

GUIDELINES FOR DEVELOPMENT IN RIPARIAN AND WATERSHED AREAS AND FIRE RISK ASSESSMENT

**DOMINICAN RESIDENTIAL DEVELOPMENT
ASSESSOR'S PARCEL NUMBER 015-163-03
SAN RAFAEL, CALIFORNIA**

PREPARED FOR
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PURPOSE

As a response to the Development Application, the City of San Rafael in their January 4, 2024 response letter (File No: CDR23-002, ED23-062, TS23-001, PLAN23-081) requested that the Applicant provide "a biological survey, which classifies portions of the site by their degree of risk of plant communities from wildland fires and establishes guidelines for development in riparian and watershed areas". This memo with attachments provides the Guidelines for Development in Riparian and Watershed Areas and a Fire Risk Assessment.

PROJECT SUMMARY

The Dominican Residential Development Project proposes to development residential housing on a currently vacant 20.79-acre site located at the intersection of Magnolia Avenue and Deer Park Avenue. The proposed project proposes to subdivide the property into 50 parcels and construct a total of 50 residential units to include 27 single-family homes ranging in size from 2,612 to 3,215 net sq. ft., 17 townhomes ranging in size from 1,150 to 1,390 net sq. ft., and six duplex units of 1,705 net sq. ft. each. Additionally, 14 Junior Accessory Dwelling Units (JADUs) are proposed.

FIRE RISK ASSESSMENT

The Project was designed to cluster development and avoid areas onsite with steep topography and the densest areas of vegetation, which are factors in fire risk. However, large portions of the site include fire-prone vegetation, such as eucalyptus and California bay trees. A Fire Risk Assessment has been developed by MWS consulting and is attached to this memo (Attachment A) to define the recommended extent of defensible space around the development and recommend removal of vegetation types within those zones.

WETLAND AND STREAM PROTECTION GUIDELINES

The Project was designed to cluster development and avoid areas onsite with steep topography. This design helps to avoid some of the drainages and riparian areas where they exist. The development maintains a 25-ft buffer from Sisters Creek top of bank.

The following guidelines will be used in the development of the Project for jurisdictional and non-jurisdictional waters and wetlands and associated riparian areas where they exist.

1. If work will be done within any jurisdictional watercourse or wetlands, regulatory permits from the US Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and the Department of Fish and Wildlife (CDFW) will be applied for before the work commences.
2. If work is needed within or adjacent to flowing waters, the waters will be separated from the work using cofferdams and a water diversion feature.
3. The work will not divert, obstruct, or alter in any way the courses or bed of any watercourse, drainage basin or channel within the city without first applying for all required regulatory permits.
4. No persons will deposit, or cause to be deposited, or to permit to accumulate in any watercourse any litter, brush, stumps, earth, household trash, rubbish, or garbage or any other material or matter which can or may obstruct, divert or interfere with the natural flow of water, or to deposit, or cause to be deposited, or to permit to accumulate any of the aforementioned material in, or on, any bank adjacent to the watercourse without first acquiring all required regulatory permits.
5. Creek setbacks will be determined for each stream identified.
 - a. A creek setback will be determined that will provide for adequate maintenance, emergency vehicle access, adequate debris flow avalanche corridors, flood control, protection from damage due to stream bank undercutting, and will adequately protect and preserve native riparian and wildlife habitat.
 - b. A creek setback will protect major view corridors and provide for recreation opportunities where appropriate.
 - c. The setback permits provision of adequate and attractive natural landscaping.
 - d. The creek setback will be determined through a determinization and assessment of current habitat values of any creeks, the adjacency and magnitude of the impact, and the loss of functional habitat values subject to review by the appropriate resource agencies such as the US Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Wildlife.
6. Wetland setbacks shall be determined for each jurisdictional wetlands identified.
 - a. A wetland setback will be measured from the edge of a wetland, as determined through application of the procedures in City of San Rafael Code of Ordinances (“SR Code”) Section 14.13.05(A), Determination of wetland boundaries. The setback from a creek or drainage way wetland, or from the San Rafael Canal, will be established and measured consistent with the provisions of SR Code Section 14.16.080, Creeks and other watercourses of this title. The
 - b. The wetland setback will be determined through a determinization and assessment of current habitat values of any wetlands, the adjacency and magnitude of the impact, and the loss of functional habitat values subject to review by the appropriate resource agencies such as the US Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Wildlife.
 - c. If an appropriate wetland setback cannot be adhered to or if impacts to wetlands are anticipated, permits from the US Army Corps of Engineers and Regional Water Quality Control Board must be sought.
7. Appropriate measures, such as fencing and screening, landscaping, and natural habitat areas will be implemented to minimize adverse impacts on wetlands and wetland habitat.
8. Landscaping and vegetation installed within the wetland setback will be native plant species that are indigenous to the area and selected to enhance and/or protect habitat for the present wildlife species.
9. During construction, every precaution shall be taken to prevent the disruption or degradation of adjacent wetlands. Best-management practices will be implemented to minimize siltation, sedimentation and erosion, subject to approval by the department of public works. To ensure that sediment remains on the site and is not transported into wetlands, erosion and sediment controls will be left in place until the site is stabilized with permanent vegetation.
10. Stormwater runoff systems will be designed to:

- a. Maintain adequate water flows to any potential wetlands so as to maintain its integrity; and
 - b. Ensure that stormwater runoff is substantially free of debris, pollutants and silt. Stormwater runoff management proposals will be submitted and will be subject to approval by the community development department, planning division and the department of public works.
11. Loss of wetlands due to filling will be strictly avoided, unless it is not possible or practical. Filling of wetlands is permitted only when it is demonstrated and determined that, due to site constraints and unique site conditions, wetland fill cannot be avoided by reducing the size, scope, configuration, intensity or density of the development, or by changing the design of the development in a way that would avoid or result in fewer adverse effects on the wetland.
- a. If it is demonstrated that wetland fill cannot be avoided, a use permit to authorize the fill through the planning commission will be sought. Wetlands will be replaced, in-kind and on-site at a minimum ratio of 2:1 (two (2) acres of new wetland for every one (1) acre of wetland that is filled). If it is not possible or practical to create new, on-site wetland, off-site, in-kind replacement will be at a minimum ratio of 3:1. All wetland fill and replacement will be reviewed and authorized consistent with the provisions of SR Code Section 14.13.080(C), Required wetland restoration or creation, and SR Code Section 14.13.070, Findings.
 - b. If small wetlands that are 0.1-acres in size are impacted, a waiver will be requested to the planning commission for fill of small wetlands, given that:
 - i. the wetland is isolated meaning that it is not within, a part of, directly connected with or hydrologically-linked by natural flow to a creek, drainageway, wetland or submerged tidelands;
 - ii. it is demonstrated by a qualified wetland expert the preservation of the wetland is not practical as it would not result in a functioning, biological resources because of its isolation;
 - iii. the city has determined that filling will result in a more appropriate and desirable site plan for the project; and
 - iv. the city consults with and considers comments received from the appropriate resource agencies with wetland oversight (e.g., California Department of Fish and Wildlife and/or California Regional Water Quality Control Board)
11. Removal of wetland vegetation or changing of drainage characteristics by private parties which adversely affects will be avoided and if needed, a use permit will be acquired. (see SR Code Section 14.13.070, Findings).

RIPARIAN PROTECTION GUIDELINES

1. Work will avoid, where feasible, impacting a riparian corridor and vegetation.
2. If work is done within the riparian corridor or within riparian habitat, regulatory permits from the RWQCB and CDFW will be applied for.
3. Vegetation removal will be kept to the minimum necessary.

WATERSHED PROTECTION GUIDELINES

1. An Erosion and Sediment Control Plan (ESCP) will be submitted for review and approval by the City. The project applicant will follow the most recent version of the MCSTOPPP Construction Erosion and Sediment Control Plan Applicant Package. At a minimum, the ESCP will include:
 - a. Description of the proposed project and soil disturbing activity;
 - b. Site specific construction-phase Best Management Practices (BMPs);
 - c. Rationale for selecting the BMPs;
 - d. List of applicable outside agency permits associated with the soil disturbing activity, such as: Construction General Permit (CGP); Clean Water Act Section 404 Permit; Clean Water Act Section 401 Water Quality Certification; Streambed/Lake Alteration Agreement (1600 Agreements).

- e. If the project requires coverage under the CGP issued by the State Water Resources Control Board (SWRCB), Permit Registration Documents will be filed with the SWRCB for said coverage and a copy of the Waste Discharge Identification Number will be submitted to the City prior to issuance of a permit for construction. The project applicant will submit the Storm Water Pollution Prevention Plan (SWPPP) required by the General Construction Activity Stormwater Permit in lieu of the ESCP provided it meets the requirements of the ESCP.
 - f. The ESCP will be implemented year round and must be updated to reflect changing conditions on the project site. Any modifications to the ESCP shall be submitted to the City for review and approval.
2. Vegetation removal will be kept to a minimum.
 3. No discharge of non-stormwater discharges to the city's storm drain system will occur. Any discharges other than stormwater will be in compliance with a NPDES permit issued for the discharge.
 4. Any activities which will or may result in pollutants entering the city storm drains will undertake all practicable measures to cease such activities and to eliminate or reduce such pollutants.
 5. Except for pollutants lawfully disposed of by way of containers or at a licensed dumping grounds, the project will not throw, deposit, leave, maintain, keep or permit to be thrown, deposited, placed, left or maintained, any refuse, rubbish, garbage, or other discarded or abandoned objects, articles and accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin, conduit or other drainage structures, business place, or upon any public or private lot of land or other premises in the city, so that the same might be or become a pollutant discharged to water.
 6. The ESCP will address erosion and sediment control and pollution prevention during the construction phase as well as final stabilization control measures. The ESCP and the specific control measures to be utilized will be subject to the review and approval of the City. The ESCP will be implemented year-round and will be revised to reflect changing conditions on the project site. The City shall require modifications of an approved ESCP if during the course of construction at a site unanticipated conditions occur or the plans prove inadequate for the intended purpose. Revisions of the approved ESCP will be submitted to the agency for review and approval.



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Attachment: Fire Hazard Assessment



MWS Consulting

Memorandum

Date: March 28, 2024

Project: Dominican Valley Housing

APN: 015-163-03

From: Megan W. Stromberg
MWS Consulting

Subject: Fire Hazard Assessment

The Dominican Valley property is a 20.79 Acre site located in the Dominican / Black Canyon neighborhood of San Rafael. The subject site is bordered northwesterly between the streets of Gold-Hill grade and Deer Park Ave and southerly by Highland Ave and Margarita Drive. The development proposes Subdivision of the site into 50 lots with 50 units of residential housing (+14 Attached Junior ADUs).

FIRE HAZARD ASSESSMENT MATRIX

MWS Consulting prepared a fire-hazard-assessment matrix that defines the recommended extent of defensible space based on site features including aspect, slope, and vegetation type. The fire-hazard-assessment matrix was prepared in accordance with Fire Protection Standard 100 for the San Rafael Fire Department (See Appendix 1).

The fire-hazard-assessment matrix provides a recommended clearance distance from the building. Clearance includes removal of fire prone species such as Eucalyptus, brooms, and California Bay, which are commonly found on-site. Remaining existing plants should also be thinned such that the distance between tree canopies and shrubs is adequate to prevent fire spread between individuals. Shrubs should have a minimum of 2 times the shrub height between individuals with increased spacing on slopes. Trees should have a minimum of 10' spacing between individuals with 20' to 30' required on slopes. Specific plant removal recommendations are included in the matrix for each lot. Recommendations assume that the tree removals shown on sheet L1 dated March 25, 2024 will be implemented. Additional requirements

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from the San Rafael Fire Department are possible above and beyond those included in the Matrix.

Sheet F1 shows the associated Clearance Zones evaluated in the Hazard Assessment Matrix.

Assessment Zone A (0' to 30') - The project is proposing to clear most trees within 30' of the proposed buildings with the exception of a few native trees. This zone will be planted and irrigated in most places (See Sheet L2). Planting in this zone should be primarily limited to groundcovers not exceeding 6" in height with adequately spaced taller shrubs. Rock mulch and wood mulch are appropriate to maintain soil moisture and reduce irrigation needs. See Planting Recommendations Section below for further recommendations regarding species choices.

Assessment Zone B (31' to 100') - The Fire Hazard Risk Assessment indicates that the project should remove pyrophoric vegetation including eucalyptus (*Eucalyptus* spp.), bay trees (*Ubellularia californica*), Scotch broom (*Cytisus scoparius*), and French broom (*Genista monspessulana*) to a distance of 50' to 100' (if downslope of the building) in most of the defensible zones as shown for each building site in the Hazard Assessment Matrix. Ground covers in this zone should also be maintained at a maximum height of 6" when within 50' of a structure and 18" when beyond 50'.

Assessment Zone C (101' to 200' or Property line) - The City's guidelines require assessment of up to 200' or the property line. Some of the proposed building sites include undeveloped areas beyond 200'. Many of these areas are dominated by pyrophoric vegetation such as Eucalyptus trees. The fire department may require removal of additional trees in these extended zones.

Riparian Buffer - In areas where the riparian buffer is within the recommended defensible space zone, trees may have additional habitat value. Despite the habitat value, Eucalyptus trees, broom, and other fire prone plants are not native and should still be removed within the riparian corridor. Where tree and brush removals are necessary in the riparian buffer for fire mitigation, replant the cleared area with fire resistant native species appropriate for riparian habitat.

CLEARING RECOMMENDATIONS

The range of slopes on the site is from 8% to over 30%. The slope aspects found on site are primarily northwest- and west-facing with a few sites that have south-facing aspects.

The dominant vegetation across most of the site is Eucalyptus and California Bay trees, with an understory of grasses and brush including Scotch broom, French broom, poison oak, and other shrubs and herbaceous plants, like ferns, oxalis, and other shade-loving species. Eucalyptus, California Bay, and brooms are considered fire prone and are recommended for removal within the recommended defensible space zone by the San Rafael fire department guidelines.

The fire-hazard-assessment matrix includes a recommended clearing distance for each building under the column 'Recommended Clearance'. The following diagram shows the layout of the recommended clearance distances.

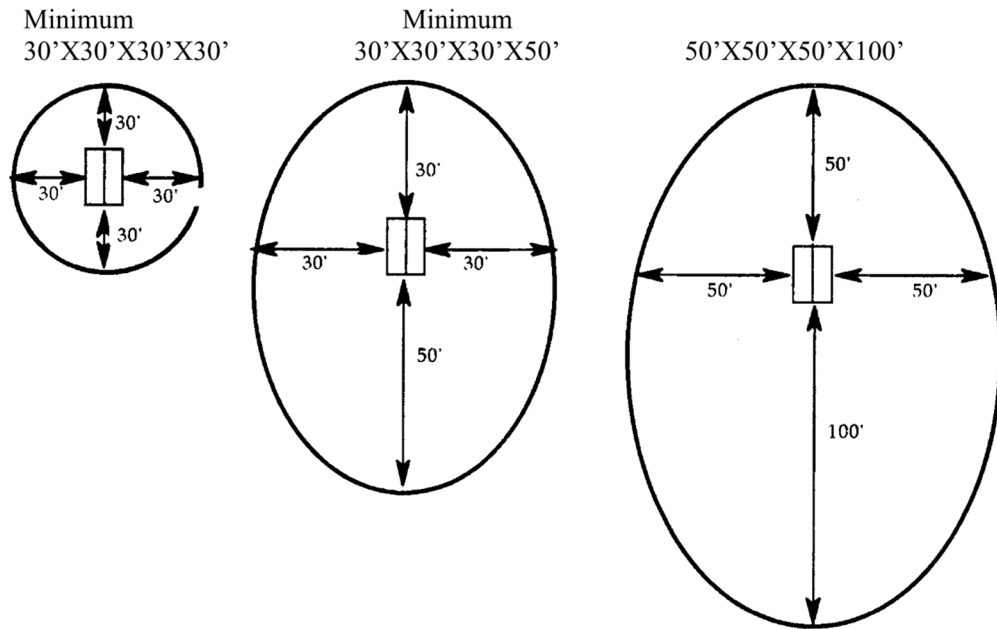


Figure 1 – Defensible Space Zones
The largest distance is downslope of the building.

PLANTING RECOMMENDATIONS

The City of San Rafael Fire Department publishes a plant list of fire prone plants (see Appendix 1) which are prohibited from being planted within the recommended defensible space zones. 'Gorilla hair' mulch is also prohibited due to its flammability although other types of mulch including bark, or chipped wood are encouraged to maintain soil moisture.

Sheet L3 of the Landscape Plans dated December 4, 2023, proposes three species that are on the prohibited Fire Prone Plants list:





- Arctostaphylos 'Howard McMinn' (Howard McMinn Manzanita)
- Baccharis pilularis 'Pigeon Point' (Prostrate coyote brush)
- Arctostaphylos 'Pacific Mist' (Pacific mist manzanita)

These three species should be replaced with alternatives from the Fire Resistant Plant List included in Appendix 1 or natives that are not on the Fire Prone list such as:

- Lupinus albifrons (Silver lupine)
- Mimulus aurantiacus (Monkeyflower)
- Symphoricarpos mollis (Snowberry)

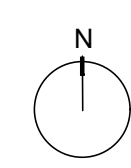
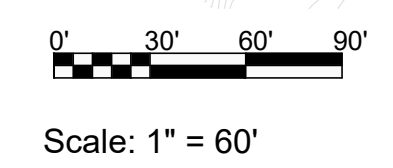
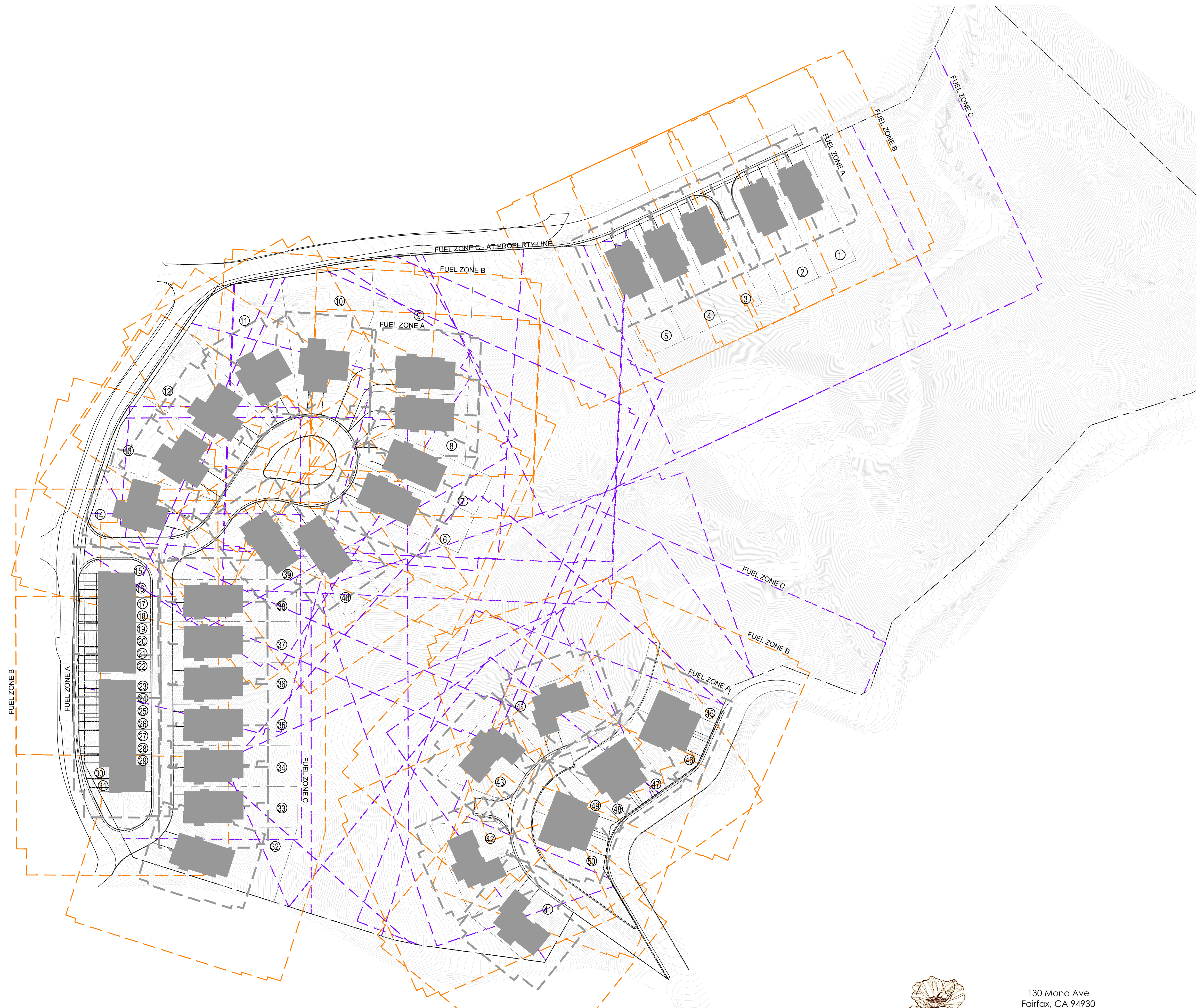
- *Ceanothus thyrsiflorus* griseus 'Point Sal' (Point Sal Carmel Creeper)
- *Berberis aquifolium* var. *repens* (Creeping barberry)

HAZARD ASSESSMENT LEGEND

-  BUILDING
-  ZONE A: 0' - 30'
-  ZONE B: 31' - 100'
-  ZONE C: 100' - 200' (OR PROPERTY LINE)

FIRE HAZARD ASSESSMENT MATRIX

BLDG/ LOT #	ASPECT	PTS	SLOPE %	PTS	FUEL ZONE A	PTS	FUEL ZONE B	PTS	FUEL ZONE C (NO POINTS)	TOTAL PTS	RECOMMENDED CLEARANCE	COMMENTS
1	NW, W	3	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	16	50'X50'X50'X100'	MOST TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. & BROOM TO 50'-100'
2	NW	2	25%	6	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	13	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 30'
3	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. & BROOM TO 50'
4	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. & BROOM TO 50'-100'
5	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. & BROOM TO 50'-100'
6	SW	5	28%	6	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	16	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. & BROOM TO 50'-100'
7	SW	5	24%	6	SPECIMEN GARDEN, HARDWOOD	2	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	17	50'X50'X50'X100'	MOST TREES REMOVED WITHIN 30'; ONE NATIVE TREE TO REMAIN. REMOVE EUC. AND BROOM TO 50'-100'
8	W	3	30%	6	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	14	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. AND BROOM TO 50'-100'
9	NW	2	30+	8	PYROPHORIC HARDWOODS	6	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	20	50'X50'X50'X100'	MOST TREES TO BE REMOVED WITHIN 30'; REMOVE EUC. AND BROOM TO 50'-100'
10	NW, S	4	16%	4	PYROPHORIC HARDWOODS	6	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	18	50'X50'X50'X100'	TREES TO REMAIN ALONG CREEK WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
11	NW	2	13%	4	PYROPHORIC HARDWOODS	6	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	16	50'X50'X50'X100'	TREES TO REMAIN ALONG CREEK WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
12	W	3	16%	4	PYROPHORIC HARDWOODS	6	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	17	50'X50'X50'X100'	TREES TO REMAIN ALONG CREEK WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
13	NW	2	8%	2	SPECIMEN GARDEN	1	SPECIMEN GARDEN	0	PYROPHORIC HARDWOODS	5	30'X30'X30'X30'	ALL TREES TO BE REMOVED WITHIN 100'
14	NW	2	19%	4	SPECIMEN GARDEN	1	SPECIMEN GARDEN, CONIFERS (ADJ. PROPERTY)	5	PYROPHORIC HARDWOODS	12	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 30'
15-22	NW	2	31%	8	SPECIMEN GARDEN	1	SPECIMEN GARDEN	0	BRUSH	11	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 180'. REMOVE BROOM EAST OF LOTS 32-39
23-31	NW	2	30+	8	SPECIMEN GARDEN	1	SPECIMEN GARDEN	0	BRUSH	11	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 150'. REMOVE BROOM EAST OF LOTS 32-39
32	SW	5	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	18	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
33	SW	5	29%	6	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	16	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
34	W	3	27%	6	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	14	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'
35	W	3	27%	6	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	14	30'X30'X30'X50'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'
36	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
37	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
38	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
39	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
40	N	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
41	NW	2	19%	4	SPECIMEN GARDEN, MOSTLY GRASS	3	PYROPHORIC HARDWOODS, MOSTLY BRUSH	4	PYROPHORIC HARDWOODS	13	30'X30'X30'X50'	REMOVE EUC. TO 50' DOWNSLOPE
42	W	3	27%	6	SPECIMEN GARDEN, MOSTLY GRASS	3	MOSTLY GRASS, PYROPHORIC HARDWOODS	3	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	REMOVE EUC. TO 100' DOWNSLOPE
43	NW	2	23%	6	SPECIMEN GARDEN, MOSTLY BRUSH	3	MOSTLY GRASS, PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	REMOVE EUC. AND BRUSH TO 100' DOWNSLOPE
44	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
45-46	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
47-48	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'
49-50	NW	2	30+	8	SPECIMEN GARDEN	1	PYROPHORIC HARDWOODS	4	PYROPHORIC HARDWOODS	15	50'X50'X50'X100'	ALL TREES TO BE REMOVED WITHIN 30'. REMOVE EUC. AND BROOM TO 50'-100'



Appendix 1
Fire Protection Standard 100 for the San Rafael Fire Department

SAN RAFAEL FIRE DEPARTMENT



Developed by

Patrick Bignardi, Vegetation
Management Specialist

Approved by

Chris Gray, Fire Chief

Fire Prevention Bureau Standard

Vegetation Standard 100

Vegetation Management Plan (VMP)

Date: 10/02/2017

Revision: 2

Page: 1 of 14

This Standard has been developed pursuant to the 2016 California Fire Code, the 2015 International Fire Code and Appendix B of the 2015 Edition of the International Wildland Urban Interface Code, all as adopted by local ordinance by the City of San Rafael and Section 4290 and 4291 of the Public Resources Code. Fuel modification distances, type of vegetation and topographic features are factors in determining adequate green belts and fire fuel modification around structures. This methodology is implemented for the primary purpose of providing time for fire suppression personnel and equipment to respond and establish effective operational tactics and strategies during an ensuing wildland fire.

This standard applies to all new homes and structures, subdivisions, and those buildings that are undergoing substantial remodel that are within the Wildland-Urban Interface as defined by the San Rafael Fire Department.

Included here are requirements for submitting a vegetation management plan (VMP), and a fire-hazard-assessment matrix that defines the recommended extent of defensible space based on site features including aspect, slope, and vegetation type. Guidelines for treating vegetation within the recommended defensible space are also provided.

This standard will determine the minimum required defensible space without reference to property lines. If the minimum required defensible space crosses property lines, the property owner will be required to obtain a “defensible space easement” from the adjoining property owner. If this cannot be obtained, the proposed structure may be required to be re-sited. For existing structures, additional fire protection measures may be required to mitigate a reduction in the required defensible space.

I. General

- A. The Vegetation Management Plan referred to hereinafter as the VMP shall be submitted to the Fire Marshal for review prior to implementation. The VMP shall be submitted in two forms, line drawings and text format describing specific and applicable contributing factors in the selection and design of the plan.

II. VMP Content

- A. The VMP shall include at the minimum:
 1. The entire “plan content” elements described in narrative form. A text narrative describing specific and applicable contributing factors in the selection and design of the plan and scope of work.
 2. Vegetation management and defensible space agreement to perform annual maintenance. An Annual Maintenance Plan to include a statement agreeing to “maintain annually”, the required defensible space and vegetation annually.

SAN RAFAEL FIRE DEPARTMENT



Developed by

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3. Not less than three (3) complete graphic plan sets should be submitted to the San Rafael Building Department for review. The plan sets are required to show the structure(s) and its defensible space zone, the location and configuration of existing plants/shrubs/trees, delineate those planned to be removed and/or modified, and the location, name and configuration of vegetation to be planted.
4. The Hazard Assessment Matrix
5. The list of plants to be used and/or retained.
6. Irrigation Graphic Plan. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance.
7. San Rafael Fire Department permit application with permit fee deposit.

****Landscape plans will be rejected unless they include a specific outline of the information required by this standard****

III. Determining Risk

- A. Using the Hazard Assessment Matrix in the back of this standard, determine the hazard points of the specific property.
- B. Aspect. This is the direction in which the face of the slope is situated.
- C. Slope. This is the degree of angle on the site that the structure is to be placed.
- D. Fuel. Zone A - Identify from the fuel type list on the hazard assessment matrix what vegetation is mostly represented in the 0 to 30 ft. zone from the proposed structure.
- E. Fuel. Zone B - Identify the fuel type list on the hazard assessment matrix what vegetation type is most represented in the 31 to 100 ft. zone from the proposed structure.
- F. Fuel. Zone C - Identify the fuel type list on the hazard assessment matrix what vegetation type is most represented from the outermost edge of Zone B up to 200 feet from structure or to property line.
- G. Total the hazard assessment points for each category. This will provide a set of distances that clearance is required around the proposed structure.

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IV. Plant List and Selection within the Zone

- A. The entire defensible space zone (see Figure II) shall be planted (if applicable) and irrigated if necessary.
- B. By using the FireScape Plant selection list on the University of California Cooperative Extension Pyrophytic vs. Fire Resistant Plants brochure or attached list (Table 2) of Fire Resistant Plant List as determined by the Fire Marshal, select use of native, domestic or combination thereof that best suits the architectural and planning design of the proposed project. Slope, soil type, drought resistance should be considered when selecting plant types. Also, see the attached list (Table 1) of Fire Prone prohibited plants. Note that these lists are not all-inclusive and some proposed plants may be deleted from your project.
- C. Zone A - Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers not exceeding 6 inches in height, and adequately spaced shrubs. Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation and fire resistance. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment. Plants in Zone A shall be inherently highly fire resistant and spaced appropriately.
- D. Fuel. Zone B - Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation and fire resistance. Landscaping and vegetation in this zone shall typically consist primarily of green lawns, ground covers, and adequately spaced shrubs and trees. Unless otherwise approved, Ground covers shall be maintained at a height not to exceed 6 inches in Zone A and B. If on a slope 12 inches is acceptable in Zone B within 50 feet of a structure and 18 inches beyond 50 feet. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment. Specimen native plants may be approved to remain if properly maintained for adequate defensible space. Plants in Zone B shall typically be fire resistant and spaced appropriately.
- E. Fuel. Zone C - Required thinning and clearance will be determined upon inspection. Required clearance may increase to the maximum allowed by the Fire Code as needed because of vegetation growth. Irrigation systems are not required for this zone if it consists entirely of native plants. (Native plants are generally not compatible with regular, unseasonal supplemental water.) Vegetation in this zone may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. In all cases the overall characteristics of the landscape shall provide adequate defensible space in a fire environment. Plants in Zone C shall be spaced appropriately. Existing native vegetation shall be modified by thinning and removal of those species constituting a fire risk.

Please Note: Chipped wood and mulch can provide an excellent thermal barrier, which will help prevent, lost moisture in ground fuels. However, shredded bark, sometimes referred to as

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“monkey hair” is prohibited from use because its ease of ignition and fire spread characteristics.

V. Plant Spacing and Crown Separation

- A. Regardless of plant selection, shrubs should be spaced so that no continuity exists between the ground fuels and tree crowns, such that a ground fire will not extend into the tree canopy.
- B. Trees should be planted such that when mature, their crowns will be separated by at least 10 feet. Add an additional five feet for every ten (10%) percent increases in slope. Existing trees may be required to be thinned and/or removed depending on their configuration and distance from the structure(s).
- C. Separate individual shrub crowns by at least two times the height or clump shrubs into islands of no greater than 18-ft. diameter. Separate the islands by a distance of no less than two times the canopy height.

VI. Adjacent to Roadways and Driveways:

- A. Trim and maintain vegetation within 10 feet of roadways as for defensible space.
- B. Trim trees so they do not hang lower than 15-ft. above the roadway.

Figure I

HAZARD ASSESSMENT MATRIX									
Hazard Points	1	2	3	4	5	6	7	8	Points
Aspect	NE, E	NW, N	SE, W	S	SW				
Slope		0-10		11-20		21-30		31+	
Fuel 0-30	Specimen Garden	Hardwood	Grass	Mostly Grass	Mostly Brush	Pyrophoric Hardwoods Chaparral	Conifer	Conifer w/brush under story	
Fuel 31-100	Grass, Mostly Grass	Mostly Brush		Pyrophoric Hardwoods Chaparral	Conifer with brush under story				

Total Hazard Points _____

Minimum Horizontal Modification Requirement in feet _____

Hazard Points:

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1 2 3 4 5 6 7	8 9 10 11 12 13 14	15 16 17 18 19 20 21 22 23 24 25 >
30x30x30 ft.	30x30x50 ft	50x50x100 ft.

V. Fuel Types:

- A. Specimen Garden: a well-maintained ornamental garden, usually irrigated. Trees and shrubs are well spaced or clustered, thinned and free of deadwood. The lawn is mowed and clean. No pyrophytic plants within 15 ft. of house.
- B. Hardwood (Model 9): Broadleaf (non-pyrophytic) trees such as oaks, maples, ash, etc.
- C. Grass (Model 1): Wild field grass dominates; trees and shrubs occupy less than 1/3 of the area.
- D. Mostly Grass (Model 2): Brush and tree reproduction occupy more than 1/3 and less than 2/3 of the area.
- E. Mostly Brush (Model 5): Brush and tree reproduction occupies 2/3 of the area. Includes young chaparral, coastal scrub and broom stands.
- F. Pyrophytic Hardwoods (Model 12): Broadleaf trees that is high in volatile oils, which produce heavy debris and burn intensely. May have some conifers mixed in but the flammable hardwoods dominate the fire behavior.
- G. Chaparral (Model 4): Six foot and taller old, pyrophytic brush with excessive deadwood. Includes mixed chaparral of Manzanita, scrub oak, chaparral pea, tall ceanothus, chamise, etc. Often has some young Douglas fir or pines.
- H. Conifer (Model 8): Needleleaf trees typically with heavy litter, low branches and plentiful deadwood. Often mixed with some hardwoods or even pyrophytic hardwoods, but conifers dominated and carry the fire.
- I. Conifer with Brush Understory (Model 10): Pine and Douglas Fir with heavy brush and down & dead branches and suppressed trees in the understory.

VI. Slope Influence on Minimum Defensible Space Clearances

Increasing slopes require increased defensible space clearances to be equally effective. For example, to be equally effective upslope, cross slope, and down slope clearances, around each structure must be increased as percentage of slope increases when compared to level terrain.

Rate of spread, flame length, convective and radiant heat increase in relation to fuel type, aspect, and percentage of slope factors. Increased defensible space zone radiuses in relation to slope are required around structures through fuel modification and reduction.

Note increased upslope and cross slope defensible space clearance requirements related to increase in slope. Minimum recommended cross slope and upslope increases are shown. Specific terrain may require adjustment:

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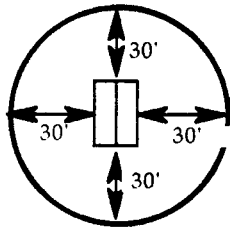
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Figure II

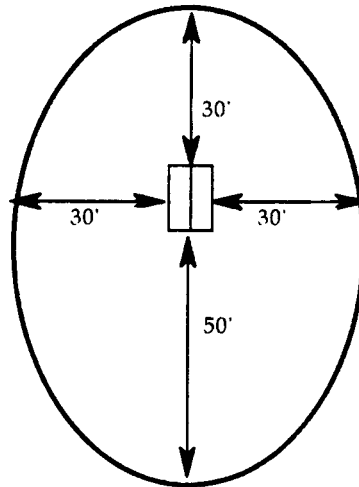
Defensible Space Zones

Minimum
30' X 30' X 30' X 30'



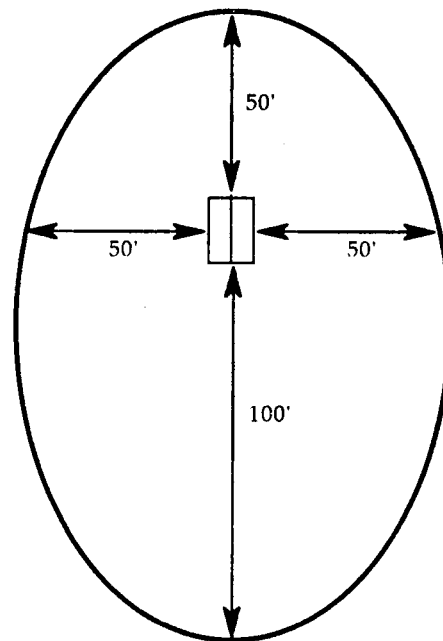
Level
0-10%

Minimum
30' X 30' X 30' X 50'



Moderate Slope
11-30%

50' X 50' X 50' X 100'



Steep Slope Greater than
30%

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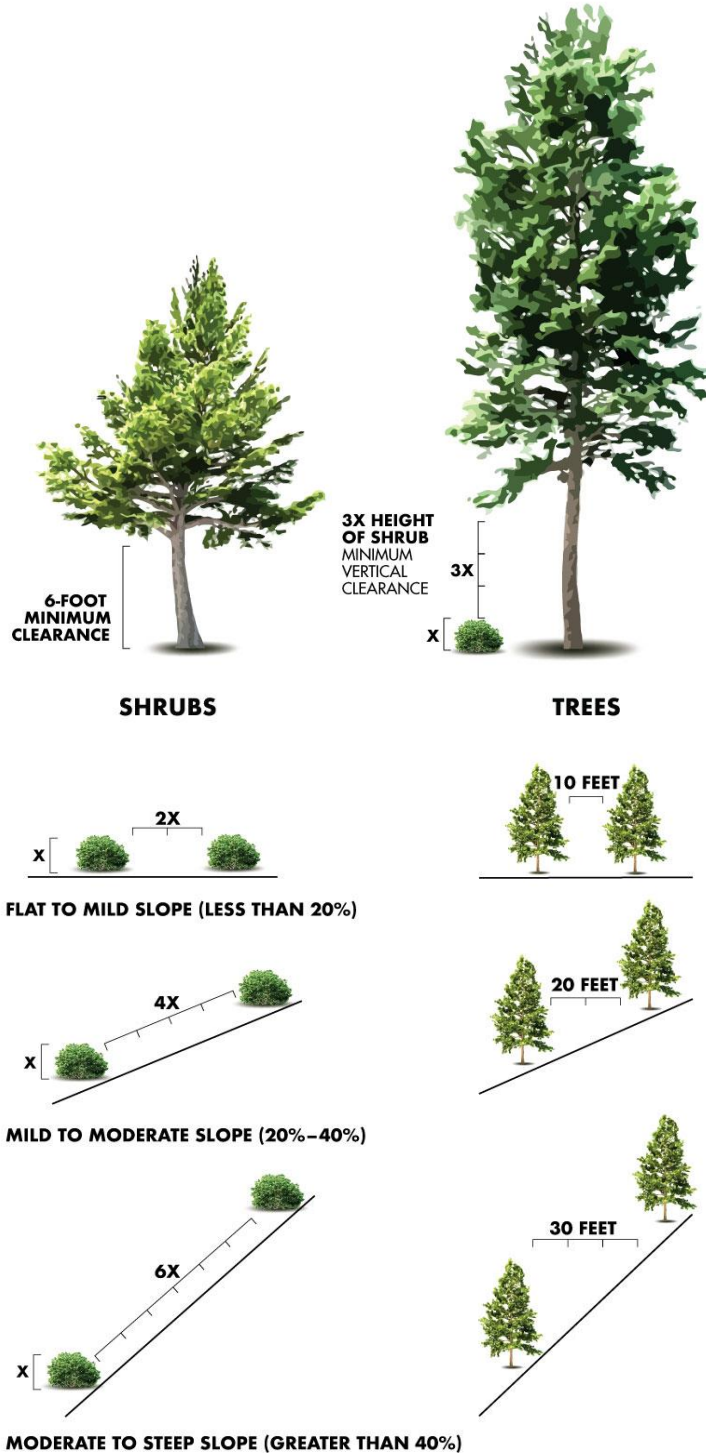
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Figure II

Vertical Clearance, Horizontal and Slope Spacing



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Table 1

Fire Prone Plants

This is a list of common native and non-native fire prone plant species in Marin County. Plants marked "Avoid" should not be planted, be removed if possible, and require greater maintenance and care if allowed to remain in the Defensible Space Zone.

	<u>Scientific Name</u>	<u>Common Name</u>	<u>Lifeform</u>	<u>Recommendation</u>	<u>Native</u>
1	<i>Abies spp.</i>	Firs	Tree	Remove	
2	<i>Acacia spp.</i>	Acacia species	Tree	Remove	
3	<i>Adenostoma fasciculatum</i>	Chamise, Greasewood	Shrub	Remove	X
4	<i>Arctostaphylos spp.</i>	Manzanita (some twiggy)	Shrub	Remove	
5	<i>Baccharis spp.</i>	Coyote Brush	Shrub	Remove	X
6	<i>Bambusa spp.</i>	Bamboo	Shrub, Grass	Remove	
7	<i>Cortaderia jubata</i>	Jubata Grass	Grass	Remove	
8	<i>Cortaderia selloana</i>	Pampas Grass	Grass	Remove	
9	<i>Cupressus spp.</i>	Cypress	Tree	Remove	
10	<i>Cytisus scoparius</i>	Scotch Broom	Shrub	Remove	
11	<i>Eucalyptus spp.</i>	Eucalyptus	Tree	Remove	
12	<i>Genista monspessulana</i>	French Broom	Shrub	Remove	
13	<i>Juniperus spp.</i>	Junipers	Tree, Shrub	Remove	
14	<i>Notholithocarpus densiflorus</i>	Tan Oak, Tanbark Oak	Tree	Remove	X
15	<i>Pennisetum spp.</i>	Fountain Grass	Grass	Remove	
16	<i>Picea spp.</i>	Spruces	Tree	Remove	
17	<i>Pinus attenuata</i>	Knobcone Pine	Tree	Remove	
18	<i>Pinus coulteri</i>	Coulter Pine	Tree	Remove	
19	<i>Pinus muricata</i>	Bishop Pine	Tree	Remove	X
20	<i>Pinus radiata</i>	Monterey Pine	Tree	Remove	
21	<i>Pinus sabiniana</i>	Gray Pine	Tree	Remove	
22	<i>Pinus serotina</i>	Pond Pine	Tree	Remove	X

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	<u>Scientific Name</u>	<u>Common Name</u>	<u>Lifeform</u>	<u>Recommendation</u>	<u>Native</u>
23	<i>Pinus sylvestris</i>	Scots Pine	Tree	Remove	
24	<i>Pinus torreyana</i>	Torrey Pine	Tree	Remove	
25	<i>Rosmarinus officinalis</i>	Rosemary	Shrub	Remove	
26	<i>Spartium junceum</i>	Spanish Broom	Shrub	Remove	
27	<i>Thuja spp.</i>	Arborvitae	Tree	Remove	
28	<i>Tsuga spp.</i>	Hemlock	Tree	Remove	
29	<i>Ulex europea</i>	Gorse	Shrub	Remove	
30	<i>Umbellularia californica</i>	California Bay	Tree	Remove	X
31	<i>Artemisia californica</i>	Coastal Sagebrush	Shrub	Avoid	X
32	<i>Cedrus spp.</i>	Cedars	Tree	Avoid	
33	<i>Chamaecyparis spp.</i>	False Cypress	Tree	Avoid	
34	<i>Chrysolepis chrysophylla</i>	Chinquapin, Giant	Shrub, Tree	Avoid	X
35	<i>Erigonum fasciculatum</i>	California Buckwheat	Shrub	Avoid	
36	<i>Larix spp.</i>	Larch	Tree	Avoid	
37	<i>Palms</i>	Palm (if dry fronds)	Tree	Avoid	
38	<i>Pickeringia montana</i>	Chaparral Pea	Shrub	Avoid	X
39	<i>Pseudotsuga menziesii</i>	Douglas-Fir	Tree	Avoid	X
40	<i>Quercus spp.</i>	Scrub Oak (brushy oaks)	Shrub	Avoid	X
41	<i>Salvia mellifera</i>	Black Sage	Shrub	Avoid	
42	<i>Taxus spp.</i>	Yew	Tree, Shrub	Avoid	
43	<i>Vaccinium ovatum</i>	Evergreen Huckleberry	Shrub	Avoid	X

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Table 2

Fire Resistant Plant List

This is a curated list of common native and non-native fire safe plant species suitable to the climate in Marin County. This list is not comprehensive - other suitable plants may be fire resistant. These are preferred species for landscaping around homes in the Wildland Urban Interface. These plants exhibit relatively more resistance to burning when exposed to fire. To ensure fire-resistance, all plants on this list must be maintained in a living state, irrigated properly, and must be kept free of dead or dry twigs and material at all times.

	Scientific Name	Common Name	Lifeform	Recommendation	Native
1	Acer spp.	Maple	Tree	Preferred	
2	Achillea millefolium	Yarrow	Perennial	Preferred	X
3	Achillea tomentosa	Woolly Yarrow	Perennial, Cover	Preferred	
4	Aeonium spp.	Aeonium	Perennial	Preferred	
5	Agapanthus spp.	Lily-of-the-Nile	Perennial	Preferred	
6	Agave spp.	Agave	Perennial	Preferred	
7	Ajuga reptans	Carpet Bugle	Cover	Preferred	
8	Aloe spp.	Aloe	Perennial	Preferred	
9	Aquilegia formosa	Western Columbine	Perennial	Preferred	X
10	Arbutus unedo	Strawberry Tree	Tree	Preferred	
11	Armeria maritima	Common Thrift	Cover	Preferred	X
12	Asarum caudatum	Wild Ginger	Perennial	Preferred	X
13	Berberis [Mahonia] aquifolium var. repens	Creeping Mahonia	Shrub	Preferred	X
14	Bergenia spp.	Bergenia	Perennial	Preferred	
15	Brugmansia spp.	Angel's Trumpet	Shrub	Preferred	
16	Carpenteria californica	Bush Anemone	Shrub	Preferred	
17	Centaurea cineraria	Dusty Miller	Perennial	Preferred	
18	Cerastium tomentosum	Snow-in-Summer	Cover	Preferred	
19	Ceratonia siliqua	Carob	Tree	Preferred	
20	Cercis occidentalis	Western Redbud	Tree	Preferred	X
21	Cercocarpus betuloides	Mountain Ironwood	Tree	Preferred	X
22	Citrus species	Citrus	Tree	Preferred	
23	Clinopodium [Satureja] douglasii	Yerba Buena	Perennial	Preferred	X

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	Scientific Name	Common Name	Lifeform	Recommendation	Native
24	Coleonema aka "Diosma"	Breath of Heaven	Shrub	Preferred	
25	Convolvus cneorum	Bush Morning Glory	Shrub	Preferred	
26	Coprosma kirkii	Creeping Coprosma	Cover	Preferred	
27	Coreopsis spp.	Coreopsis	Shrub	Preferred	
28	Cotyledon spp.	Cotyledon	Perennial	Preferred	
29	Crassula spp.	Crassula	Perennial	Preferred	
30	Delosperma "Alba"	White Trailing Iceplant	Cover	Preferred	
31	Dicentra formosa	Western Bleeding Heart	Perennial	Preferred	X
32	Dietes bicolor	African Iris	Perennial	Preferred	
33	Dietes vegeta	Fortnight Lily	Perennial	Preferred	
34	Drosanthemum sp.	Rosea Ice Plant	Cover	Preferred	
35	Dudleya	Dudleya or Cliff Lettuce	Perennial	Preferred	
36	Echeveria spp.	Hen and Chicks	Perennial	Preferred	
37	Eounymus Fortunei coloratus	Winter Creeper	Cover	Preferred	
38	Erigeron glaucus	Beach Aster	Cover	Preferred	X
39	Eriogonum spp.	Wild Buckwheat	Perennial	Preferred	X (some)
40	Eriophyllum confertiforum	Golden Yarrow	Perennial	Preferred	X
41	Eriophyllum stachaedifolium	Lizardtail	Perennial	Preferred	X
42	Erysimum capitatum	Foothill Wallflower	Perennial	Preferred	X
43	Erysimum linifolium	Wallflower	Perennial	Preferred	
44	Escallonia spp.	Escallonia	Shrub	Preferred	
45	Eschscholzia spp.	California Poppy	Perennial	Preferred	X
46	Fagus spp.	Beech	Tree	Preferred	
47	Feijoa sellowiana	Pineapple Guava	Tree	Preferred	
48	Festuca rubra	Creeping Red Fescue	Grass, Cover	Preferred	X (some)
49	Fragaria chiloensis	Beach Strawberry	Cover	Preferred	X
50	Fragaria vesca	Wood Strawberry	Cover	Preferred	X
51	Fraxinus spp.	Ash	Tree	Preferred	X (latifolia)
52	Grindelia stricta, camporum	Coastal Wild Gum	Perennial	Preferred	X
53	Hemerocallis hybrids	Daylily	Perennial	Preferred	
54	Hesperaloe parviflora	Red Yucca	Perennial	Preferred	
55	Heuchera maxima	Island Alum Root	Perennial	Preferred	

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	Scientific Name	Common Name	Lifeform	Recommendation	Native
56	Heuchera micrantha	Coral Bells	Perennial	Preferred	X
57	Iris douglasiana	Douglas Iris	Perennial	Preferred	X
58	Iris macrosiphon	Ground Iris	Perennial	Preferred	X
59	Iris spp.	Iris	Perennial	Preferred	
60	Kniphofia uvaria	Red Hot Poker (Torch Lily)	Perennial	Preferred	
61	Lampranthus spp.	Bush Ice Plant	Cover	Preferred	
62	Lantana montevidensis	Lantana	Shrub	Preferred	
63	Lavandula spp.	Lavender	Shrub	Preferred	
64	Lavatera assurgentiflora	Malva Rose (Tree Mallow)	Shrub	Preferred	
65	Iberis sempervirens	Evergreen Candytuft	Cover	Preferred	
66	Liriope gigantea	Giant Turf Lily	Cover	Preferred	
67	Lonicera hispidula	Pink Honeysuckle	Vine	Preferred	X
68	Lupinus spp.	Lupine	Perennial	Preferred	X (some)
69	Macadamia hybrids	Macadamia Nut	Tree	Preferred	
70	Metrosideros excelsus	New Zealand Christmas Tree	Tree	Preferred	
71	Mimulus spp.	Monkey Flower	Perennial, Shrub	Preferred	X (some)
72	Monardella villosa	Coyote Mint	Perennial	Preferred	X
73	Nolina spp.	Nolina (related to Yucca)	Shrub	Preferred	
74	Oenothera berlandieri	Mexican Evening Primrose	Perennial	Preferred	
75	Pelargonium peltatum	Ivy Geranium	Cover	Preferred	
76	Penstemon spp.	Beard Tongue	Perennial	Preferred	X (some)
77	Phyla nodiflora	Common Lippia	Cover	Preferred	X
78	Pistacia chinensis	Chinese Pistache	Tree	Preferred	
79	Polystichum munitum	Sword Fern	Perennial	Preferred	X
80	Portulacaria afra "Variegata"	Elephant's Foot	Perennial	Preferred	
81	Potentilla neumanniana	Alpine Cinquefoil	Cover	Preferred	
82	Prunus lyonii	Catalina Cherry	Shrub	Preferred	
83	Punica granatum	Pomegranate	Shrub	Preferred	
84	Quercus spp.	Oaks	Tree, Shrub	Preferred	X (some)
85	Ranunculus californica	Buttercup	Perennial	Preferred	X
86	Rhapiolepis spp.	India Hawthorn	Shrub	Preferred	

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	Scientific Name	Common Name	Lifeform	Recommendation	Native
87	Rhododendron (Azalea) spp.	Rhododendrons and Azaleas	Shrub	Preferred	X (some)
88	Rhus integrifolia	Lemonade Berry	Shrub	Preferred	
89	Rhus lancea	African Sumac	Tree	Preferred	
90	Romneya coulteri	Matilija Poppy	Perennial	Preferred	
91	Rosa banksiae	Lady Banks' Rose	Vine	Preferred	
92	Santolina chamaecyparissus	Lavender Cotton	Shrub, Cover	Preferred	
93	Santolina virens	Green Lavender Cotton	Cover	Preferred	
94	Sedum sp.	Stonecrop	Cover	Preferred	X (some)
95	Senecio serpens, mandralisce, vitalis	Blue chalksticks	Cover	Preferred	
96	Sidalcea malviflora	Checkerbloom	Perennial	Preferred	X
97	Simmondsia chinensis	Joboba	Shrub	Preferred	
98	Sisyrinchium bellum	Blue-eyed Grass	Perennial	Preferred	X
99	Sisyrinchium californicum	Yellow-eyed Grass	Perennial	Preferred	X
100	Sisyrinchium spp.	Blue-Eyed Grasses	Perennial	Preferred	X (some)
101	Solanum jasminoides	Potato Vine	Vine	Preferred	
102	Solanum xanti	Purple Nightshade	Shrub	Preferred	X
103	Stachys byzantina	Lamb's Ears	Perennial	Preferred	
104	Strelitzia reginae	Bird of Paradise	Perennial, Shrub	Preferred	
105	Symphiotrichum [Aster] chilensis	Wild Aster	Perennial	Preferred	X
106	Symphoricarpos mollis	Creeping Snowberry	Vine	Preferred	X
107	Tecomaria capensis	Cape Honeysuckle	Vine	Preferred	
108	Thymus praecox arcticus	Creeping Thyme	Cover	Preferred	
109	Toxicoscordion [Zigadenus] fremontii	Star Lily	Perennial	Preferred	X
110	Trachelospermum jasminoides	Star Jasmine	Shrub	Preferred	
111	Triteleia [Brodiaea] laxa	Grass Nut	Perennial	Preferred	X
112	Tulbaghia violacea	Society Garlic	Perennial	Preferred	
113	Vaccinium corymbosum	Blueberry	Shrub	Preferred	

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	Scientific Name	Common Name	Lifeform	Recommendation	Native
114	Verbena peruviana	Perennial Verbena	Cover	Preferred	
115	Yucca spp.	Yucca	Shrub	Preferred	
116	Zauschneria californica	California Fuchsia	Perennial	Preferred	X