	Oc.
<i>Nassella (Stipa) cernua</i>	nodding needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Oc.
<i>Nassella (Stipa) lepida</i>	foothill needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Oc.
<i>Nassella (Stipa) pulchra</i>	purple needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Oc.
Succulents									
<i>Dudleya pulverulenta</i>	chalk dudleya	sc	1	VL/L	su/ps	1	1		Oc.
<i>Yucca whipplei</i>	Our Lord's candle or chaparral yucca	sc	5	VL	su	3	5	Y	Fr.
Vines									
<i>Clematis lasiantha</i>	pipestems	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	showy Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Lonicera subspicata</i> var. <i>denudata</i> (<i>L. subspicata</i> var. <i>johnstonii</i>)	chaparral honeysuckle	v/s	2	VL/L	su/ps	climbs			Oc.
Groundcovers									
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Salvia spathacea</i>	pitcher sage	p/gc	2	L	ps/sh	1	3+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y	Oc.

Southern Coast Live Oak Riparian Forest

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CLORF
Trees									
<i>Fraxinus velutina</i> var. <i>coriacea</i>	velvet ash	t-d	6	M/H	su/ps	20-30	20-30		Fr. to Oc.
<i>Juglans californica</i> var. <i>californica</i>	California walnut	t-d	6	VL	su/ps	15-25	20	Y	Oc.
<i>Platanus racemosa</i>	California sycamore	t-d	6	M	su	40	40	Y	Subdom.
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	black cottonwood	t-d	8	M/H	su	30	30+		Fr. to Oc.
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood	t-d	8	M/H	su	30	35	Y	Oc.
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y	Dom.
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Fr. to Oc.
<i>Umbellularia californica</i>	California bay laurel	t	6	M	su/ps	30	30	Y	Fr. to Oc.
Shrubs									
<i>Amorpha fruticosa</i>	false indigobush	s-d	3	L	su/ps	3-8	3-8		Oc.
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y	Oc.
<i>Baccharis pilularis</i> var. <i>consanguinea</i>	coyote brush	s	4	L/M	su/ps	4-6	6-8	Y	Oc.
<i>Baccharis salicifolia</i>	mulefat	s	3	M	all	4-8	6-10	Y	Oc.
<i>Berberis (Mahonia) pinnata</i>	California barberry	s	4	L/M	su/ps	4-6	4+		Oc.
<i>Ceanothus oliganthus</i>	hairy ceanothus	s	6	L	su	8-10	8-10		Oc.
<i>Cornus glabrata</i>	brown dogwood	s/t-d	5	M/L	all	5-20	8-12		Subdom.
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	Y	Oc.
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y	Oc.
<i>Isocoma menziesii</i> ssp. <i>vernonioides</i> (<i>Haplopappus venetus</i> ssp. <i>vernonioides</i>)	goldenbush	s	2	VL	su/ps	1-3	3		Oc.
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y	Fr.
<i>Mimulus (Diplacus) aurantiacus</i> (<i>M. (D.) longiflorus</i>)	bush monkeyflower	s	2	L	su/ps	2	2	Y	Oc.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Fr.
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	Y	Fr.
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	VI/L	all	6	6	Y	Fr. to Oc.

Southern Coast Live Oak Riparian Forest (cont.)

<i>Botanical Name</i>	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CLORF
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y	Oc.
<i>Rhus trilobata</i>	basket bush	s-d	4	L/M	su/ps	3-5	4-8		Fr. to Oc.
<i>Ribes aureum</i> var. <i>gracillimum</i>	golden currant	s-d	3	VL/L	su/ps	6-8	6-8	Y	Fr. to Oc.
<i>Ribes californicum</i> var. <i>hesperium</i>	hillside gooseberry	s-d	4	VL/L	ps	5	5-8	Y	Oc.
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry	s-d	4	L	ps/sh	5-8	6-8	Y	Oc.
<i>Rosa californica</i>	California wild rose	s	3	L	all	4-6	4+	Y	Fr. to Oc.
<i>Rubus ursinus</i>	California blackberry	s/v	6	M	ps/sh	4	8		Fr. to Oc.
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y	Oc.
Perennials									
<i>Adiantum jordanii</i>	California maiden-hair	p-d	1	M/H	ps/sh	1.5	1.5		Oc.
<i>Artemisia douglasiana</i>	mugwort	p	3	L/M	all	3-5	3+	Y	Fr.
<i>Dryopteris arguta</i>	coastal wood fern	p	1	L/M	ps/sh	1-2	2+		Fr.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Juncus patens</i>	rush	p/gc	2	L/M	su/ps	2.5	3+	Y	Oc.
<i>Juncus torreyi</i>	rush	p	1-2	M	su/ps	2-3	3+		Oc.
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6		Oc.
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3		Oc.
<i>Lupinus latifolius</i> var. <i>parishii</i>	broad-leaf canyon lupine	p	2	L/M	su/ps	4	4		Oc.
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2		Oc.
<i>Yenegasia carpesioides</i>	canyon sunflower	p	3	L/M	all	4	4		Oc.
Grasses									
<i>Agrostis exarata</i>	bent grass	g/p/gc	1-2	VL/L	su/ps	2-4	2		Fr.
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Fr.
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+		Fr. to Oc.
<i>Muhlenbergia rigens</i>	deergrass	g/p/gc	3	L	su/ps	3	4	Y	Oc.
Vines									
<i>Clematis lasiantha</i>	pipestems	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.

Southern Coast Live Oak Riparian Forest (cont.)

<i>Botanical Name</i>	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CLORF
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Lonicera subspicata</i> var. <i>denudata</i> (<i>L. subspicata</i> var. <i>johnstonii</i>)	chaparral honeysuckle	v/s	2	VL/L	su/ps	climbs			Oc.
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs		Y	Oc.
Groundcovers									
<i>Baccharis pilularis</i> var. <i>pilularis</i>	prostrate coyote brush	s/gc	3	L/M	su/ps	1-3	6-8	Y	Oc.
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Oc.
<i>Hordeum brachyantherum</i> ssp. <i>californicum</i>	California barley	g/p/gc	1	VL	su/ps	1-2	1		Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	Y	Oc.
<i>Salvia spathacea</i>	pitcher sage	p/gc	2	L	ps/sh	1	3+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.
<i>Stachys bullata</i>	pink hedgenettle	p/gc	2	L/M	ps/sh	1-2	2+	Y	Fr. to Oc.
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y	Fr. to Oc.

Coast Live Oak Woodland

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CLOW
Trees									
<i>Juglans californica</i> var. <i>californica</i>	California walnut	t-d	6	VL	su/ps	15-25	20	Y	Oc.
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y	Dom.
<i>Quercus engelmannii</i>	Engelmann or mesa oak	t	8	VL/L	su	30	30	Y	Oc.
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Fr. to Oc.
<i>Umbellularia californica</i>	California bay laurel	t	6	M	su/ps	30	30	Y	Fr. to Oc.
Shrubs									
<i>Amorpha fruticosa</i>	false indigobush	s-d	3	L	su/ps	3-8	3-8		Oc.
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y	Oc.
<i>Baccharis pilularis</i> var. <i>consanguinea</i>	coyote brush	s	4	L/M	su/ps	4-6	6-8	Y	Oc.
<i>Berberis (Mahonia) pinnata</i>	California barberry	s	4	L/M	su/ps	4-6	4+		Oc.
<i>Ceanothus leucodermis</i>	chaparral whitethorn	s	6	L	su/ps	10-12	10-20		Oc.
<i>Ceanothus oliganthus</i>	hairy ceanothus	s	6	L	su	8-10	8-10		Oc.
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	California buckwheat	s/gc	4	VL/L	su/ps	3	2-6		Oc.
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	Y	Oc.
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y	Oc.
<i>Isocoma menziesii</i> ssp. <i>vernonioides</i> (<i>Haplopappus venetus</i> ssp. <i>vernonioides</i>)	goldenbush	s	2	VL	su/ps	1-3	3		Oc.
<i>Isomeris arborea</i> (<i>Cleome isomeris</i>)	bladderpod	s	4	VL	su/ps	3-5	5	Y	Oc.
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y	Fr. to Oc.
<i>Mimulus (Diplacus) aurantiacus</i> (<i>M. (D.) longiflorus</i>)	bush monkeyflower	s	2	L	su/ps	2	2	Y	Oc.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Fr.
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	Y	Fr. to Oc.
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	VI/L	all	6	6	Y	Fr. to Oc.
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y	Oc.
<i>Rhus ovata</i>	sugar bush	s	6	VL/L	su/ps	8-10	15	Y	Fr. to Oc.

Coast Live Oak Woodland (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CLOW
<i>Rhus trilobata</i>	basket bush	s-d	4	L/M	su/ps	3-5	4-8		Fr. to Oc.
<i>Ribes aureum</i> var. <i>gracillimum</i>	golden currant	s-d	3	VL/L	su/ps	6-8	6-8	Y	Fr. to Oc.
<i>Ribes californicum</i> var. <i>hesperium</i>	hillside gooseberry	s-d	4	VL/L	ps	5	5-8	Y	Oc.
<i>Ribes malvaceum</i> var. <i>viridifolium</i>	chaparral currant	s-d	3	L	ps	5-8	5		Oc.
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry	s-d	4	L	ps/sh	5-8	6-8	Y	Oc.
<i>Rosa californica</i>	California wild rose	s	3	L	all	4-6	4+	Y	Fr. to Oc.
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y	Oc.
<i>Salvia leucophylla</i>	purple sage	s	5	VL	su	5	6-8	Y	Oc.
<i>Salvia mellifera</i>	black sage	s	4	VL	su	4	6	Y	Oc.
Perennials									
<i>Adiantum jordanii</i>	California maiden-hair	p-d	1	M/H	ps/sh	1.5	1.5		Oc.
<i>Asclepias eriocarpa</i>	Indian milkweed	p-d	3	VL/L	su	3	1+		Oc.
<i>Dryopteris arguta</i>	coastal wood fern	p	1	L/M	ps/sh	1-2	2+		Fr.
<i>Epilobium canum</i> ssp. <i>latifolium</i> (<i>Zauschneria californica</i>)	California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y	Fr.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2		Oc.
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6		Oc.
<i>Leptodactylon californicum</i>	prickly phlox	p	2	VL	su/ps	2	2		Oc.
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3		Oc.
<i>Lupinus latifolius</i> var. <i>parishii</i>	broad-leaf canyon lupine	p	2	L/M	su/ps	4	4		Oc.
<i>Penstemon centranthifolius</i>	scarlet bugler	p	2	VL	su	1	1-2		Oc.
<i>Penstemon heterophyllus</i> var. <i>australis</i>	foothill penstemon	p	1	VL	su/ps	1	2		Oc.
<i>Penstemon spectabilis</i>	showy penstemon	p	2	VL	su	3	3		Oc.
<i>Sisyrinchium bellum</i>	blue-eyed grass	p-d	1	VL/L	su/ps	1	1		Fr.
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2		Oc.
Grasses									
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Fr.

Coast Live Oak Woodland (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CLOW
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+		Fr. to Oc.
<i>Koeleria macrantha</i> (<i>cristata</i>)	juncgrass	g/p/gc	1	L	su/ps	1-2	1		Oc.
<i>Melica imperfecta</i>	coast range melic	g/p/gc	1	L/M	all	2	2		Fr.
<i>Muhlenbergia rigens</i>	deergrass	g/p/gc	3	L	su/ps	3	4	Y	Oc.
<i>Nassella (Stipa) cernua</i>	nodding needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Fr. to Oc.
<i>Nassella (Stipa) lepida</i>	foothill needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Fr. to Oc.
<i>Nassella (Stipa) pulchra</i>	purple needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Fr. to Oc.
<i>Poa secunda</i> ssp. <i>secunda</i> (<i>P. scabrella</i>)	one-sided bluegrass	g/p/gc	1	VL/L	su/ps	1	1		Fr. to Oc.
Succulents									
<i>Yucca whipplei</i>	Our Lord's candle or chaparral yucca	sc	5	VL	su	3	5	Y	Oc.
Vines									
<i>Clematis lasiantha</i>	pipestems	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	showy Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
Groundcovers									
<i>Achillea millefolium</i>	yarrow	p/gc	1	M	su/ps	.5-2	3		Oc.
<i>Baccharis pilularis</i> var. <i>pilularis</i>	prostrate coyote brush	s/gc	3	L/M	su/ps	1-3	6-8	Y	Oc.
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Hordeum brachyantherum</i> ssp. <i>californicum</i>	California barley	g/p/gc	1	VL	su/ps	1-2	1		Fr. to Oc.
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Salvia spathacea</i>	pitcher sage	p/gc	2	L	ps/sh	1	3+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y	Fr. to Oc.

Coastal Sage Scrub

<i>Botanical Name</i>	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CSS
Trees									
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Fr. to Oc.
Shrubs									
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y	Dom.
<i>Atriplex lentiformis</i> ssp. <i>lentiformis</i> (<i>A. lentiformis</i> ssp. <i>breweri</i>)	saltbush	s	5	VL	su	6-8	5-10	Y	Oc.
<i>Baccharis pilularis</i> var. <i>consanguinea</i>	coyote brush	s	4	L/M	su/ps	4-6	6-8	Y	Subdom.
<i>Berberis</i> (<i>Mahonia</i>) <i>nevini</i>	Nevin's barberry	s	5	VL/L	su	6-12	6-12	Y	Oc.
<i>Dendromecon rigida</i>	bush poppy	s	5	VL	su	8-12	10-15		Oc.
<i>Encelia californica</i>	California encelia	s	3	L	su/ps	3-4	3-6	Y	Subdom.
<i>Ericameria</i> (<i>Haplopappus</i>) <i>pinifolia</i>	pine goldenbush	s	3	VL	su	3-6	3-6		Oc.
<i>Eriodictyon crassifolium</i>	thick-leaved yerba santa	s	2	VL	su	3-6	3+		Oc.
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	California buckwheat	s/gc	4	VL/L	su/ps	3	2-6		Dom.
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	Y	Oc.
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y	Oc.
<i>Isocoma menziesii</i> ssp. <i>vernonioides</i> (<i>Haplopappus venetus</i> ssp. <i>vernonioides</i>)	goldenbush	s	2	VL	su/ps	1-3	3		Fr. to Oc.
<i>Isomeris arborea</i> (<i>Cleome isomeris</i>)	bladderpod	s	4	VL	su/ps	3-5	5	Y	Fr. to Oc.
<i>Malacothammus fasciculatus</i>	chapparal bush mallow	s	4	VL	su	6	6+		Oc.
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y	Fr.
<i>Mimulus</i> (<i>Diplacus</i>) <i>aurantiacus</i> (<i>M. (D.) longiflorus</i>)	bush monkeyflower	s	2	L	su/ps	2	2	Y	Fr.
<i>Pluchea sericea</i>	arrow weed	s	3	L/M	su	6-8	6+	Y	Oc.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Oc.
<i>Quercus berberidifolia</i> (<i>Q. dumosa</i>)	scrub oak	s/t	6	VL/L	su	8	8		Oc.
<i>Rhamnus crocea</i>	spiny redberry	s	4	VL/L	all	4	4	Y	Fr. to Oc.
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	VI/L	all	6	6	Y	Fr. to Oc.

Coastal Sage Scrub (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CSS
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y	Fr. to Oc.
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y	Oc.
<i>Salvia leucophylla</i>	purple sage	s	5	VL	su	5	6-8	Y	Fr. to Oc.
<i>Salvia mellifera</i>	black sage	s	4	VL	su	4	6	Y	Fr.
<i>Trichostema lanatum</i>	woolly blue curls	s	3	VL/L	su	2-4	4		Oc.
Perennials									
<i>Asclepias eriocarpa</i>	Indian milkweed	p-d	3	VL/L	su	3	1+		Oc.
<i>Asclepias fascicularis</i>	narrow-leaved milkweed	p-d	2	L	su/ps	3	2+		Oc.
<i>Croton californicus</i>	California croton	p	1	VL	su	.5-1.5	.5-2		Oc.
<i>Delphinium cardinale</i>	scarlet larkspur	p-d	2	VL	su	2-6	1		Oc.
<i>Dicentra chrysantha</i>	golden ear drops	p-d	1	VL	su	2-6	2-4		Oc.
<i>Epilobium canum</i> ssp. <i>latifolium</i> (<i>Zauschneria californica</i>)	California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y	Oc.
<i>Epilobium canum</i> ssp. <i>canum</i> (<i>Zauschneria californica</i>)	hoary California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y	Fr.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2		Fr.
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6		Oc.
<i>Leptodactylon californicum</i>	prickly phlox	p	2	VL	su/ps	2	2		Oc.
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3		Fr.
<i>Lupinus longifolius</i>	blue bush lupine	p	2	L/M	su/ps	4	4		Oc.
<i>Mirabilis californica</i>	wishbone bush	p-d	2	VL	su	1	3		Fr. to Oc.
<i>Pellea andromedifolia</i>	coffee fern	p	1	L	ps	1	2		Fr.
<i>Pellea mucronata</i>	bird's foot fern	p	1	L	ps	1	2		Oc.
<i>Penstemon spectabilis</i>	showy penstemon	p	2	VL	su	3	3		Oc.
<i>Polypodium californicum</i>	California polypody fern	p-d/gc	1	L	ps/sh	.5	1+		Oc.
<i>Sisyrinchium bellum</i>	blue-eyed grass	p-d	1	VL/L	su/ps	1	1		Fr. to Oc.
<i>Solanum xanti</i>	purple or chaparral nightshade	p-d	2	VL/L	su/ps	2	3		Fr.

Coastal Sage Scrub (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CSS
Grasses									
<i>Achnatherum (Stipa) coronatum</i>	giant stipa	g/p/gc	2	VL/L	su/ps	2-4	1-2		Oc.
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Fr.
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+		Oc.
<i>Melica imperfecta</i>	coast range melic	g/p/gc	1	L/M	all	2	2		Fr.
<i>Nassella (Stipa) lepida</i>	foothill needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Fr. to Oc.
Succulents									
<i>Dudleya lanceolata</i>	lance-leaved live-forever	sc	1	VL/L	su/ps	1	1		Oc.
<i>Dudleya puberulenta</i>	chalk dudleya	sc	1	VL/L	su/ps	1	1		Oc.
<i>Yucca whipplei</i>	Our Lord's candle or chaparral yucca	sc	5	VL	su	3	5	Y	Fr. to Oc.
Vines									
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	wild morning glory	v/p	1	VL/M	su/ps	climbs		Y	Fr. to Oc.
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	showy Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Sarcostemma cyanchooides</i> ssp. <i>hartwegii</i>	twining milkweed	v/s-d	2	VL/L	su/ps	climbs			Oc.
Groundcovers									
<i>Baccharis pilularis</i> var. <i>pilularis</i>	prostrate coyote brush	s/gc	3	L/M	su/ps	1-3	6-8	Y	Subdom.
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y	Fr. to Oc.
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.

Southern Cottonwood-Willow Riparian Forest

<i>Botanical Name</i>	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CWRP
Trees									
<i>Fraxinus velutina</i> var. <i>coriacea</i>	velvet ash	t-d	6	M/H	su/ps	20-30	20-30		Oc.
<i>Platanus racemosa</i>	California sycamore	t-d	6	M	su	40	40	Y	Subdom.
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	black cottonwood	t-d	8	M/H	su	30	30+		Oc.
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood	t-d	8	M/H	su	30	35	Y	Dom.
<i>Salix gooddingii</i>	black willow	t-d	6	M/H	su	25	25		Fr.
<i>Salix laevigata</i>	red willow	t-d	6	M/H	su/ps	15-20	15-20		Fr. to Oc.
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Subdom.
<i>Umbellularia californica</i>	California bay laurel	t	6	M	su/ps	30	30	Y	Fr. to Oc.
Shrubs									
<i>Baccharis salicifolia</i>	mulefat	s	3	M	all	4-8	6-10	Y	Subdom.
<i>Pluchea sericea</i>	arrow weed	s	3	L/M	su	6-8	6+	Y	Oc.
<i>Rhus trilobata</i>	basket bush	s-d	4	L/M	su/ps	3-5	4-8		Fr. to Oc.
<i>Rosa californica</i>	California wild rose	s	3	L	all	4-6	4+	Y	Fr. to Oc.
<i>Rubus ursinus</i>	California blackberry	s/v	6	M	ps/sh	4	8		Fr. to Oc.
<i>Salix exigua</i>	sand bar willow	s-d	3	M/H	su	6-10	6+		Subdom.
<i>Salix lasiolepis</i>	arroyo willow	s/t-d	5	M/H	su/ps	15	15	Y	Fr. to Oc.
<i>Salix lucida</i> ssp. <i>lasiandra</i>	shining willow	s/t-d	5	M/H	su/ps	15	15		Dom.
Perennials									
<i>Artemisia douglasiana</i>	mugwort	p	3	L/M	all	3-5	3+	Y	Fr.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Juncus patens</i>	rush	p/gc	2	L/M	su/ps	2.5	3+	Y	Fr. to Oc.
<i>Juncus torreyi</i>	rush	p	1-2	M	su/ps	2-3	3+		Fr. to Oc.
<i>Mimulus cardinalis</i>	scarlet monkeyflower	p	2	M/H	all	2	2		Oc.
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2		Oc.
Grasses									
<i>Agrostis exarata</i>	bent grass	g/p/gc	1-2	VL/L	su/ps	2-4	2		Fr.
Vines									
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs	climbs	Y	Oc.
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs	climbs	Y	Oc.

Southern Cottonwood-Willow Riparian Forest (cont.)

<i>Botanical Name</i>	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in CWRF
Groundcovers									
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y	Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y	Fr. to Oc.

Southern Sycamore Riparian Woodland

<i>Botanical Name</i>	<i>Common Name</i>	<i>Plant Form</i>	<i>Setback</i>	<i>Water Usage</i>	<i>Sun Exposure</i>	<i>Av. Height</i>	<i>Av. Spread</i>	<i>Short List</i>	<i>Occurrence in SRW</i>
Trees									
<i>Alnus rhombifolia</i>	white alder	t-d	6	M/H	all	20-30	20-30	Y	Oc.
<i>Fraxinus velutina</i> var. <i>coriacea</i>	velvet ash	t-d	6	M/H	su/ps	20-30	20-30		Fr. to Oc.
<i>Juglans californica</i> var. <i>californica</i>	California walnut	t-d	6	VL	su/ps	15-25	20	Y	Fr.
<i>Platanus racemosa</i>	California sycamore	t-d	6	M	su	40	40	Y	Dom.
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	black cottonwood	t-d	8	M/H	su	30	30+		Fr. to Oc.
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood	t-d	8	M/H	su	30	35	Y	Oc.
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y	Oc.
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Subdom.
<i>Umbellularia californica</i>	California bay laurel	t	6	M	su/ps	30	30	Y	Fr. to Oc.
Shrubs									
<i>Amorpha fruticosa</i>	false indigobush	s-d	3	L	su/ps	3-8	3-8		Fr. to Oc.
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y	Fr. to Oc.
<i>Baccharis pilularis</i> var. <i>consanguinea</i>	coyote brush	s	4	L/M	su/ps	4-6	6-8	Y	Fr.
<i>Baccharis salicifolia</i>	mulefat	s	3	M	all	4-8	6-10	Y	Fr.
<i>Berberis (Mahonia) pinnata</i>	California barberry	s	4	L/M	su/ps	4-6	4+		Oc.
<i>Cornus glabrata</i>	brown dogwood	s/t-d	5	M/L	all	5-20	8-12		Oc.
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y	Oc.
<i>Isocoma menziesii</i> ssp. <i>vernonioides</i> (<i>Haplopappus venetus</i> ssp. <i>vernonioides</i>)	goldenbush	s	2	VL	su/ps	1-3	3		Oc.
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y	Fr.
<i>Mimulus (Diplacus) aurantiacus</i> (<i>M. (D.) longiflorus</i>)	bush monkeyflower	s	2	L	su/ps	2	2	Y	Fr.
<i>Pluchea sericea</i>	arrow weed	s	3	L/M	su	6-8	6+	Y	Oc.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Oc.
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	Y	Fr. to Oc.
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	V/L	all	6	6	Y	Fr. to Oc.
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y	Oc.
<i>Rhus trilobata</i>	basket bush	s-d	4	L/M	su/ps	3-5	4-8		Fr. to Oc.

Southern Sycamore Riparian Woodland (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in SRW
<i>Ribes aureum</i> var. <i>gracillimum</i>	golden currant	s-d	3	VL/L	su/ps	6-8	6-8	Y	Fr. to Oc.
<i>Ribes californicum</i> var. <i>hesperium</i>	hillside gooseberry	s-d	4	VL/L	ps	5	5-8	Y	Oc.
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry	s-d	4	L	ps/sh	5-8	6-8	Y	Oc.
<i>Rosa californica</i>	California wild rose	s	3	L	all	4-6	4+	Y	Fr. to Oc.
<i>Rubus ursinus</i>	California blackberry	s/v	6	M	ps/sh	4	8		Fr. to Oc.
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y	Fr. to Oc.
<i>Trichostema lanatum</i>	woolly blue curls	s	3	VL/L	su	2-4	4		Oc.
Perennials									
<i>Artemisia douglasiana</i>	mugwort	p	3	L/M	all	3-5	3+	Y	Fr.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2		Oc.
<i>Juncus patens</i>	rush	p/gc	2	L/M	su/ps	2.5	3+	Y	Oc.
<i>Juncus torreyi</i>	rush	p	1-2	M	su/ps	2-3	3+		Oc.
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6		Oc.
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3		Oc.
<i>Lupinus latifolius</i> var. <i>parishii</i>	broad-leaf canyon lupine	p	2	L/M	su/ps	4	4		Oc.
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2		Oc.
<i>Venegasia carpesioides</i>	canyon sunflower	p	3	L/M	all	4	4		Oc.
Grasses									
<i>Agrostis exarata</i>	bent grass	g/p/gc	1-2	VL/L	su/ps	2-4	2		Fr.
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Fr.
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+		Fr. to Oc.
<i>Muhlenbergia rigens</i>	deergass	g/p/gc	3	L	su/ps	3	4	Y	Oc.
Vines									
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs		Y	Oc.
Groundcovers									
<i>Baccharis pilularis</i> var. <i>pilularis</i>	prostrate coyote brush	s/gc	3	L/M	su/ps	1-3	6-8	Y	Fr.
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y	Fr. to Oc.

Southern Sycamore Riparian Woodland (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in SRW
<i>Hordeum brachyantherum</i> ssp. <i>californicum</i>	California barley	g/p/gc	1	VL	su/ps	1-2	1		Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	Y	Oc.
<i>Salvia spathacea</i>	pitcher sage	p/gc	2	L	ps/sh	1	3+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.
<i>Stachys bullata</i>	pink hedgenettle	p/gc	2	L/M	ps/sh	1-2	2+	Y	Fr. to Oc.
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y	Fr. to Oc.

Valley Oak Woodland

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in VOW
Trees									
<i>Fraxinus velutina</i> var. <i>coriacea</i>	velvet ash	t-d	6	M/H	su/ps	20-30	20-30		Oc.
<i>Platanus racemosa</i>	California sycamore	t-d	6	M	su	40	40	Y	Subdom.
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y	Oc.
<i>Quercus lobata</i>	valley oak	t-d	8	M	su	35	35	Y	Dom.
Shrubs									
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	Y	Fr. to Oc.
Perennials									
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2		Oc.
<i>Sisyrinchium bellum</i>	blue-eyed grass	p-d	1	VL/L	su/ps	1	1		Fr.
Grasses									
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Fr.
<i>Muhlenbergia rigens</i>	deergrass	g/p/gc	3	L	su/ps	3	4	Y	Fr.
<i>Nassella (Stipa) cernua</i>	nodding needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Fr.
<i>Nassella (Stipa) pulchra</i>	purple needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Fr.
Vines									
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			Oc.
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs		Y	Oc.
Groundcovers									
<i>Achillea millefolium</i>	yarrow	p/gc	1	M	su/ps	.5-2	3		Oc.
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y	Fr. to Oc.
<i>Hordeum brachyantherum</i> ssp. <i>californicum</i>	California barley	g/p/gc	1	VL	su/ps	1-2	1		
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.

California Walnut Woodland

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in WW
Trees									
<i>Juglans californica</i> var. <i>californica</i>	California walnut	t-d	6	VL	su/ps	15-25	20	Y	Dom.
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y	Subdom.
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y	Fr. to Oc.
Shrubs									
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y	Subdom.
<i>Malacothamnus fasciculatus</i>	chaparral bush mallow	s	4	VL	su	6	6+		Fr. to Oc.
<i>Mimulus (Diplacus) aurantiacus</i> (<i>M. (D.) longiflorus</i>)	bush monkeyflower	s	2	L	su/ps	2	2	Y	Fr.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y	Fr.
<i>Rhus ovata</i>	sugar bush	s	6	VL/L	su/ps	8-10	15	Y	Fr. to Oc.
<i>Ribes aureum</i> var. <i>gracillimum</i>	golden currant	s-d	3	VL/L	su/ps	6-8	6-8	Y	Fr. to Oc.
<i>Salvia leucophylla</i>	purple sage	s	5	VL	su	5	6-8	Y	Oc.
Perennials									
<i>Asclepias fascicularis</i>	narrow-leaved milkweed	p-d	2	L	su/ps	3	2+		Oc.
<i>Dryopteris arguta</i>	coastal wood fern	p	1	L/M	ps/sh	1-2	2+		Oc.
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3		Fr. to Oc.
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2		Oc.
<i>Sisyrinchium bellum</i>	blue-eyed grass	p-d	1	VL/L	su/ps	1	1		Fr.
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2		Oc.
Grasses									
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+		Oc.
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+		Fr. to Oc.
<i>Melica imperfecta</i>	coast range melic	g/p/gc	1	L/M	all	2	2		Fr.
<i>Nassella (Stipa) lepida</i>	foothill needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Oc.
<i>Nassella (Stipa) pulchra</i>	purple needlegrass	g/p/gc	1	VL/L	su/ps	2	2		Oc.
<i>Poa secunda</i> ssp. <i>secunda</i> (<i>P. scabrella</i>)	one-sided bluegrass	g/p/gc	1	VL/L	su/ps	1	1		Fr. to Oc.

California Walnut Woodland (cont.)

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Occurrence in WW
Vines									
<i>Calystegia macrostegia</i> ssp. <i>arida</i>	finger-leaf morning glory	v/p	1	VL/M	su/ps	climbs		Y	Fr. to Oc.
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	wild morning glory	v/p	1	VL/M	su/ps	climbs		Y	Fr. to Oc.
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	Oc.
<i>Lonicera subspicata</i> var. <i>denudata</i> (<i>L. subspicata</i> var. <i>johnstonii</i>)	chaparral honeysuckle	v/s	2	VL/L	su/ps	climbs			Oc.
Groundcovers									
<i>Achillea millefolium</i>	yarrow	p/gc	1	M	su/ps	.5-2	3		Oc.
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y	Oc.
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y	Fr. to Oc.
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y	Fr. to Oc.
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y	Oc.
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	Y	Oc.
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y	Fr. to Oc.
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y	Fr. to Oc.
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y	Fr. to Oc.

18.0 Other Helpful Plant Lists

- Native Vines
- Compiled list of all Los Angeles River plants and associations

Plant list nomenclature primarily follows *The Jepson Manual* (Hickman 1993). Some of the genus names on the plant lists have changed. In some instances both names are included on the plants lists: the current name is followed by the previous name in parentheses. For convenience, a list of genera synonyms is presented below. Please note: some names appear more than once; if unsure check both names.

Previous Genus Name	Current Genus Name
Cleome	Isomeris
Corethrogyne	Lessingia
Diplacus	Mimulus
Elymus	Leymus
Haplopappus	Ericameria
Haplopappus	Isocoma
Mahonia	Berberis
Rhus	Malosma
Sitanion	Elymus
Solidago	Euthamia
Stipa	Achnatherum
Stipa	Nassella
Zauschneria	Epilobium

Native Vines

Botanical Name	Common Name	Plant Form	Setback	Water Usage	Sun Exposure	Av. Height	Av. Spread	Short List	Communities
<i>Calystegia macrostegia</i> ssp. <i>arida</i>	finger-leaf morning glory	v/p	1	VL/M	su/ps	climbs		Y	AFSS, WW
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	wild morning glory	v/p	1	VL/M	su/ps	climbs		Y	CSS, WW
<i>Clematis lasiantha</i>	pipestems	v-d	2	L/M	su/ps	climbs		Y	CH, CLORF, CLOW
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y	All lists
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6		CH, CLORF, CLOW, CSS, SRW
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	showy Pacific sweet pea	v/p	2	L	su/ps	climbs			AFSS, CH, CLOW, CSS
<i>Lathyrus vestitus</i> var. <i>vestitus</i> (<i>L. laetiflorus</i> ssp. <i>laetiflorus</i>)	Pacific sweet pea	v/p	2	L	su/ps	climbs			AFSS, CH, CLORF, CLOW, CSS, VOW
<i>Lonicera subspicata</i> var. <i>denudata</i> (<i>L. subspicata</i> var. <i>johnstonii</i>)	chaparral honeysuckle	v/s	2	VL/L	su/ps	climbs			CH, CLORF, WW
<i>Rubus ursinus</i>	California blackberry	s/v	6	M	ps/sh	4	8		CLORF, CWRF, SRW
<i>Sarcostemma cyanchoides</i> ssp. <i>hartwegii</i>	twining milkweed	v/s-d	2	VL/L	su/ps	climbs			AFSS, CSS
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs		Y	CLORF, CWRF, SRW, VOW

Compiled List of All Los Angeles River Plants and Communities

<i>Botanical Name</i>	<i>Common Name</i>	<i>Plant Form</i>	<i>Setback</i>	<i>Water Usage</i>	<i>Sun Exposure</i>	<i>Av. Height</i>	<i>Av. Spread</i>	<i>Short List</i>
<i>Achillea millefolium</i>	yarrow	p/gc	1	M	su/ps	.5-2	3	
<i>Achnatherum (Stipa) coronatum</i>	giant stipa	g/p/gc	2	VL/L	su/ps	2-4	1-2	
<i>Achnatherum (Stipa) speciosum</i>	desert needlegrass	g/p/gc	1	VL/L	su	1-2	1-2	
<i>Adenostoma fasciculatum</i>	chamise	s	4	VL/L	su	4-8	6	
<i>Adenostoma sparsifolium</i>	red shanks	t/s	5	VL/L	su	8-20	15	
<i>Adiantum jordanii</i>	California maiden-hair	p-d	1	M/H	ps/sh	1.5	1.5	
<i>Agrostis exarata</i>	bent grass	g/p/gc	1-2	VL/L	su/ps	2-4	2	
<i>Alnus rhombifolia</i>	white alder	t-d	6	M/H	all	20-30	20-30	Y
<i>Amorpha fruticosa</i>	false indigobush	s-d	3	L	su/ps	3-8	3-8	
<i>Arctostaphylos glauca</i>	bigberry manzanita	t/s	6	VL	su	6-15	6-15	
<i>Artemisia californica</i>	California sagebrush	s	3	VL	su/ps	3	2-3	Y
<i>Artemisia douglasiana</i>	mugwort	p	3	L/M	all	3-5	3+	Y
<i>Asclepias eriocarpa</i>	Indian milkweed	p-d	3	VL/L	su	3	1+	
<i>Asclepias fascicularis</i>	narrow-leaved milkweed	p-d	2	L	su/ps	3	2+	
<i>Atriplex lentiformis</i> ssp. <i>lentiformis</i> (<i>A. lentiformis</i> ssp. <i>breweri</i>)	saltbush	s	5	VL	su	6-8	5-10	Y
<i>Baccharis pilularis</i> var. <i>consanguinea</i>	coyote brush	s	4	L/M	su/ps	4-6	6-8	Y
<i>Baccharis pilularis</i> var. <i>pilularis</i>	prostrate coyote brush	s/gc	3	L/M	su/ps	1-3	6-8	Y
<i>Baccharis salicifolia</i>	mulefat	s	3	M	all	4-8	6-10	Y
<i>Berberis (Mahonia) nevinii</i>	Nevin's barberry	s	5	VL/L	su	6-12	6-12	Y
<i>Berberis (Mahonia) pinnata</i>	California barberry	s	4	L/M	su/ps	4-6	4+	
<i>Bothriochloa barbinodis</i>	cane bluegrass	g/p/gc	1	VL/L	su	2-4	1	
<i>Brickellia californica</i>	California bricklebrush	s	3	L	su/ps	2-4	3-5	
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	g/p/gc	1	L/M	su/ps	1.5-3	1+	
<i>Calystegia macrostegia</i> ssp. <i>arida</i>	finger-leaf morning glory	v/p	1	VL/M	su/ps	climbs		Y
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	wild morning glory	v/p	1	VL/M	su/ps	climbs		Y
<i>Carex alma</i>	sturdy sedge	p	1	H	su/ps	1-3	1-3	
<i>Carex barbarae</i>	Santa Barbara sedge	p/gc	2	M	su/ps	1-3	1-3+	
<i>Carex praegracilis</i>	slender sedge	p/gc	1	M/H	su/ps	.5-1	2+	Y
<i>Carex senta</i>	rough sedge	p/gc	2	H	su/ps	1-2	1-2+	
<i>Carex subfusca</i>	rusty sedge	p/gc	2	L/M	su/ps	1-2	1-2+	
<i>Ceanothus crassifolius</i>	hoaryleaf ceanothus	s	6	L	su	6-15	8-20	
<i>Ceanothus leucodermis</i>	chaparral whitethorn	s	6	L	su/ps	10-12	10-20	
<i>Ceanothus megacarpus</i>	big-pod ceanothus	s	6	L	su	6-15	8-20	
<i>Ceanothus oliganthus</i>	hairy ceanothus	s	6	L	su	8-10	8-10	
<i>Ceanothus spinosus</i>	greenbark ceanothus	s/t	6	VL	su/ps	8-20	10-20	
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	mountain mahogany	s/t	6	L	su	6-20	12	Y
<i>Clematis lasiantha</i>	pipestems	v-d	2	L/M	su/ps	climbs		Y
<i>Clematis ligusticifolia</i>	virgin's bower	v-d	2	L/M	su/ps	climbs		Y
<i>Cornus glabrata</i>	brown dogwood	s/t-d	5	M/L	all	5-20	8-12	
<i>Croton californicus</i>	California croton	p	1	VL	su	.5-1.5	.5-2	

Immediate coast	Mid region acc. to water	Mid region, no water	Mid region, shade	Upper Watershed	AFSS	CH	CLORF	CLOW	CSS	CWRF	SRW	VOW	WW
								Oc.				Oc.	Oc.
					Oc.	Oc.			Oc.				
					Oc.	Oc.							
					Oc.	Oc.							
							Oc.	Oc.					
*	*			*			Fr.			Fr.	Fr.		
								Oc.			Oc.		
					Oc.	Oc.					Fr. to Oc.		
x	x	x		x	Fr. to Oc.	Fr.	Oc.	Oc.	Dom.		Fr. to Oc.		
x	x			x			Fr.			Fr.	Fr.		
						Oc.		Oc.	Oc.				
						Oc.			Oc.				Oc.
x	x	x							Oc.				
x	x	x					Oc.	Oc.	Subdom.		Fr.		
x	x	x					Oc.	Oc.	Subdom.		Fr.		
x	x	x		*			Oc.			Subdom.	Fr.		
				x		Oc.			Oc.				
							Oc.	Oc.			Oc.		
					Fr. to Oc.								
						Fr.	Fr.	Fr.	Fr.		Fr.	Fr.	Oc.
	x	x		x	Oc.								Fr. to Oc.
x	x								Fr. to Oc.				Fr. to Oc.
x	x			x			Oc.	Oc.	Oc.	Fr. to Oc.	Fr. to Oc.	Oc.	Oc.
					Oc.	Fr.							
					Oc.	Oc.		Oc.					
						Subdom.							
						Oc.	Oc.	Oc.					
						Oc.							
x	x	x		x	Oc.	Fr.							
	x	x	x	x		Oc.	Oc.	Oc.					
	x		x	x	Oc.	Oc.	Oc.	Oc.	Oc.	Oc.	Oc.	Oc.	Oc.
							Subdom.				Oc.		
					Fr.				Oc.				

Compiled list of all Los Angeles River plants and communities (cont.)

<i>Botanical Name</i>	<i>Common Name</i>	<i>Plant Form</i>	<i>Setback</i>	<i>Water Usage</i>	<i>Sun Exposure</i>	<i>Av. Height</i>	<i>Av. Spread</i>	<i>Short List</i>
<i>Delphinium cardinale</i>	scarlet larkspur	p-d	2	VL	su	2-6	1	
<i>Dendromecon rigida</i>	bush poppy	s	5	VL	su	8-12	10-15	
<i>Dicentra chrysantha</i>	golden ear drops	p-d	1	VL	su	2-6	2-4	
<i>Dryopteris arguta</i>	coastal wood fern	p	1	L/M	ps/sh	1-2	2+	
<i>Dudleya lanceolata</i>	lance-leaved live-forever	sc	1	VL/L	su/ps	1	1	
<i>Dudleya pulverulenta</i>	chalk dudleya	sc	1	VL/L	su/ps	1	1	
<i>Elymus elymoides (Sitanion hystrix)</i>	squirreltail grass	g/p/gc	1	L	su	1-2	1-2	
<i>Elymus glaucus ssp. glaucus</i>	blue wild rye	g/p/gc	3	L/M	all	1.5-3	1+	
<i>Encelia californica</i>	California encelia	s	3	L	su/ps	3-4	3-6	Y
<i>Epilobium canum ssp. latifolium (Zauschneria californica)</i>	California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y
<i>Epilobium canum ssp. canum (Zauschneria californica)</i>	hoary California fuchsia	p	2	VL/L	su/ps	1-3	2-4	Y
<i>Eriastrum densifolium ssp. elongatum</i>	woolly star	p	1	VL	su	1-2	1-2	
<i>Ericameria (Haplopappus) pinifolia</i>	pine goldenbush	s	3	VL	su	3-6	3-6	
<i>Eriodictyon crassifolium</i>	thick-leaved yerba santa	s	2	VL	su	3-6	3+	
<i>Eriodictyon trichocalyx var. trichocalyx</i>	hairy yerba santa	s	2	VL	su	2-5	3+	Y
<i>Eriogonum fasciculatum var. fasciculatum</i>	California buckwheat	s/gc	4	VL/L	su/ps	3	2-6	
<i>Eriogonum fasciculatum var. foliolosum</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	Y
<i>Eriogonum fasciculatum var. polifolium</i>	California buckwheat	s	3	VL/L	su/ps	3-5	2-6	
<i>Eriophyllum confertiflorum</i>	golden yarrow	p	1	VL/L	su/ps	2	1-3	
<i>Eschscholzia californica</i>	California poppy	a/p-d	1	VL/L	su/ps	1	1-2	
<i>Euthamia occidentalis</i>	western goldenrod	p/gc	1	M/H	su/ps	2-4	2+	Y
<i>Fraxinus velutina var. coriacea</i>	velvet ash	t-d	6	M/H	su/ps	20-30	20-30	
<i>Fremontodendron californicum</i>	flannel bush	s/t	6	VL	su	6-20	15	
<i>Galium angustifolium</i>	narrow-leaf bedstraw	p	1	VL/L	su/ps	1-2	1-2	
<i>Gutierrezia californica</i>	California matchweed	s	2	VL	su	1-3	1-3	
<i>Gutierrezia sarothrae</i>	broom snakeweed	s	2	VL	su	1-3	1-3	
<i>Heteromeles arbutifolia</i>	toyon	s/t	6	L	su/ps	8-15	15	Y
<i>Hordeum brachyantherum ssp. californicum</i>	California barley	g/p/gc	1	VL	su/ps	1-2	1	
<i>Isocoma menziesii ssp. vernonioides (Haplopappus venetus ssp. vernonioides)</i>	goldenbush	s	2	VL	su/ps	1-3	3	
<i>Isomeris arborea (Cleome isomeris)</i>	bladderpod	s	4	VL	su/ps	3-5	5	Y
<i>Juglans californica var. californica</i>	California walnut	t-d	6	VL	su/ps	15-25	20	Y
<i>Juncus patens</i>	rush	p/gc	2	L/M	su/ps	2.5	3+	Y
<i>Juncus torreyi</i>	rush	p	1-2	M	su/ps	2-3	3+	
<i>Juniperus californica</i>	California juniper	s/t	6	VL	su	10-15	15-20	
<i>Keckiella cordifolia</i>	heart-leaved penstemon	p/v-d	3	L/M	all	4	6	

Immediate coast	Mid region acc. to water	Mid region, no water	Mid region, shade	Upper Watershed	AFSS	CH	CLORF	CLOW	CSS	CWRF	SRW	VOW	WW
					Oc.	Oc.			Oc.				
					Oc.	Oc.			Oc.				
					Oc.				Oc.				
							Fr.	Fr.					Oc.
					Oc.				Oc.				
					Oc.	Oc.			Oc.				
					Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Oc.		Fr. to Oc.		Fr. to Oc.
x	x	x		x	Oc.				Subdom.				
x	x	x		x		Oc.		Fr.	Oc.				
x	x	x		x		Oc.			Fr.				
					Fr.								
					Fr. to Oc.				Oc.				
					Oc.				Oc.				
		x		x	Fr.								
					Subdom.			Oc.	Dom.				
x	x	x		x	Oc.	Oc.	Oc.	Oc.	Oc.				
					Subdom.	Oc.							
					Fr. to Oc.	Fr.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.
					Oc.			Oc.	Fr.		Oc.	Oc.	Oc.
	x	x		x	Fr. to Oc.		Fr. to Oc.		Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.
							Fr. to Oc.			Oc.	Fr. to Oc.	Oc.	
					Oc.								
					Fr.								
					Fr. to Oc.								
x	x	x	x	x		Subdom.	Oc.	Oc.	Oc.		Oc.		Subdom.
							Fr. to Oc.	Fr. to Oc.			Fr. to Oc.	Fr.	
							Oc.	Oc.	Fr. to Oc.		Oc.		
x	x	x		x				Oc.	Fr. to Oc.				
x	x	x		x		Oc.	Oc.	Oc.			Fr.		Dom.
							Oc.			Fr. to Oc.	Oc.		
					Fr. to Oc.					Fr. to Oc.	Oc.		
						Oc.	Oc.	Oc.	Oc.		Oc.		

Compiled list of all Los Angeles River plants and communities (cont.)

<i>Botanical Name</i>	<i>Common Name</i>	<i>Plant Form</i>	<i>Setback</i>	<i>Water Usage</i>	<i>Sun Exposure</i>	<i>Av. Height</i>	<i>Av. Spread</i>	<i>Short List</i>
<i>Koeleria macrantha (crinata)</i>	Junegrass	g/p/gc	1	L	su/ps	1-2	1	
<i>Lathyrus vestitus var. alefeldii</i>	showy Pacific sweet pea	v/p	2	L	su/ps	climbs		
<i>Lathyrus vestitus var. vestitus (L. laetiflorus ssp. laetiflorus)</i>	Pacific sweet pea	v/p	2	L	su/ps	climbs		
<i>Lepidospartum squamatum</i>	scale broom	s	4	VL	su	4	6	
<i>Leptodactylon californicum</i>	prickly phlox	p	2	VL	su/ps	2	2	
<i>Lessingia filaginifolia var. filaginifolia</i>	California-aster	p/gc	2	VL	su	1-3	1-3	Y
<i>Leymus condensatus</i>	giant ryegrass	g/p/gc	2	VL	all	4-5	3+	Y
<i>Leymus triticoides</i>	creeping wild rye	g/p/gc	2	VL	all	2	2+	Y
<i>Lonicera subspicata var. denudata (L. subspicata var. johnstonii)</i>	chaparral honeysuckle	v/s	2	VL/L	su/ps	climbs		
<i>Lotus scoparius</i>	deerweed	p	2	VL	su	3	3	
<i>Lupinus latifolius var. parishii</i>	broad-leaf canyon lupine	p	2	L/M	su/ps	4	4	
<i>Lupinus longifolius</i>	blue bush lupine	p	2	L/M	su/ps	4	4	
<i>Malacothamnus fasciculatus</i>	chaparral bush mallow	s	4	VL	su	6	6+	
<i>Malosma laurina</i>	laurel sumac	s	6	VL	su	10	20	Y
<i>Melica imperfecta</i>	coast range melic	g/p/gc	1	L/M	all	2	2	
<i>Mimulus (Diplacus) aurantiacus (M.(D.) longiflorus)</i>	bush monkeyflower	s	2	L	su/ps	2	2	Y
<i>Mimulus cardinalis</i>	scarlet monkeyflower	p	2	M/H	all	2	2	
<i>Mirabilis californica</i>	wishbone bush	p-d	2	VL	su	1	3	
<i>Muhlenbergia rigens</i>	deergrass	g/p/gc	3	L	su/ps	3	4	Y
<i>Nassella (Stipa) cernua</i>	nodding needlegrass	g/p/gc	1	VL/L	su/ps	2	2	
<i>Nassella (Stipa) lepida</i>	foothill needlegrass	g/p/gc	1	VL/L	su/ps	2	2	
<i>Nassella (Stipa) pulchra</i>	purple needlegrass	g/p/gc	1	VL/L	su/ps	2	2	
<i>Opuntia basilaris</i>	beaver tail	sc	2	VL	su	1-2	2	
<i>Opuntia littoralis</i>	coastal prickly pear	sc	3	VL	su	3	3+	
<i>Opuntia parryi</i>	cane or snake cholla	sc	4	VL	su	4	4	
<i>Pellea andromedifolia</i>	coffee fern	p	1	L	ps	1	2	
<i>Pellea mucronata</i>	bird's foot fern	p	1	L	ps	1	2	
<i>Penstemon centranthifolius</i>	scarlet bugler	p	2	VL	su	1	1-2	
<i>Penstemon heterophyllus var. australis</i>	foothill penstemon	p	1	VL	su/ps	1	2	
<i>Penstemon spectabilis</i>	showy penstemon	p	2	VL	su	3	3	
<i>Platanus racemosa</i>	California sycamore	t-d	6	M	su	40	40	Y
<i>Pluchea sericea</i>	arrow weed	s	3	L/M	su	6-8	6+	Y
<i>Poa secunda ssp. secunda (P. scabrella)</i>	one-sided bluegrass	g/p/gc	1	VL/L	su/ps	1	1	
<i>Polypodium californicum</i>	California polypody fern	p-d/gc	1	L	ps/sh	.5	1+	
<i>Populus balsamerifera ssp. trichocarpa</i>	black cottonwood	t-d	8	M/H	su	30	30+	
<i>Populus fremontii ssp. fremontii</i>	Fremont cottonwood	t-d	8	M/H	su	30	35	Y
<i>Prunus ilicifolia ssp. ilicifolia</i>	hollyleaf cherry	s	4	VL/L	su/ps	6-12	6-12	Y
<i>Quercus agrifolia var. agrifolia</i>	coast live oak	t	8	VL/L	su	40	40	Y

Immediate coast	Mid region acc. to water	Mid region, no water	Mid region, shade	Upper Watershed	AFSS	CH	CLORF	CLOW	CSS	CWRF	SRW	VOW	WW
					Oc.	Oc.		Oc.	Oc.				
					Oc.	Oc.	Oc.	Oc.	Oc.			Oc.	
					Dom.			Oc.	Oc.				
x	x	x		x	Fr. to Oc.	Fr. to Oc.	Oc.	Fr. to Oc.	Fr. to Oc.			Oc.	Fr. to Oc.
x	x	x	x	x		Oc.	Oc.	Oc.	Oc.	Oc.	Oc.	Oc.	Oc.
x	x	x	x	x			Oc.			Oc.	Oc.	Oc.	Oc.
						Oc.	Oc.						Oc.
					Fr. to Oc.	Fr.	Oc.	Oc.	Fr.		Oc.		
						Oc.		Oc.			Oc.		
					Oc.				Oc.				Fr. to Oc.
x	x	x	x	x	Oc.	Oc.	Fr.	Fr. to Oc.	Fr.		Fr.		Fr.
					Oc.	Fr.		Fr.	Fr.				
x	x	x		x		Oc.	Oc.	Oc.	Fr.		Fr.		Fr.
										Oc.			
x	x			x	Fr. to Oc.				Fr. to Oc.				
					Oc.	Oc.	Oc.	Oc.			Oc.	Fr.	
					Oc.			Fr. to Oc.				Fr.	
					Oc.			Fr. to Oc.	Fr. to Oc.				Oc.
					Oc.			Fr. to Oc.				Fr.	Oc.
					Oc.								
					Fr. to Oc.								
					Oc.				Fr.				
					Oc.				Oc.				
						Oc.		Oc.					
					Oc.	Oc.		Oc.	Oc.				
x	x			x	Oc.		Subdom.			Subdom.	Dom.	Subdom.	
x	x			x	Oc.				Oc.	Oc.	Oc.		
								Fr. to Oc.					Fr. to Oc.
					Oc.				Oc.				
*	*			*			Fr. to Oc.			Oc.	Fr. to Oc.		
							Oc.			Dom.	Oc.		
		x	x	x	Oc.	Subdom.	Fr.	Fr.	Oc.		Oc.		Fr.
x	x	x		x	Oc.			Dom.			Oc.	Oc.	Subdom.

Compiled list of all Los Angeles River plants and communities (cont.)

<i>Botanical Name</i>	<i>Common Name</i>	<i>Plant Form</i>	<i>Setback</i>	<i>Water Usage</i>	<i>Sun Exposure</i>	<i>Av. Height</i>	<i>Av. Spread</i>	<i>Short List</i>
<i>Quercus berberidifolia</i> (<i>Q. dumosa</i>)	scrub oak	s/t	6	VL/L	su	8	8	
<i>Quercus engelmannii</i>	Engelmann or mesa oak	t	8	VL/L	su	30	30	Y
<i>Quercus lobata</i>	valley oak	t-d	8	M	su	35	35	Y
<i>Rhamnus californica</i> ssp. <i>californica</i>	California coffeeberry	s	6	L	all	8	12	Y
<i>Rhamnus crocea</i>	spiny redberry	s	4	VL/L	all	4	4	Y
<i>Rhamnus ilicifolia</i> (<i>R. crocea</i> ssp. <i>ilicifolia</i>)	hollyleaf redberry or buckthorn	s	5	VI/L	all	6	6	Y
<i>Rhus integrifolia</i>	lemonadeberry	s	6	VL/L	su/ps	8-10	15	Y
<i>Rhus ovata</i>	sugar bush	s	6	VL/L	su/ps	8-10	15	Y
<i>Rhus trilobata</i>	basket bush	s-d	4	L/M	su/ps	3-5	4-8	
<i>Ribes aureum</i> var. <i>gracillimum</i>	golden currant	s-d	3	VL/L	su/ps	6-8	6-8	Y
<i>Ribes californicum</i> var. <i>hesperium</i>	hillside gooseberry	s-d	4	VL/L	ps	5	5-8	Y
<i>Ribes malvaceum</i> var. <i>viridifolium</i>	chaparral currant	s-d	3	L	ps	5-8	5	
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry	s-d	4	L	ps/sh	5-8	6-8	Y
<i>Rosa californica</i>	California wild rose	s	3	L	all	4-6	4+	Y
<i>Rubus ursinus</i>	California blackberry	s/v	6	M	ps/sh	4	8	
<i>Salix exigua</i>	sand bar willow	s-d	3	M/H	su	6-10	6+	
<i>Salix gooddingii</i>	black willow	t-d	6	M/H	su	25	25	
<i>Salix laevigata</i>	red willow	t-d	6	M/H	su/ps	15-20	15-20	
<i>Salix lasiolepis</i>	arroyo willow	s/t-d	5	M/H	su/ps	15	15	Y
<i>Salix lucida</i> ssp. <i>lasiandra</i>	shining willow	s/t-d	5	M/H	su/ps	15	15	
<i>Salvia apiana</i>	white sage	s	3	VL	su	3	3-5	Y
<i>Salvia leucophylla</i>	purple sage	s	5	VL	su	5	6-8	Y
<i>Salvia mellifera</i>	black sage	s	4	VL	su	4	6	Y
<i>Salvia spathacea</i>	pitcher sage	p/gc	2	L	ps/sh	1	3+	Y
<i>Sambucus mexicana</i>	Mexican elderberry	t-d	6	VL/L	su	15	20	Y
<i>Sarcostemma cyanchoides</i> ssp. <i>hartwegii</i>	twining milkweed	v/s-d	2	VL/L	su/ps	climbs		
<i>Sisyrinchium bellum</i>	blue-eyed grass	p-d	1	VL/L	su/ps	1	1	
<i>Solanum xanti</i>	purple or chaparral nightshade	p-d	2	VL/L	su/ps	2	3	
<i>Solidago californica</i>	California goldenrod	p/gc	1	L/M	su/ps	1	2+	Y
<i>Solidago confinis</i>	southern goldenrod	p/gc	1	M	su/ps	1	2+	Y
<i>Stachys bullata</i>	pink hedgenettle	p/gc	2	L/M	ps/sh	1-2	2+	Y
<i>Symphoricarpos mollis</i>	creeping snowberry	s-d/gc	2	M	ps/sh	2	2+	Y
<i>Thalictrum fendleri</i> var. <i>polycarpum</i>	meadow rue	p	2	L/M	ps/sh	2	2	
<i>Trichostema lanatum</i>	woolly blue curls	s	3	VL/L	su	2-4	4	
<i>Umbellularia californica</i>	California bay laurel	t	6	M	su/ps	30	30	Y
<i>Venegasia carpesioides</i>	canyon sunflower	p	3	L/M	all	4	4	
<i>Vitis girdiana</i>	desert grape	v/s-d	2	M	all	climbs		Y
<i>Yucca whipplei</i>	Our Lord's candle or chaparral yucca	sc	5	VL	su	3	5	Y

Immediate coast	Mid region acc. to water	Mid region, no water	Mid region, shade	Upper Watershed	AFSS	CH	CLORF	CLOW	CSS	CWRF	SRW	VOW	WW
					Oc.	Subdom.			Oc.				
	x	x						Oc.					
	x	x										Dom.	
x	x	x	x	x		Fr.	Fr.	Fr. to Oc.			Fr. to Oc.	Fr. to Oc.	
		x	x	x	Oc.	Fr.			Fr. to Oc.				
		x	x	x		Fr.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.		Fr. to Oc.		
x		x		x	Oc.	Fr.	Oc.	Oc.	Fr. to Oc.		Oc.		
x		x		x	Oc.	Fr.		Fr. to Oc.					Fr. to Oc.
	x	x	x	x		Oc.	Fr. to Oc.	Fr. to Oc.		Fr. to Oc.	Fr. to Oc.		Fr. to Oc.
	x	x	x	x		Oc.	Oc.	Oc.			Oc.		
						Oc.		Oc.					
	x	x	x	x		Oc.	Oc.	Oc.			Oc.		
x	x	x	x	x			Fr. to Oc.	Fr. to Oc.		Fr. to Oc.	Fr. to Oc.		
										Fr. to Oc.	Fr. to Oc.		
										Subdom.			
										Fr.			
*	*			*						Fr. to Oc.			
										Dom.			
	x	x		x	Fr.	Oc.	Oc.	Oc.	Oc.		Fr. to Oc.		
x	x	x		x				Oc.	Fr. to Oc.				Oc.
x	x	x		x	Oc.	Fr.		Oc.	Fr.				
x	x	x	x	x		Oc.	Oc.	Oc.			Oc.		
x	x	x		x	Oc.		Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Subdom.	Subdom.		Fr. to Oc.
					Oc.			Fr.	Fr. to Oc.			Fr.	Fr.
					Oc.	Fr.		Fr.					
	x	x		x	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.
	x	x		x	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.
x	x	x		x			Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.	Fr. to Oc.
			x	x		Oc.	Fr. to Oc.	Fr. to Oc.		Fr. to Oc.	Fr. to Oc.		Fr. to Oc.
						Oc.	Oc.	Oc.		Oc.	Oc.		Oc.
						Oc.			Oc.		Oc.		
x	x		x	x			Fr. to Oc.	Fr. to Oc.		Fr. to Oc.	Fr. to Oc.		
							Oc.				Oc.		
	*	x		*			Oc.			Oc.	Oc.	Oc.	
		x		x	Fr.	Fr.		Oc.	Fr. to Oc.				

Appendix C

Sources

19.0 Sources for Planting Materials and Resources

Native Plant Nurseries

El Nativo Growers
200 South Peckham Road
Azusa, CA 91702
(626) 969-8449
www.elnativogrowers.com

Las Pilitas Nursery
8331 Nelson Way
Escondido, CA 92026
(760) 749-5930
www.laspilitas.com

Matilija Nursery
8225 Waters Road
Moorpark, CA 93021
(805) 523-8604
www.matilijanursery.com

Mockingbird Nursery
1670 Jackson Street
Riverside, CA 92504
(909) 780-3571

Rancho Santa Ana Botanic Garden
1500 North College Ave.
Claremont, CA 91711
(909) 625-8767
www.rsabg.org

Theodore Payne Foundation
10459 Tuxford Street
Sun Valley, CA 91352
(818) 768-1802
www.theodorepayne.org

Tree of Life Nursery
33201 Ortega Highway
San Juan Capistrano, CA 92693
(949) 728-0685
www.treeofflifenursery.com

Native Plant Seed

Rancho Santa Ana Botanic Garden
1500 North College Ave.
Claremont, CA 91711
(909) 625-8767
www.rsabg.org

S & S Seeds
P.O. Box 1275
Carpenteria, CA
(805) 684-0436

Stover Seed Company
P.O. Box 21488
Los Angeles, CA
(800) 621-0315

Theodore Payne Foundation
10459 Tuxford Street
Sun Valley, CA 91352
(818) 768-1802

Mycorrhizal Fungi

S & S Seeds
P.O. Box 1275
Carpenteria, CA
(805) 684-0436

Tree of Life Nursery
33201 Ortega Highway
San Juan Capistrano, CA 92693
(949) 728-0685

Gopher Cages

Diggers Products - Root Guards
P.O. Box 1557
Soquel, CA 95073
(831) 462-6095

DISCLAIMER - This list is a small representation of the resources currently available on the market. It is neither comprehensive, nor does the listing of any and/or vendor in the Guidelines constitute a recommendation or endorsement by the Los Angeles County Department of Public Works. If you are a vendor for any of the products listed within the Guidelines and would like your product in this guide, please fill out the form on page 153 of the Guidelines and return it to the Department of Public Works.

20.0 Sources for Selected Amenities

Fencing, Tubular Steel

Boundary Fence and Railing Systems Inc.
131-02 Jamaica Avenue
Richmond Hill, NY 11418-2838
(800) 628-8928

Builders Fence Company
P.O. Box 125
Sun Valley, CA 91353-0125
ph: (800) 767-0367 fax: (818) 768-9454

Merchants Metal
10401 Glendale Blvd
Pacoima, CA 91331
(800) 336-2396

Gates, Welded Wire

Builders Fence Company
P.O. Box 125
Sun Valley, CA 91353-0125
ph: (800) 767-0367 fax: (818) 768-9454

Omega Fence Systems, Inc.
3000 Francis-Hugues Street
Laval, Canada H7L 3J5
(514) 663-4200

OuterSpace Landscape Furnishing, Inc.
7533 Draper Avenue
La Jolla, CA 92037
ph: (800) 338-2499 fax: (619) 459-3622
www.fences.com

Fence, Welded Steel Wire Mesh

Builders Fence Company
P.O. Box 125
Sun Valley, CA 91353-0125
ph: (800) 767-0367 fax: (818) 768-9454

OuterSpace Landscape Furnishing, Inc.
7533 Draper Avenue
La Jolla, CA 92037
ph: (800) 338-2499 fax: (619) 459-3622
www.fences.com

Safeguards Technology
75 Atlantic Street
Hackensack, NJ 07601
(201) 488-1022

Secure Technology, Inc
23016 Del Lago Drive, Suite A
Laguna Hills, CA 92653
ph: (949) 707-4270 fax: (949) 707-4271
www.securetechnology.com

Fence and Gates, Chain Link

Boundary Fence and Railing Systems Inc.
131-02 Jamaica Avenue
Richmond Hill, NY 11418-2838
(800) 628-8928

Builders Fence Company
P.O. Box 125
Sun Valley, CA 91353-0125
ph: (800) 767-0367 fax: (818) 768-9454

Merchants Metal
10401 Glendale Blvd
Pacoima, CA 91331
(800) 336-2396

Gates, Tubular Steel

Boundary Fence and Railing Systems Inc.
131-02 Jamaica Avenue
Richmond Hill, NY 11418-2838
(800) 628-8928

Builders Fence Company
P.O. Box 125
Sun Valley, CA 91353-0125
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Sources for Selected Amenities List*

Los Angeles County Department of Public Works, The Los Angeles River Master Plan Landscaping Guidelines and Plant Palettes
Online at: <http://ladpw.org/wmd/>

Listing Form

If you would like to be listed in the Sources for Selected Amenities List, please fill out and return this form to: **LACDPW, Watershed Management Division.**
Attn: Los Angeles River Master Plan, 900 South Fremont Ave. 11th floor, Alhambra, CA, 91803. By Fax: (626) 457-1526

Business Name: _____ Phone Number: _____

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Website: _____ email: _____

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You are a (check all that apply): Manufacturer Distributor Supplier

Describe the products you carry (please include the brand name):

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* The County of Los Angeles Department of Public Works is not obligated to include your name on the list. Including your name on the list does not expressly or implicitly mean that the County of Los Angeles Department of Public Works recommends or endorses your company or the products that you sell.

Glossary

Alluvium/Alluvial. Any soil or rock material deposit transported by water.

Aspect. The direction of exposure of a site to environmental factors, such as, sunlight.

Canopy. The uppermost continuous layer of foliage in forest vegetation formed by the crowns of the trees.

Disturbance. Environmental fluctuations and destructive events, both man-made as well as natural, whether or not these are perceived as 'normal' for a particular system.

Diversity. Full range of variety and variability within and among living organisms, their associations, and habitat-oriented ecological complexes. Term encompasses ecosystem, species, and landscape as well as intraspecific (genetic) levels of diversity.

Forest. An area of closely canopied trees.

Habitat. The locality, site and particular type of local environment occupied by an organism; includes food, water, shelter, cover, and the ability to raise young.

Horizontal Structure. Patchiness; the composition and distribution of species that varies widely from one spot to the next.

Indeterminate Growth. Growth that continues throughout the life span of an individual.

Indigenous. An organism or species that occurs naturally in an environment or region.

Mafic. Pertaining to rocks rich in magnesium and iron.

Mycorrhizae. Largely symbiotic relationships between large and taxonomically diverse groups of fungi and vascular plants that al-

lows for the uptake of water and minerals by the vascular plant, and for the uptake of sugars and carbohydrates from the vascular plant by the associated fungus.

Perennials. Plants that persist for several years with a period of growth each year.

Propagule. Any part of an organism, produced sexually or asexually, that is capable of giving rise to a new individual. (for plants: seeds, cuttings, divisions, etc.)

Restoration. Altering an area in such a way as to reestablish an ecosystem's structure and function, usually bringing it back to its original (pre-disturbance) state or to a healthy state close to the original. Management techniques that attempt to enhance or bring back the natural predisturbance form and functions of a self-sustaining community or ecosystem; measures taken to return a site to predisturbance conditions.

Revegetate. Establish vegetation on disturbed lands.

Rhizomatous. Having an underground horizontal stem that bears reduced scaly leaves.

Riparian. Refers to the banks of a stream or river, usually characterized by hydrophilic (water-loving) vegetation.

Senescence. The biological process of aging.

Solarizing. Weed management technique whereby sunlight is used to kill weed seed in the soil by using either transparent or black plastic to capture radiant heat energy from the sun, thereby causing physical, chemical and biological changes in the soil. Solarization reduces populations of weeds, disease-causing organisms, harmful invertebrates and insect pests in the top three to six inches of soil with-

out environmental contamination; and increases populations of warmth loving beneficial soil organisms.

Structure. See horizontal structure and vertical structure.

Succession. The geological, ecological or seasonal sequence of species within a habitat or community.

Understory. The vegetation layer between the overstory or canopy and the groundlayer of a forest or woodland community.

Vegetation. The assemblage of plant species in a given area; also used as a general term for plant life.

Vertical Structure. Division of vegetation into distinct layers, each adapted to increasingly filtered sunlight if going top down. The layers are: canopy, understory, groundlayer, and the forest (or woodland) floor. Not all forests and woodlands have each layer.

Woodland. An area of canopied trees with greater distances between trees than found in forested areas.

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