Fire Protection Plan
Escondido Estates
APN 234-231-01
PDS 2019-MPA-19-004
Prepared for the County of San Diego and the Escondido Fire Department

May 20, 2020 Rev. Dec. 16, 2020

Applicant: Escondido Estates LLC
c/o IMG Construction Management
19782 Macarthur Blvd.
Irvine, CA 92612

FIRE MARSHAL
ESCONDIDO FIRE DEPARTMENT
APPROVED
Date: 2/11/21
By: _____ Fire Marshal or Designee
OBTAIN FIRE AGENCY APPROVAL PRIOR TO THE FOLLOWING INSPECTIONS
BUILDING FINAL _____
OTHER _____
It is unlawful to make any changes or alterations on this set of plans and specifications

Prepared & Certified By:

Prepared by: Pete Montgomery

Wildland Fire Associate

*Fire*wise 2000, LLC

Reviewed and Certified by: _____

Melvin Johnson, Owner

Certified CEQA Wildland Fire Consultant

*Fire*wise 2000, LLC

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Escondido Estates LLC
Fire Protection Plan

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EXECUTIVE SUMMARY

This Fire Protection Plan (FPP) evaluates the proposed Escondido Estates development to ensure it does not unnecessarily expose people or structures to fire risks and hazards. The FPP identifies and prioritizes the measures necessary to adequately mitigate those impacts. The FPP has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions and fire history. It considers water supply, access, structure ignitability and fire resistive building materials, fire protection systems and equipment, impacts to existing emergency services, defensible space and vegetation management.

This FPP also lists fuel modification requirements to mitigate the exposure of people or structures from a significant risk of loss, injury or death from wildland fires. Zone 1, the Immediate Zone is the first 5 feet from the exterior wall surface on a horizontal plane. Zone 1 will consist of hardscape or limited fire-resistant plantings approved by the AHJ from the approved County list. Zone 2, the Intermediate Zone, will be an irrigated landscaped zone and is called the Intermediate Zone for fire suppression forces and protects structures from radiant and convective heat. Zone 2 extends out from Zone 1 to 50 feet from exterior wall surfaces in a horizontal plane. This landscaped zone is permanently irrigated and consists of fire resistant and maintained plantings. Zone 3, the Extended Zone, is the area beyond Zone 2, including manufactured slopes and excludes all prohibited highly combustible native vegetation, but permits plantings within specific criteria and reduces the existing native vegetation by 50%. A Homeowners Association (HOA) will be responsible to the Escondido Fire Department Fire Marshal for the completion of all designated Fuel Modification Treatments in common areas. Individual homeowners will be responsible for the maintenance of fuel treatments on their individual properties.

Finally, this plan and its requirements will be incorporated by reference into the final project Conditions of Approval to ensure compliance with codes/regulations and significance standards.

1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the Escondido Estates Project. The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types) climatic conditions, and fire history. The plan addresses water supply, access (including secondary/emergency access where applicable), structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect one or more at-risk communities and essential infrastructures. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the area addressed by the plan.

General Information

Project Manager: Oscar Uranga, IMG Construction Management
Approving Departments:
Fire Authority: Escondido Fire Department/ (through a Fire Service Agreement with Rincon Del Diablo Fire Protection District)
Engineering: San Diego County Department of Planning & Development Services
Water: Escondido Mutual Water Company

The FPP will be submitted to and approved by the City of Escondido Fire Department (EFD) and the San Diego County Department of Land Use and Planning (SDCDLUP) and is based upon current requirements, as of the date of this report, of the City of Escondido and San Diego County regarding Wildland Fire Protection Plans, Including: pertinent local Fire Ordinance Nos. 2016-09, 2013-13 and 2019-07; 2018 International Urban-Wildland Interface Code, Including pertinent local Fire Ordinances; 2019 California Code of Regulations Title 24, Part 9, and Title 14, section 1280; The 2019 California Fire Code and Local Amendments Including Appendices to Chapters 1 & 4 and Appendices B, F & H; Chapter 7A; , the 2019 California Building Code Chapter 7A Materials and Construction Methods for Exterior Wildland Exposure; 2019 California Residential Code; the California State and Local Responsibility Area Fire Hazard Severity Zone Map; California Government Code, sections 51175 through 51189; California Public Resources Codes sections 4201 through 4204; and the National Fire Protection Association Standard 13-D.

The Escondido Estates Fire Protection Plan (FPP) has two main objectives. First, the Escondido Estates FPP provides fuel treatment guidelines for homeowners and any homeowner association. Second, the FPP provides features for the developer, architect, builder, and the Escondido Fire Department to improve the relative safety of the homes and homeowners from approaching wildfire. Appendices attached to this FPP provide additional information that shall be considered a part of this FPP.

This Fire Protection Plan Includes:

- A wildland fire hazard rating assessment and expected fire behavior of both on-site and off-site native vegetative fuels;
- A long-term perimeter vegetative fuel modification treatment and maintenance plan to minimize the potential loss of any structure due to wildland fires;
- A long-term interior open space fuel modification treatment plan and "Firewise Landscaping" criteria to be utilized around the planned structures;
- "Ignition Resistive Building Features" that will be required for all structures;

- A review of existing architectural plans required building features, and community protection systems (e.g., water and access), and specifications to assure these plans, features and systems adequately protect life and property.

The term "Firewise" contained within this document is a term used to describe an approach which emphasizes community responsibility for planning in the design of a fire safe community as well as effective emergency response, and individual responsibility for safer home design and construction, landscaping, and maintenance of fuel treatment areas. "The Firewise USA" program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent losses."

Figure 1 Overhead View of Escondido Estates

1.1 Project Location, Description and Environmental Setting

1.1.1 Project Location

The proposed Escondido Estates project is located on the southeast corner of San Pasqual Valley Road, State Highway 78, and Idaho Avenue in a rural, hilly area of central Escondido in San Diego County. The 10.7-acre site is surrounded by developed and undeveloped land. The undeveloped land north of Idaho was part of the same citrus grove that existed on the current project site which was removed years ago. The site is located on a gentle west facing slope approximately fifteen (15) miles inland from the Pacific Ocean. The general area has been developed with numerous single-family homes on rural lots to the east, commercial nurseries to the north and south, and a community church,

west of the site across San Pasqual Valley Road. Several undeveloped properties occur along Idaho Avenue to the northeast.

Access to the Escondido Estates site will be off of Idaho Avenue on the northern property boundary, east of the intersection with San Pasqual Valley Rd. Idaho Avenue is a two-lane rural collector road; traveling a mile east on Idaho, the street intersects Bear Valley Parkway.

SPVR/Highway 78 is a two-lane highway traveling through Escondido in a general east-west direction. Heading west approximately 15 miles is Oceanside and the Pacific Ocean. Traveling east, Highway 78 travels through the rural community of Ramona leading to the mountain community of Julian. The San Diego Zoo Wild Animal Park is located on Hwy 78 approximately 10 miles east of the project site. San Pasqual Valley Road (Hwy 78) traveling north leads to the central core of Escondido and becomes a 4-lane connector road. South on San Pasqual Valley Rd approximately 1-mile is Bear Valley Parkway, a community collector road which varies from two to four-lanes.

The western portion of the property has a seasonal creek flowing through a wide creek-bed area with scattered trees. The trees will not be disturbed and the creek will remain undeveloped for riparian habitat. A 25-foot buffer zone will be maintained to reduce any impact on the area. A western facing slope rises from the creek bed, gradually increasing in steepness to the east. A drainage/sediment basin on the southwestern corner of the project site will be constructed to reduce runoff from the development.

1.1.2 Project Description

The project site covers approximately 10.75 acres of which only approximately 9 acres will be impacted by the development. The site was formerly a citrus grove, the trees were removed 15 to 20 years ago. The proposal calls for 20 homes to be built on lots averaging approximately .5 of an acre. Proposed homes will vary from 2750 to 3300 square feet in size. A water retention basin in the southwest corner of the site will be maintained to Zone 3 Fuel Modification standards. Approximately 1 acre of undeveloped land will be dedicated to protecting a walnut woodland area in the northwest corner of the project site. This area will be placed into a dedicated easement protecting the area from future development. The project developer will be upgrading Idaho Avenue to current County of San Diego Department of Public Works road standards. Utilities will all be undergrounded and the well on the site removed and sealed.

1.1.3 Environmental Setting

1.1.3.1 Dates of Site Inspections/Visits Conducted

Two site visits were conducted during May & June 2019, as well as numerous phone calls to determine pertinent information concerning the environmental setting.

Site Visit & Purpose	**Date**
#1 Initial Field Visit Evaluate lot layout and primary and secondary access road locations	May 28, 2019

#2 Field Visit June 13, 2019
Evaluate vegetation, topography, road conditions, and fire access, create photo log

1.1.3.2 Topography

The topography of the development site is dominated by a moderate, west facing slope. The elevation increases 61 feet from 695 feet along San Pasqual Valley Rd in a seasonal creek bottom to a high point of 756 feet at the eastern property boundary. The slope continues for a further rise of approximately 25 feet where several rural homes have been developed. East of the project site approximately one mile is low ridge with moderate slopes which are broken up by numerous saddles and intersecting drainages.

1.1.3.3 Climate

The climate within the project area is characterized as a Mediterranean type climate with generally mild, wet (14 -16 inches of rainfall per year) winters, with the bulk of the annual precipitation falling between January and March. Long, hot and very dry summer seasons frequently occur with occasional, multi-year droughts.

The most critical wind pattern to the project area is an off-shore wind coming out of the north/northeast, typically referred to as a Santa Ana wind. Such wind conditions are usually associated with strong (> 60-MPH), hot, dry winds with very low (< 15%) relative humidity. Santa Ana winds originate over the dry desert land and can occur anytime of the year; however, they generally occur in the late fall (September through November) when non-irrigated vegetation is at its lowest moisture content.

The typical prevailing summer time wind pattern is out of the south or southwest and normally is of a much lower velocity (5-12 MPH with occasional gusts to 30-MPH) and is associated with higher relative humidity readings (> 30% and frequently more than 60%) due to a moist air on-shore flow from the ocean.

All other (northwest, south, west) wind directions may be occasionally strong and gusty. However, they are generally associated with cooler moist air and have higher relative humidity (> 40%). They are considered a serious wildland fire weather condition when wind speeds reach > 20-MPH.

Fire agencies throughout the western United States rely on a sophisticated system of Remote Automated Weather Stations (RAWS) to monitor weather conditions and aid in the forecasting of fire danger. The closest RAWS to the project is the San Pasqual Valley RAWS. The data acquired from RAWS is important to modeling wildland fire behavior. ***FIREWISE* 2000, LLC** determined that the San Pasqual Valley RAWS is relatively new, having only been in operation since October of 2009. Another RAWS that was evaluated was the Valley Center RAWS station. This RAWS is located north of the project site approximately 7 miles and is located at a slightly higher elevation. The Valley Center RAWS site captured

significant weather data during the major southern California fires of October 2007 with winds gust exceeding 40 mph and relative humidities less than 10%. Note: in late October, strong winds, low relative humidiy are indicators of a Santa Ana wind event.

1.1.3.4 On-Site Vegetation

There is no significant on-site native wildland vegetation on the planned building site due to the repeated disking and mowing of the annual vegetation following the removal of the citrus grove. The removal of the native vegetation allowed the introduction of non-native grasses. Long term changes in fuel types has led to dry weather grass becoming the dominate fuel type. Walnut trees in the northwest corner of the site will be protected by the development and annual maintenance of an open, undisturbed area. The fuels in the are a mixture of native species including oak, walnut, and willow trees and non-native trees such as eucalyptus and palms (See Photos #1 & 2).

Photo #1 Walnut Trees in Dedicated Easement

1.1.3.5 Fire History

The available data suggests that in the second half of the 20th Century the frequency of small fires increased in Southern California while their average size decreased. This was due primarily to human caused fires and rapid-fire suppression. In San Diego County, this has resulted in an increased rate of burning in low elevation coastal scrubland, especially the coastal sage scrub formation near the urban development areas. It also indicates over 600 large fires of over 100 acres in the foothills and mountains from 1910-1999. Recently however several

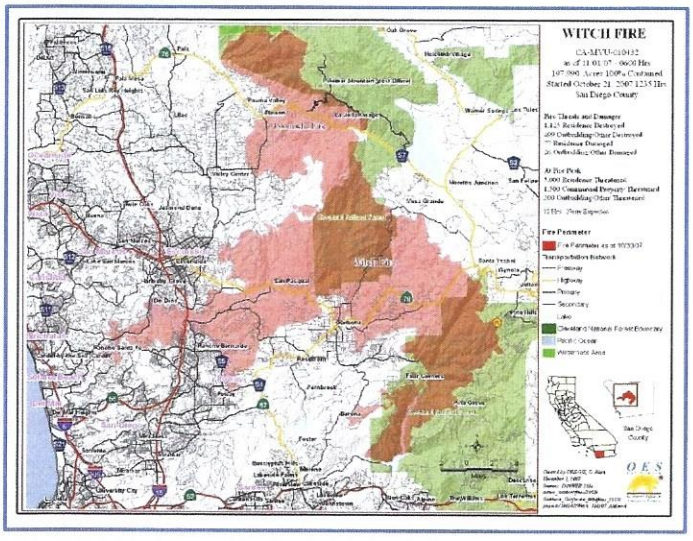
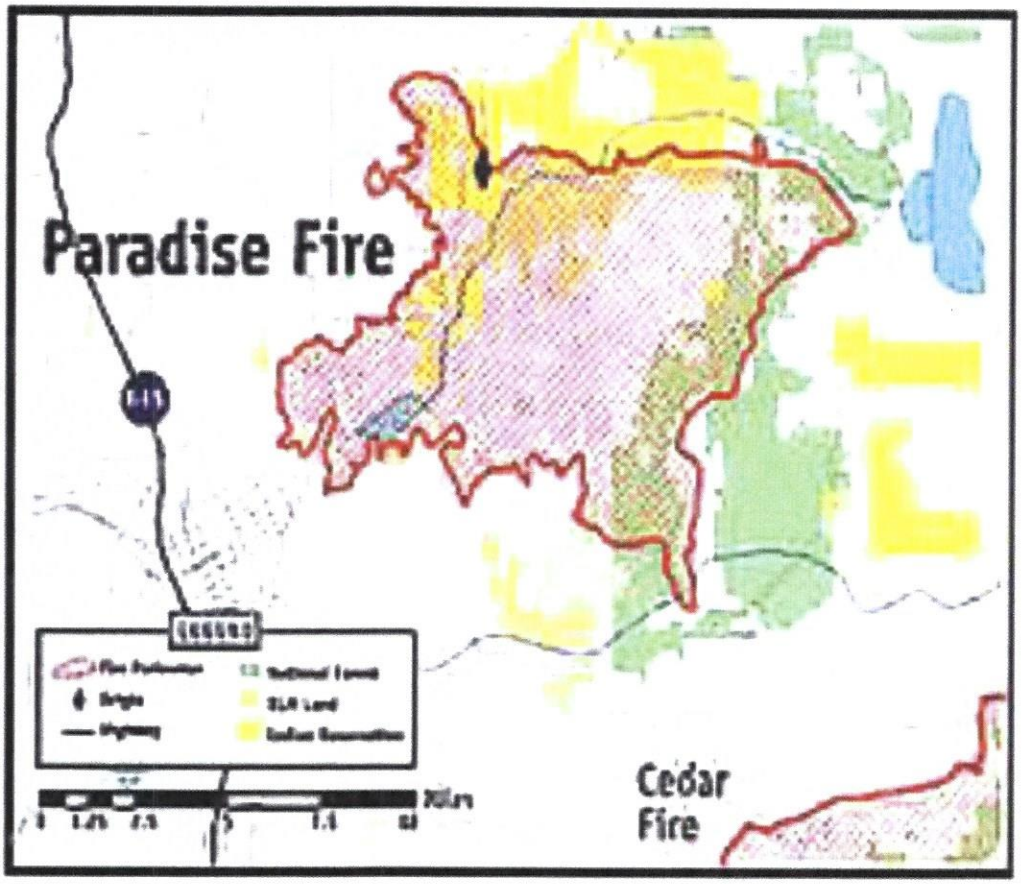


Photo #2 2007 Witch, Poomacha and Guejito Wildfire Progression

years of drought have contributed to major fires (in excess of 50,000 acres) that have swept through San Diego County resulting in large losses of property and damaged watershed.



The Witch Fire in October of 2007 burned over 197,990 acres, caused the evacuation of over 500,000 people, and caused two civilian fatalities. Combining with the Guejito Fire within the first day, the fires destroyed over 70 homes approximately 1 ½ miles to the south in the City of Escondido. The combined Witch and Guejito Fires rate of spread was stopped east of the development site due to a change in slope and fuel type, just over a mile to the south. The 2003 Paradise Fire which began northeast of Escondido, burned along the eastern boundary of the City of Escondido and Rincon Del Diablo Fire District. The western spread of the fire was halted due to a decrease in the east winds and fire suppression activities.

1.1.3.6 On-site and Off-site Land Uses

The existing parcel of land proposed for development is currently in a disturbed state as the vegetation has been converted to both native and non-native grasses Agricultural activity occurred many years ago on the land, which included a citrus grove. The surrounding land is either rural residential, two developed nursery parcels, former citrus groves and undeveloped land.

2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The Escondido Estates FPP evaluates the potential adverse environmental effects that the Escondido Estates residential development may have from wildland fire and proposes appropriate mitigations for any adverse impacts to ensure that this development does not unnecessarily expose people or structures to a significant risk of loss, injury or death in regard wildland fire. The following guidelines for the determination of significance are used:

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

The project is partially bordered by existing development and where wildlands are adjacent to the project, fuel modification and other requirements outlined in this FPP reduce the exposure of people or structures to a less than significant risk of loss, injury or death involving wildland fires.

2. Would the project result in inadequate emergency access?

Idaho Avenue and San Pasqual Valley Road will both be improved and widened, being designed to the latest standards of the County of San Diego and Cal Trans. Improved road surfaces, curbs and gutters, sight lines and lane markings will provide improved emergency access to the project area and neighboring residences.

3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for fire protection?

The Escondido Fire Department (EFD) through a contract with the Rincon Del Diablo Fire Protection District currently provides fire and EMS services to the development area. The existing facilities are more than adequate to provide acceptable emergency service and response times.

4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The project developer will be improving Escondido Mutual Water District water delivery service to the project site by using the current 8" water line located northeast of the project site. A 12-inch water main will be extended west from the current location along Idaho Avenue to the entrance to Street A. The water main size will be reduced to 8-inches within the project. Improvements to water delivery to the current area includes the installation of fire hydrants along Idaho Ave, an area currently without fire hydrants.(See Water Availability Form [see Appendix 'H']).

3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

The fire behavior calculations in Table 3.1 predict a maximum rate of spread of 226 feet/minute in the coastal sage scrub fuel model under Santa Ana winds at 60 mph. (See Section 4.6 and Appendix 'G'

for details of the Fire Behave Modeling) Winds of 60-mph are the expected maximum velocity on the property. The potential for wildfire exposure to the homes on the top of the slope due to ember production, radiant heat and direct flame contact is very high when fires move at a rapid rate of spread through coastal sage scrub. Under the same weather conditions, the same fire will move at a much slower rate of spread when burning through treated fuels. Fireline intensity will be greatly reduced improving the survivability of lives and homes.

Fires burning on the same slope with more typical southwest winds show similar results; lower rates of spread, flame lengths and fire intensity in treated fuel than in the native fuel types that have been untreated. Converting the SCAL 18 fuels to a much lower intensity host fuel type such as GR1 has increased the safety and survivability for the homeowners and structures.

TABLE 3.1
A Comparison of Fire Conditions Under 60 mph Northeast Wind Conditions
Untreated Versus Treated Fuels
SCAL 18 vs. GR1- Grass

Untreated Fuels SCAL18		**After Fuel Treatment GR1**	
Rate of Spread	**226.0 ft/min**	**Rate of Spread**	**41.4 ft/min**
Fireline Intensity	**16418 BTU/ft/sec**	**Fireline Intensity**	**67 BTU/ft/sec**
Flame Length	**39.1 Feet**	**Flame Length**	**3.1 Feet**

Under the same weather conditions, according to Table 3.2, a fire in grass will have a much-reduced rate of spread, 41.4 feet/minute. Moving at a rapid rate of spread through coastal sage, the potential for wildfire exposure to the homes on the top of the slope due to ember production and direct flame contact is much greater than a wildfire burning in Fuel Modification Zones 1 & 2 where the fuels have been treated.

TABLE 3.2
A Comparison of Fire Conditions Under 30 mph Southwest Wind Conditions
Untreated Versus Treated Fuels
SCAL 18 vs. GR1- Grass

Untreated Fuels SCAL18		**After Fuel Treatment GR1**	
Rate of Spread	**106.0 ft/min**	**Rate of Spread**	**41.4 ft/min**
Fireline Intensity	**7678 BTU/ft/sec**	**Fireline Intensity**	**67 BTU/ft/sec**
Flame Length	**27.6 Feet**	**Flame Length**	**3.1 Feet**

One or more of the following factors start structure ignitions from wildfires: "a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment".

During periods of high fire intensity and strong, dry winds, convective firebrands have the capability of being transported over great distances. "Ignition Resistant Building Materials" will be used in the construction of the structures within Escondido Estates to reduce the potential of firebrands entering the homes or catching exterior components on fire. Accordingly, wind driven embers and radiant heat issues are addressed in this FPP.

4.0 ANALYSIS OF PROJECT EFFECTS

The project demonstrates compliance, or offers the "*same practical effect*", with applicable fire regulations, including but not limited to the California Fire Code, California Code of Regulations, San Diego County Fire Code and the Escondido Fire Code.

The comprehensive Fire Protection Plan and the project design are consistent with the San Diego County DPLU recommendations including fuel modification.

The project meets the emergency response objectives identified in the Public Facilities Element of the County General Plan or offers Same Practical Effect.

4.1 Adequate Emergency Services

The Escondido Estates Project is within the response area of the Escondido Fire Department (EFD). The nearest fire station is located at 1220 N. Ash Street approximately 2.3 miles north of the Escondido Estates project site. The anticipated response time is less than 5 minutes. The next closest engine is located at Fire Station #2, 421 N. Midway Drive. Staffing at Station #2 is five (5) personnel covering an engine and a paramedic ambulance. A Type III engine is also available for cross staffing purposes. The response from Fire Station #2 to the Escondido Estates Project is approximately ~~3.8~~ 2.4 miles and takes less than 5 minutes. Fire Station #1 located at 310 N. Quince St. would provide the third arriving engine company. A total of ten firefighters staff Fire Station #1, personnel cover a Type I structure firefighting engine, a Truck Company, a paramedic ambulance and a Battalion Chief. For wildland fires, the crew may staff a Type III fire engine designed for wildland firefighting and off-road driving. Normal response time for Engine 131 to the project site is approximately six (6) minutes based on computer modeling with a travel distance of approximately 4.5 miles. The travel time for fire emergency response meets the County General Plan requirement of five minutes.

The Escondido Fire Department staffs seven (7) engine companies, one truck company and 5 paramedic ambulances daily, in addition, automatic and mutual aid resources are available from fire agencies throughout San Diego County. On high or extreme wildland fire danger days there often may be multiple fire starts with multiple engine companies deployed on other incidents. First alarm wildland dispatch will include a minimum of four engines, a combination of both structure and wildland engines, a Battalion Chief and paramedic ambulance. For structure fires, 3 engines, 1 truck, 1 paramedic ambulance and a Battalion Chief are dispatched on the first alarm. The fire department also has the ability to upstaff the wildland engines with off-duty firefighters in the advent of predicted extreme wildland fire weather conditions.

Despite the relatively close proximity of the nearest fire station, there is no assurance that Engine Company 137 will be in its station when a wildfire threatens the Escondido Estates Project from an ignition outside the community. Engines may respond from other stations further away or from other incidents. The goal of this FPP therefore is to make the houses in the Escondido Estates Development as safe as possible until such time as firefighting equipment arrives and/or residents can be evacuated. With the implementation of the fuel modification, ignition resistant construction measures, and other mitigation measures described in this FPP, the Escondido Estates Project will be provided with a higher degree of protection from wildfire than a majority of existing homes in San Diego County.

4.2 Fire Access

The Escondido Estates project will be accessed via Idaho Avenue at San Pasqual Valley Road, both existing public streets. San Pasqual Valley Road is maintained by the State of California Department of Transportation and proposed design changes will meet state standards. Road improvements include but are not limited to widening, curbs and gutters. Roads within the project may be constructed of asphaltic concrete if the slope does not exceed 14.9%. Roads with slopes ranging between 15% and 20% will require a concrete, heavy broom finish to improve road traction. All roads within the development and the fire access roads will be all-weather approved paved surfaces capable of supporting not less than 75,000 pounds. Hammerheads or other approved turnaround methods will be required at the end each of the cul-de-sacs or dead-end road. The hammerheads will be constructed to meet County of San Diego Fire Code Standard 503.2.6.

Driveways will be a minimum of 16-feet in width and designed to support not less than 75,000 pounds and proposed grades will be less than 15%. Slopes on the driveways may be allowed up to 20%, but will require a heavy broom, concrete surfaces for any slope exceeding 15%. Road maintenance will initially be the responsibility of the project developer. The Escondido Estates Homeowners Association will be established, and road upkeep and maintenance will become the financial responsibility of the HOA.

An approved, paved access road is required, and adequate water supply shall be provided prior to delivery of any combustible materials to the site. All access roads and water supply must be installed during Phase 1 of the construction.

No gates are planned in this development. However, any future gates that may be installed, including gates on private driveways or roadways, shall be set back 30 feet from the roadway, be automatic, and be equipped with approved emergency key-operated switches overriding all command functions and opening the gate(s). gates shall also be equipped with an emergency tract control-activating strobe light sensor(s) or other devices approved by the Fire Marshal, which will activate the gate on the approach of emergency apparatus. A battery back-up or manual mechanical disconnect in case of power failure is required in case of power failure. Gates shall allow automatic egress without the use of codes or remote devices (e.g. the use of pressure pads, metal detector or infrared sensors.

Road name signs shall comply with County of San Diego Department of Public Works Design Standard #DS-13. Signs, postings, red curbs and white stencils shall conform to the requirements of Section 22500.1 of the California Vehicle Code and shall be maintained in perpetuity. "Blue dot" markers shall be installed on the pavement to indicate the location of each fire hydrant. Signs or notices shall be maintained in a clean and legible condition at all times and replaced or repaired when necessary to provide adequate visibility.

4.3 Water

The Escondido Estates Project water supply will be provided by the Escondido Mutual Water District. An extension of the public water system with a new 8" water main will provide the required fire flow to the project but also improve the water supply to other homes in the area. The water delivery will include new fire hydrants within the development and 1" water meters for each home. The required fire flow for the project is 1500 gpm based on the water flow calculations provided in Appendix 'I', per Section 903.4.2.2, of the San Diego Consolidated Fire Code requirements, at pressures required to supply fire sprinklers and provide 20 PSI residual pressure at hydrants during periods of maximum peak domestic demand. A letter from the City of Escondido provides documentation that the required

fire flow is available following water system improvements. An approved fire alarm system must be installed along with the fire sprinkler system.

Fire hydrants shall be accessible to fire department apparatus by roads meeting the requirements of Section 902.2 of the County Fire Code. Fire hydrants along roadways shall be located at intervals as approved by the EFD Fire Marshal. (See Plot Map, Appendix "C", for fire hydrant locations.) Bollards shall be provided when the fire hydrant is located within 3 feet of any vehicle accessible surface.

The design of the water system, fire hydrant location, sprinkler and fire alarm systems shall be submitted to the City of Escondido Engineering Department and Fire Department for approval prior to issuance of a building permit for any parcel created by the subdivision. The water supply system and fire hydrants shall be installed and tested; prior to bringing on site any combustible building materials, the installation and flow testing must be approved by the EFD Fire Marshal.

4.4 Ignition-Resistant Construction and Fire Protection Systems

All structures shall comply with the ignition-resistant construction requirements: Wildland-Urban Interface areas of Chapter 7A of the County Building Code (see APPENDIX 'E'). All habitable structures shall have automatic residental fire sprinklers and fire alarm system per San Diego County Code. The fire sprinkler system for interior fire protection shall meet the requirements of National Fire Protection Standard (NFPA) 13D, those of the County of San Diego and to the satisfaction of the Escondido Fire Department. The EFD shall review and approve fire sprinkler installations prior to the issuance of an occupancy permit. Each homeowner shall inspect and maintain their ignition resistant construction features listed in APPENDICES 'D' and 'E'.

The eventual homeowners association (HOA) in the Escondido Estates project will be required to maintain the exterior of their property to Zones 1, 2 and 3 Fuel Modification standards as outlined in Section 4.7 and will keep the roof and rain gutters free of leaves, needles and other combustible debris. All firewood and other combustible materials must be properly stored away from the structure so that burning embers falling on or near the structure have no suitable host. The homeowners must keep all doors and windows tightly closed whenever a wildland fire is reported in the near vicinity. The integrity of the garage doors must be maintained to reduce the chances of embers being blown underneath and starting a fire in the garage area.

4.4.1 Structure Setbacks from Protected Land –
Minimum setback from property lines abutting national forests, open space preserves, and designated riparian areas is 100 feet.

4.4.2 Setbacks from Slopes - Single story structures shall have a minimum setback of fifteen (15) feet, measured horizontally, from the top of slopes to the farthest projection of the roof. A single-story structure shall be less than twelve (12) feet above grade. A two-story structure shall have a minimum setback of thirty (30) feet, measured horizontally, from the top of slopes to the furthest projection of the roof. Structures greater than two-stories in height may be required to have a greater slope setback to be determined by the EFD Fire Marshal.

4.4.1 Structure Setbacks from Property Lines – The minimum setback for buildings and structures from property lines and biological open space easements is 30 feet. When the property line abuts a roadway, the setback will be measured from the centerline of the roadway. Based on the minimal wildland fire threat to the area, the following mitigation measures should provide a high degree of fire protection for the homes where setbacks of less than 30 are found:

- All homes are fully sprinklered
- The entire project site is covered with a robust Fuel Modification Zone with treatment areas along access roads and within the Walnut Woodland Conservation area
- A 6-foot block wall is provided behind nearly the entire perimeter of the site
- The fire flow to the site will be three times the calculated needed fire flow

4.5 Defensible Space and Vegetation Management

4.5.1 Off-Site Fire Hazard and Risk Assessment

Currently, local off-site fuels have been severely modified due to the impacts of residential and commercial development and agricultural purposes. North of the project site is Idaho Avenue, a 40-foot two-lane county road. The property north of Idaho at the intersection of San Pasqual Valley Road is a large commercial nursery. Neighboring the nursery east along Idaho is a large multi-acre parcel of vacant land. The land had been most recently used as a citrus grove. The trees were removed several years ago, and the current fuel type is grl grass. Annual fuels treatments Including the mowing of the annual grasses have limited the fuel load and reduced the threat of a high intensity wildland fire from impacting Escondido Estates.

The wildland area immediately to the northeast is primarily vegetated with native and non-native annual grasses. Hills and slopes further east and south (approximately 1-mile) are covered with moderate stands of coastal sage scrub, typically one-to-three feet high with a moderate grass load. The dominant fuels in coastal sage/scrub include, Coastal Sage Scrub, Buckwheat, and Mulefat Scrub. Other commonly found vegetation consists of black sage, California sagebrush, blue blossom Ceanothus, laurel sumac, lemonade berry, cactus, and toyon. Typical trees found in the creek bottoms include several species of oaks, sycamores and California peppers. Non-native eucalyptus and palm trees are found in creek bottoms throughout the Escondido foothills as both spread easily and will lead to a loss of native trees.

A high percentage of these native plants have developed an abundance of dead material which is typical of Coastal Sage Scrub, normal low-intensity fire occurrence would remove the accumulation of dead and down material. "The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weigh."[1] Fuel load is measured by the amount of available fuel per unit area, usually tons per acre. Fuel loading in Coastal Sage Scrub could exceed four-to-five tons per acre for 1-hour fuels and less than 0.8 tons/acre for 10-hour fuels. The most representative plant community is Coastal Sage Scrub commonly referred to as Southern California Fuel Model 18 (SCAL 18) - sage/buckwheat for fire behavior planning purposes. Plant succession and the climax plant communities must be assessed when considering the wildland fire hazard of a particular property. The vegetation described above is the most likely climax plant community that will exist without human intervention and the one utilized for planning purposes.

[1] NWCG Glossary of Wildland Fire, PMS 205

Residential properties to the east of the project site, east of Lots 1-6 have well maintained fuels treatments including the removal of flammable vegetation and mowing of annual grasses. Widely scattered, well maintained trees limit the spread of wildfire due a low fuel loading due to the ground fuel accumulations being removed.

South of the Lots 6 & 7 of the Escondido Estates project is a commercial nursery with several abandoned growing sheds along the project's southern boundary. Heavy fuels, trash and debris has accumulated around the sheds. No defensible space exists along the property line. Green waste has been dumped in the northwest corner of the nursery property under a growing stand of eucalyptus trees creating a high fire hazard along SPVR/Hwy 78. No fuels modification work has been completed for several years in the nursery area. A 6-foot concrete masonry wall will be erected along the southern property boundary to reduce the impact of radiant heat from a fire starting in the nursery area.

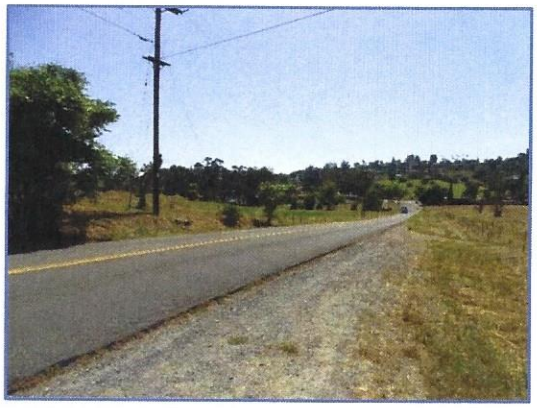


PHOTO #3: IDAHO AVE LOOKING WEST, VACANT LAND ON RIGHT. NURSERY ON RIGHT IN BACKGROUND

West of the Escondido Estates site is San Pasqual Valley Road, a two-lane State Highway. A large stand of eucalyptus trees borders the highway, a heavy fuel load exists under the trees. The area appears to have not been maintained for several years based on the fuels accumulation and debris scattered on the site. West of the eucalyptus trees is a private school with several watered, grass play areas for the children. This greenbelt will reduce the impact to the Escondido Estates homes of a wildfire starting under the trees with southwest wind conditions.

The goal of any FPP is to prevent the loss of lives, homes, and personal property when wildfires do occur with the challenge of allowing well planned home sites interspersed with fully functioning mixed chaparral habitats. This goal is accomplished by requiring communities to be built with fire resistant materials and properly designed and maintained fuel modification treatments that will safely mitigate the High Fire Hazard to insignificant levels. Therefore, the proposed fuel modification treatments, "Firewise" landscaping, and the use of ignition resistant building construction standards will mitigate the potential loss of any of the buildings and structures due to direct fire impingement, wind driven embers or radiant heat around the perimeter of the houses.

4.5.2 On-Site Fire Hazard and Risk Assessment

The Escondido Estates project site is unoccupied except for an old well which will be capped and a pumphouse which will be removed during construction. The western portion of the project site is relatively flat. Moving east, the slope gradually increases with a west-southwest aspect. The eastern boundary of the site abuts private rural residential property.

Vegetation has been severely modified over the past several years. Native fuels were removed from the site more than 40 years ago and replaced with citrus trees. Following the removal of the citrus grove and extensive annual mowing, little of what could be classified

as native plants exist. The remaining wildland fuels occupying the slope are limited to native and non-native grasses and wild mustard. The western portion of the site has an area with several walnut trees which will be placed into a conservation easement which will allow for limited fuels treatments but protect the trees.

The Escondido Estates development will include 20 single family homes sites, the home sites average approximately .53 acres. All 20 home sites will have septic systems and leach fields which will be planted as a minimum with fire resistant specimens found on the County of San Diego's Recommended Plant List, (See Appendix "A"). A biofiltration/water retention area will be constructed along San Pasqual Valley Rd. in the southwestern corner of the project.

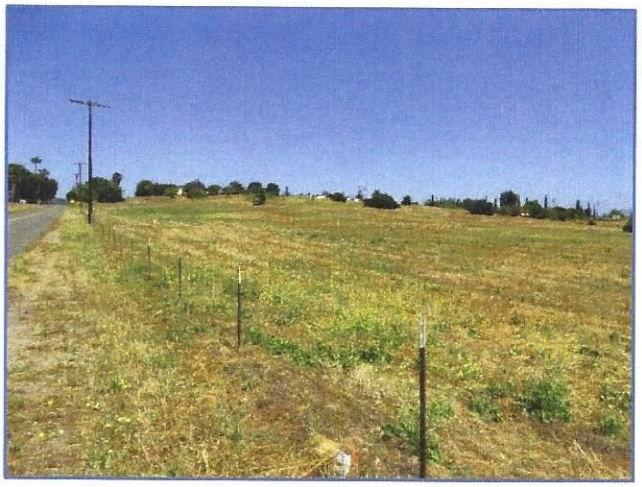


PHOTO #4 VIEW OF WEST FACING SLOPE ALONG IDAHO AVE.

Northern Boundary Homesites
Idaho Avenue provides the northern border for the project site. Lots 14-18 are located along Idaho. Road improvements will include widening, curbs, gutters, improved site lines. The removal of wildland fuels along the street which will reduce the threat of a wildland fire starting along the roadway. Any landscaping provided along Idaho Avenue will follow the County's Recommended Planting List (See Appendix A).

Eastern Boundary Homesites
Lots 1-6 will share a common boundary with the private homes east of the project site. The private homes have well maintained defensible space and fuel modification treatments including grass mowing, tree trimming and ground fuel removal. A 6-foot masonry wall will be erected to reduce the threat of radiant heat impacting the homes on lots 1-6.

Southern Boundary Homesites
Lots 6, 7 ,8, 9, 13 and 14 will have a common boundary with the biofiltration area in the southwest corner of the project. Fuels treatments and the selection of fire-resistant ground cover will decrease the fire threat to these homes. Lots 6 and 7 are bordered by rural homesites and a commercial nursery to the south where vegetation has been allowed to accumulate. Lots 6 & 7 do not have 100' of fuel modification space available. To mitigate the impacts of a reduced treatment area, a 6-foot masonry wall will be constructed on the southern property boundary to reduce the potential impact of an off-site fire.

Western Boundary Homesites

On lots 14, 15 and 16, 100 feet of treated area is not achievable from the proposed structures due to a designated conservation easement and setback restrictions. However, 40 feet of

irrigated Zone 2 is achievable. Additionally, a 6-foot masonry wall will be constructed along the western property boundary at the top of the slope to reduce the possible impact of a wildfire approaching from the west.

Fuels in the conservation zone are mostly grass and under a worst-case scenario projected flame length will be 27.8 feet in nearly level terrain. Required ignition resistant construction together with the irrigated zone of 40 feet, which is 1.5 times the projected flame length, should be more than sufficient to mitigate the radiant and convective heat effects of a wildland fire. In addition, the HOA will be required to remove trash and dead/down material as needed to reduce any additional buildup of flammable fuels within Zone 3A and 3B.

All structures will be set back from the top of slopes, either natural or manufactured a minimum of 15 feet horizontally for single story homes and 30 feet horizontally for two-story homes. Measurements shall be taken from the top of the slope to the furthest projection of the roof. Fuel abatement measures within the Escondido Estates project will be necessary to eliminate any potential heavy accumulations of fuel. Measures will be taken only where needed to achieve the 100' defensible space around each lot. (See sections 4.7 and 5.0)

In summary, any wind or topography driven wildfire burning under Santa Ana wind conditions, with winds from the north and northeast, will create a high wildland fire hazard for the Escondido Estates area, as is typical of most areas in San Diego County. However, any wind or topography driven wildfire burning under a Santa Ana wind pattern through areas to the north or east will create a wildland fire hazard to all the structures in the proposed development due to falling embers. Also, a typical day with a southwesterly wind pattern will create a low to moderate wildfire hazard to the development. Many of the lots are protected from any direct wildland fire flame impingement threat by existing roads, development and fuels treatments on private property.

4.6 Vegetative Fuels Assessment/Fire Behavior

"Can wildland fire behavior really be predicted? That depends on how accurate you expect the answer to be. The minute-by-minute movement of a wildland fire will probably never be totally predictable–certainly not from weather conditions forecast many hours before the fire. Nevertheless, practice and experienced judgement in assessing the fire environment, coupled with a systematic method of calculating fire behavior, yields surprisingly good results (Rothermel 1983)".

The BEHAVE Plus Fire Behavior Prediction and Fuel Modeling System–Burn Subsystem by Patricia L. Andrews and Collin D. Bevins, is one of the best systematic methods for predicting wildland fire behavior. The current generation of Behave Plus is 5.0.5 and has been designed for use on a personal computer. The BEHAVE Plus fire model describes a wildfire spreading through surface fuels, which are the burnable materials within six (6') feet off the ground and contiguous to the ground. Regardless of the limitations expressed, experienced wildland fire managers can use the BEHAVE Plus modeling system to project the expected fire intensity, rate-of-spread and flame lengths with a reasonable degree of certainty for use in Fire Protection Planning purposes. Of these three fire behavior projections, flame length is the most critical in determining structure protection requirements. The FIREWISE 2000, LLC. evaluation team used the computer based BEHAVE Plus 5.0.5: Fire Behavior Prediction and Fuel Modeling System to make the fire behavior assessments for the Escondido Estates Project.

Comparisons of computer calculations to observed fire behavior by FIREWISE 2000, LLC. wildland fire staff has validated the modeling system for use in wildland planning. Key components of this FPP

are the projections of expected wildland fire behavior for the existing native and non-native fuels. Below are the fire behavior calculations for the area surrounding the Escondido Estates project followed by appropriate mitigation measures.

Four fire scenarios are presented in the tables below: two (2) scenarios based on "worst case" San Diego County fire weather assumptions with 60 mph east winds, and two scenarios with typical 12 mph west-southwest winds. Fuel Models SCAL 18 and GR-1 were used in calculating fire behavior. Each table displays the expected Rate of Fire Spread (expressed in feet per minute), Fireline Intensity (expressed in British Thermal Units per foot per second) and Flame Length (expressed in feet) for two (2) separate BEHAVE Plus fire behavior predictions. The tables also include the calculation inputs used in the BEHAVE Plus program which were obtained from project site observations and fuel moisture levels typically observed during the local fire season.

Table 4.6.1
Fire Scenario # 1
(Late Fire Season With 60 MPH Northeast And East Santa Ana Wind Conditions)
Fire Approaching from the East

Fire Behavior Calculation Input Data	Anticipated Fuel Moistures
• 25 percent slope • 60 mph 20-foot wind speed • 90° aspect from north • 45° wind direction from north	* 1-Hour Fine Fuel Moisture of.....2% * 10-Hour Fuel Moisture of.....3% * 100-Hour Fuel Moisture of.....5% * Live Herbaceous Fuel Moisture of.....30% * Live Woody Fuel Moisture of.....50%
Expected Fire Behavior Fuel Model SCAL 18 - Sage/Buckwheat	
Rate of Spread - 225.4 feet/minute (1.25 mph)	
Fireline Intensity - 16,376 BTU's/foot/second	
Flame Length - 39.1 feet in length	
Expected Fire Behavior in Treated Fuels Fuel Model gr1 – Short Sparse Dry Climate Grass	
Rate of Spread - 41.4 feet/minute	
Fireline Intensity - 67 BTU's/foot/second	
Flame Length - 3.1 feet in length	

Table 4.6.2 *Fire Scenario # 2* *(30 MPH Maximum Expected Southwest Wind Conditions)* Fire Approaching from the West	
Fire Behavior Calculation Input Data • 25 percent slope • 30 mph 20-foot wind speed • 50° aspect from north • 235° wind direction from north	**Anticipated Fuel Moistures** * 1-Hour Fine Fuel Moisture of .....2% * 10-Hour Fuel Moisture of.....3% * 100-Hour Fuel Moisture of .....5% * Live Herbaceous Fuel Moisture of.....30% * Live Woody Fuel Moisture of.....60%
Expected Fire Behavior **Fuel Model SCAL 18 - Sage/Buckwheat**	
Rate of Spread - 46 feet/minute	
Fireline Intensity - 3,326 BTU's/foot/second	
Flame Length - 27.6 feet in length	
Expected Fire Behavior in Treated Fuels **Fuel Model gr1 – Short Sparse Dry Climate Grass**	
Rate of Spread - 20.7 feet/minute	
Fireline Intensity - 34 BTU's/foot/second	
Flame Length - 3.1 feet in length	

The fire behavior calculations in Tables 4.6.1 & 4.6.2 predict a maximum rate of spread greatly reduced under the maximum expected south and southwesterly wind conditions from Valley Center RAWS station in the coastal sage fuel model with a lesser reduction in grass fuel model 1. The slope and the wind direction are no longer in full alignment and the woody live fuel moisture increased due to increased relative humidity, the rate of spread, fire intensity and flame length will be much less severe.

4.7 Required Fuel Modification Zones for Buildings, Structures and Access Roads

Projects located in Hazardous Fire Areas shall include Fuel Treatment Zones (FTZ) surrounding all structures that are greater than 250 square feet in size. San Diego County Fire Code stipulates that the FTZ be a minimum of 100-foot area surrounding and extending in all directions from all structures, in which flammable vegetation or other combustible growth is cleared away or modified, **except for:**

- Single specimens of trees or other vegetation that are well-pruned and maintained
- Grass and other vegetation located more than 50 feet from the structure and less than 18 inches in height above the ground
- All ornamental landscaping that is consistent with the customized County Wildland Interface plant list (See APPENDIX 'A')

Maintenance of fuel treatment zones is highly important. Latham (1989) found that ember ignitions of surface fuels were primarily a function of ground fuels, especially litter depth. Also imporant to ignition of a ground fuel is moisture content, size of the litter material as well as the mineral content of the dead vegetation. To the benefit of the eventual homeowners, surface fires burn with less intensity and spread more slowly than an aerial fuel.

Below are the detailed definitions and required treatments for the Fuel Modification Zones within the project. See Fuel Treatment Map, Section 5.3, for all fuel treatments. There are two basic fuel

modifcation zones required for the Escondido Estates subdivision, an irrigated zone 50 feet in width; and a 50% thinning zone Including the removal of target species 50 feet in width, for a total of 100 feet of fuel treatment on these lots. In many cases, the required fuel treatments are interlinked to adjacent homes both within and adjacent to the project. This results in a total of 100 feet of fuel treatment for the majority of the lots in the project.

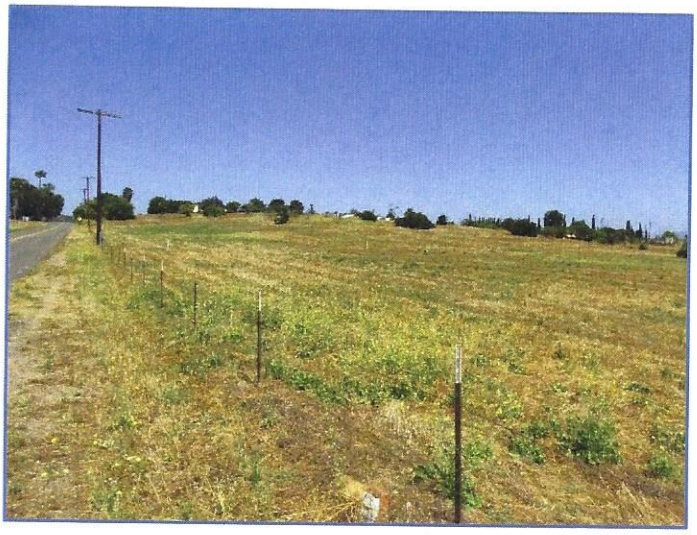


PHOTO #4 VIEW OF WEST FACING SLOPE ALONG IDAHO AVE.

Lots 1-7 will have a six-foot CMU wall constructed along the east or southern perimeter to increase fire protection due to a decrease in defensible space along the perimeter. Lots 13 & 14, the requirement for 100 feet of treated area is not achievable from the proposed structures due to a designated conservation easement and setback restrictions. Forty feet of irrigated Zone 1A is achievable. A combination of the 40-feet of defensible space and the required ignition resistant construction and limited fuels in the conservation zone should be sufficient to mitigate the radiant and convective heat effects of a wildland fire. Based on a flame length of 27.8 feet in nearly level terrain under a worst-case scenario the 40-foot of defensible space which is 1.5 times the projected flame length. In addition, the edge of roadways and driveways must be fuel treated to prevent ignition starts and to provide relatively safe ingress and egress should a wildfire occur. Each of these zones is described in greater detail. All distances in this plan are measured horizontally. These distances are depicted on the Fire Protection Plan Map included herein in Appendix "C". (A fully scalable Appendix 'C' map is attached at the end of the document.) Prior to construction on any building site, all roads (primary and secondary) for this development shall be accepted by the Escondido Fire Marshal.

The responsibility for the fuel modification maintainence defined below shall remain with the current owners and any subsequent owners, and as such shall run with the land. In the event the project is repossessed or sold, the unit/agency holding title to Escondido Estates property will be responsible for such maintenance. Fuel Modification Zones will be the responsibility of the individual homeowners on their respective lots and the responsibility of the Escondido Estates HOA in common areas. Since actual house locations have not been sited as of the date of this FPP, Zone 1 shall consist of the entire building lot followed by either Zone 1 or Zone 2 outside of each lot with a few exceptions (See Fuel Treatment Map -Section 5.3 and Appendix 'C').

Fuel Modification Zone 1, Immediate Zone 0" – 5" **(Homeowner Responsibility -** ***(Shown as Red on the Fire Protection Plan Map)***

Defined:

Zone 1 is the first 5 feet on a horizontal plane from the exterior wall surface of a building. Only hardscape or limited fire-resistant plantings are permitted in this zone with the permission of the Escondido Fire Department. Vegetation within Zone 1 shall not exceed 6' to 18" in height and irrigation is required. Combustible materials are not permitted and must be removed. Mulch, bark and other combustible materials are prohibited within this zone.

Fuel Modification Zone 2 Immediate Zone 1 to 50'* (Homeowner Responsibility - *(Shown as Green on the Fire Protection Plan Map)

Defined:

Zone 2 in San Diego County means the area from Zone 1 to 50 feet extending out on a horizontal plane (front, back and side yards) and is commonly called the immediate zone. It is an irrigated zone and shall be free of all combustible construction and materials. Vegetation within this zone shall not exceed 10' in height. Trees shall not exceed 30' in height. Flammable native vegetation shall be removed and replanted with drought tolerant, fire resistive, irrigated and non-irrigated plantings from the San Diego County Approved plantings list. (see Appendix A).

Required Landscaping:

Zone 2 consists of planting low growth, drought tolerant and fire resistive plant species. The height of the plants in this zone starts 6-inches adjacent to Zone 1 and extending out to a maximum of 18-inches at the intersection of Zone 3. Widespread vegetation up to 10-feet in height is allowed. Trees shall not exceed 30-feet in height and must be limited or as approved by the Escondido Fire Department. Firewood must be stacked a minimum of 30-feet away from buildings and at least 10-feet away from property lines.

Plants in this Zone need to be fire resistant and should not include any pyrophytes that are high in oils and resins such as pines, eucalyptus, cedar, cypress or juniper species. Thick, succulent or leathery leaf species with high moisture content are the most "fire resistant". Refer to APPENDIX 'A' County of San Diego's Desirable Plant List and APPENDIX 'B' for prohibited plants for plant selection.

Any retained trees and all newly planted trees must be sited so that when they reach maturity the tips of their branches are at least 10 feet away from any structure, 20 feet from the crown of an adjacent tree, and must have a minimum of 6 feet of vertical separation from low growing irrigated vegetation beneath the canopy of the tree.

Required Maintenance:

The lots shall be maintained year-round by the individual property owner(s) or HOA within their property boundary (lot lines) as required by this FPP or the EFD. Shrubs and trees are to be annually maintained free of dead material. Trees will be maintained so that their crown cover will be more than ten (10) feet from any structure. The crowns of all trees will be separated by twenty (20) feet or more on steep slopes and maintained to keep a separation of 6 feet between the ground fuels (shrubs and groundcovers) and the lower limbs. Any trees within Zone 1 should be irrigated, limbed up to 6-feet from the ground, pruned of dead wood, grass understory weed-whipped, and leaf drop removed to prevent large accumulations of dead material under the trees. All trees must be maintained to the current ANSI A300 standards [Tree, Shrub, and Other Woody Plant Maintenance —Standard Practices (Pruning)] (www.treecareindustry.org/public/gov_standards_a300.htm).

Fuel Modification Zone 3A (HOA Responsibility) - (Shown as Yellow on the Fire Protection Plan Map)

Zone 3A is a non-irrigated zone that includes the walnut woodland area that has been designated as an undisturbed area. Fuel treatments are limited to the removal of dead and down materials under the trees. Trash removal is also permitted in the undisturbed area. The Escondido Estates HOA will be responsible for the maintenance of the landscape to Zone 3A criteria.

Fuel Modification Zone 3B (HOA Responsibility) - (Shown as Blue on the Fire Protection Plan Map)

Defined:

Zone 3B is the area in the southwest corner of the development set aside as a biofiltration area. The area is a non-irrigated thinning zone at the edge of both Zones 2 and 3B and includes all natural and manufactured slopes. The specified intent is to achieve and maintain an overall 50% reduction in the canopy and removal of 100% of the dead and dying plant material following the growth cycle of the vegetation. Removal of prohibited and invasive species is permitted. The HOA is responsible for the as needed maintenance of the area to Zone 3B standards.

Required Landscaping:

All exotic and flammable native plants (see San Diego County prohibited plant list in APPENDIX 'B') shall be removed with the resulting 50 feet of treated area permanently irrigated, temporarily irrigated, or non-irrigated with the exception of areas where existing trees are to be retained. The area will be replanted with low growing (maximum 12 inches in height) and low fuel volume ground cover vegetation or native grasses and occasional well-spaced (separated by a minimum of twenty [20] feet), low growing (maximum height 15 feet) fire resistant trees (see APPENDIX 'A').

Required Maintenance:

The biofiltration area will be maintained as needed to remove 50% of the ground level fuels covering the zone. Non-native species will be removed, tree canopy's will be limbed to 6-feet off the ground. A reduction of 100% of the dead and down material is required. High visibility yellow boundary markers separating Zones 3A and 3B will be placed to designate the limits of Zone 3B fuel treatments.

San Diego County codes require that all any existing or planted trees located within Zone 2B be pruned to 6 feet above ground level and irrigated. Surface vegetation shall not exceed 8 inches in height. Low growing plants and shrubs will be maintained to a height of 18" or less. This action is necessary to make sure that any wildland fire pushed by high winds toward the development through any trees and shrubs in Zone 3 will unlikely become a crown fire. The removal of understory vegetation will reduce the potential for a ground fire to move from the ground to the shrubs into the tops of trees like a ladder, which will also reduce fire intensity and ember production. Irrigation will maintain high moisture content in the trees and shrubs plantings. If water for irrigation is limited, use more of the available water in Zone 2 rather than in Zone 3B. Maintenance will be ongoing throughout the year as needed. Native annual and perennial grasses will be allowed to grow and produce seed during the winter and spring. As grasses begin to cure (dry out), they will be cut to 4 inches or less in height.

Zone Markers (See Appendix 'F')

All exterior boundaries of Fuel Management Zone 3 shall be permanently marked on the ground for guiding annual fuel management maintenance and inspection operations. The most reliable markers are steel fence posts with a baked on painted finish. The upper half of the above ground portion of the fence post is then painted a bright "day glow" orange to improve visibility. These Fuel Treatment Zone markers must be spaced so that the markers on each side of an installed marker can be seen from that marker.

4.8 Cumulative Impact Analysis

The combination of San Diego County's weather, fuel, and terrain has often contributed to intense, uncontrolled wildland fires. This was evident in the devastating Cedar, Paradise and Otay Fires of

October 2003 and Witch Creek and Rice Fires of November 2007 and most recently, the Lilac Fire in 2017.

Typically, the areas of greatest concern are adjacent to urbanized areas or where residences are intermixed with wildlands. As the population of San Diego County increases and the Wildland Urban Interface (WUI) expands, fire hazards and risks will continue to be encountered. The risks associated with this project, with greater vehicular traffic along Idaho, will not be significantly increased with the redesign and improvements to Idaho Ave and San Pasqual Valley Road. A slight increase in human activity in the immediate area may occur, but the removal of flammable fuels, and increased security should lesson the impacts of the development.

The approval of this proposal in addition to the already approved developments in the area, and future development proposals will increase the concern of wildland fires as the area becomes more urbanized. At present, the density of development in the hilly Central Escondido portion of San Diego County, is relatively low and includes a significant number of properties compliant with the fuel modification and weed abatement requirements of the County of San Diego and the City of Escondido Fire Department..

5.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

The descriptions and required treatments for Fuel Modification Zones are described below. All distances in this report are measured horizontally and are depicted on the Fuel Treatment Map included herein. The responsibility for the fuel modification maintenance defined below shall remain with the current owners and any subsequent owners, and as such shall run with the land. In the event the project is repossessed or sold, the unit/agency holding title to the Escondido Estates Property will be responsible for such maintenance. Fuel Modification Zones will be the responsibility of the Homeowners Association (HOA). Should the property owner or HOA not voluntarily maintain the property according to the fuel treatment guidelines in the FPP, the Escondido Fire Department will provide written notice of abatement and require completion of the removal of annual grasses, and dead and down fuels accumulated on the site. Rather than specifying a specific time-period, the Escondido Fire Department will require abatement as needed.

1. Mitigation measures for the lots that have less than 50-feet of Zone 2 include:
   - the installation on lots 1-7 of a 6-foot concrete wall for ember and radiant heat reduction,
   - improved water supplies to the entire area including a water supply of three-times the required fire flow
   - robust fuel treatment zones where indicated on the Fuel Treatment Map.

2. Mitigation measures for lots 14-16 on the western border of the development where these lots have less than 50-feet of Zone 2, include:
   - the planned fuel treatment area west of the lots which will produce dramatically reduced fire behavior including flames lengths of less than 4-feet. Removal of dead and down debris from the Walnut Woodland area and weed whipping as required will reduce the total fuel loading and decrease fire behavior significantly
   - fire sprinklers and fire alarms in all homes as required by California Codes

- the access road for the biofiltration basin providing another barrier to the spread of groundfire
- improved water supplies to the entire area including a water supply of three-times the required fire flow

5.1 Construction Standards

The structures within the Escondido Estates Project shall be designed and constructed with ignition resistant construction standards and design features as per the current San Diego County Building Code. For a summary description of these construction requirements see APPENDIX 'E'.

All combustible building materials, decks, balconies, patios, covers, gazebos and fences will be permanently prohibited in Zones 1 and 2. These structures may be allowed if constructed with Fire Resistive materials as per the San Diego County Fire Code and the San Diego County Consolidated Fire Code. The owners of these lots are not restricted from having concrete patios, concrete walkways or a swimming pool within these zones, provided the lot is large enough. Refer to APPENDIX 'D' for photos and descriptions of non-combustible decks, patio covers, and railings.

5.2 Requirements for Inclusion into the CC&R's:

1. Each lot owner is personally responsible for all fuel treatment measures within their properties. Where these zones extend onto an adjoining lot within the development, the HOA shall perform the work on the adjacent property.

2. The HOA shall not allow a lot owner to store any combustible materials beneath any projection, deck or overhang exposed to wildland fuels.

3. All property owners will be members of a Homeowners Association (HOA) and will financially support the annual maintenance of all required Fuel Modification Areas within the common areas of the subdivision.

4. Roadside fuel treatment within the subdivision is the maintenance responsibility of the HOA except for private driveways which are the maintenance responsibility of individual lot owners.

5. Each lot owner will be responsible to keep their roof area including gutters and downspouts free of combustible debris including leaves, limbs and similar materials.

6. The Escondido Estates HOA will have the authority for enforcing required fuel treatment measures on all lots and restrictions on combustible structures in all restricted areas.

7. The HOA shall not allow **TRASH DUMPING OR DISPOSAL OF YARD TRIMMINGS IN THE FUEL TREATMENT ZONES.**

8. The Fuel Treatment Zones, as depicted on the Fire Protection Plan Map, shall be shown on the CC&R's and recorded against all lots. The HOA will be responsible for enforcing all required fuel modification treatments on all lots.

9. The Escondido Estates HOA Board will be responsible to the Escondido Fire Department Fire Marshal for the completion of all required Fuel Modification Treatments prior to the annual fire season. This includes the perpetual management of invasive (exotics) and prohibited plant species in any fuel treatment zone within the development.

10. All individual yard landscaping plans, including additional structures, shall be approved by the HOA Board and will comply with the Fire Protection Plan. Any disputes relating to HOA Board approval of individual yard landscaping or fuel treatment, with regard to interpretation of the Fire Protection Plan, will be decided by the Escondido Fire Department Fire Marshal. The Fire Marshal's decision will be final and binding on the landowner.

11. Trees shall be placed and maintained so that their crown cover at maturity will be more than ten (10) feet from any structure.

12. All plants will be in accordance with the customized San Diego County recommended plant list (See APPENDIX 'A'), or as approved by the County Fire Marshal.

13. Upon the sale of a lot to a new owner, a copy of the Fire Protection Plan shall be provided as a condition of the sale.

14. The Escondido Fire Department (EFD) will be designated as a third party beneficiary of a homeowners' association's duty to perform "Fire Prevention Maintenance" (as defined below) for all portions of the Association Property (or Common Area) that constitute Fuel Modification Zones and designated interior/manufactured slopes to be maintained by the homeowners' association, and of any owner's duty to comply with any Fuel Modification Zone restrictions applicable to their Lot. Additionally, the EFD shall have the right, but not the obligation, to enforce the homeowners' association's duty to perform such Fire Prevention Maintenance, and to enforce compliance by any owner with any Fuel Modification Zone restrictions applicable to their Lot. In furtherance of such right, the EFD shall be entitled to recover its costs of suit, including its actual attorneys' fees, if it prevails in an enforcement action against the homeowners' association and/or an individual lot owner.

15. As used herein, "Fire Prevention Maintenance" shall mean the following:

a. All portions of the Association Property (or Common Area) that constitute Fuel Modification Zones or designated interior/manufactured slopes shall be regularly maintained by the homeowner's association on a year-round basis in accordance with the Fire Protection Plan on file with the property manager for the development.

b. The irrigation system for Fuel Modification Zones or designated interior/manufactured slopes shall be kept in good condition and proper working order at all times.

5.3 Additional Requirements

- Brush removal shall be completed prior to commencing any flammable construction. During construction at least 50 feet of clearance around the structures shall be kept free of all flammable vegetation as an interim fuel modification zone during construction of structures.
- If the landowner is aware of any state or federal listed species on their property, the U.S. Fish and Wildlife Service should be notified prior to the abatement.

- Any trimmings produced by thinning and pruning will be removed from the site, or, if left, shall be converted into mulch and evenly dispersed to a maximum depth of four inches. Such trimmings will not be located within 50 feet of structures.
- Any damaged or replacement windows, siding, roof coverings, and specific non-combustible wall will meet or exceed the original intent of the fire protection discussed in this plan.
- A six-foot concrete masonry unit (CMU) wall will be constructed to the rear of lots 1-7 to provide additional protection against radiant heat and blowing embers from off-site wildland fires. The wall will also assist in to reducing sound levels for the homeowners within the development.
- This plan and its requirements shall be incorporated by reference into the final project Conditions of Approval.

5.4 Fuel Treatment Plan Map

Attached to this FPP is the Fire Treatment Plan Map depicting the location of all proposed fuel treatment locations, lot lines, roads, and mitigation measures for the Escondido Estates development. The Fire Treatment Plan Map is located in Appendix "C". (A fully scalable Appendix 'C' map is attached at the end of the document.)

6.0 CONCLUSION

This FPP evaluated the adverse environmental effects that a proposed residential development may have from wildland fire and identified means to properly mitigate those impacts to ensure that this development does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires.

- The requirements of this FPP provide the fuel modification standards to mitigate the exposure of people or structures to a significant risk of loss, injury or death. Zone 2 consists of each lot including the level building pad and provides the defensible space zone for fire suppression forces and will protect structures from radiant and convective heat. This zone will be a landscaped zone that is permanently irrigated and consists of fire resistant and maintained plantings. Zone 3 is the next 50-100 feet from a structure, includes all manufactured slopes, and provides removal of 50 percent of the native vegetation at a minimum, including all prohibited highly combustible native vegetation, but permits plantings with specific criteria.

- The development will have adequate emergency access in terms of access and construction standards for roadways and streets. EFD, CAL FIRE and nearby fire departments through mutual aid, will provide fire protection. The following mitigating factors will more than mitigate the fire threat to the planned community.
  - Quick response times,
  - Fire sprinklers and fire alarms being provided in all residences, (fire sprinklers are required by California Codes)
  - Fire flow to the site more than three times the required fire flow based on the project being developed in an unrated Wildland Urban Interface (WUI) Fire Hazard Severity Zone
  - Well planned fuel treatment zones throughout the development site

- Water supplies via pipelines, hydrants, and related requirements will provide adequate water for fire protection. Based on a reassessment of the wildland fire severity the required fire flow for the

project site will be 1500 gpm which is attainable with modifications and improvements to the water line supplying the area just east of the Escondido Estates site.

7.0 LIST OF PREPARERS, PERSONS & ORGANIZATIONS CONTACTED

7.1 List of Preparers

The principal author and preparer of this Fire Protection Plan is Melvin Johnson, Owner ***FIREWISE*** **2000, LLC.**, a San Diego County DPLU Certified Wildland Fire Consultant. Other ***FIREWISE*** **2000, LLC.** members contributed to this plan with comments and peer review. These members include Peter Montgomery, Wildland Fire Associate.

7.2 Persons and Organizations Contacted

1. Oscar Uranga	Principle, IMG Construction Management
2. Keegan McNamara	Senior Project Manager, McNamara Ventures
3. Eric Lissner	Senior Design Engineer, XEngineering
4. Jaime Morales	Isa.net
5. Al Dobynes	Escondido Fire Department, Fire Marshal
6. LaVona Koretke	Deputy Fire Marshal, Escondido Fire Department

8.0 DEFINITIONS

For the purposes of this Fire Protection Plan, the following definitions apply to the terms used in this document. Where terms are not included, common usage of the terms shall apply.

ASPECT - Compass direction toward which a slope faces.

AUTHORITY HAVING JURISDICTION (AHJ) – An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

CLIMAX VEGETATION - The final stage in ecological plant succession in which a relatively constant environment is reached and species composition no longer changes in a directional fashion, but fluctuates about some mean, or average, community composition.

COMBUSTIBLE – Any material that, in the form in which it is used and under the conditions anticipated will ignite and burn or will add appreciable heat to an ambient fire.

COMBUSTIBLE VEGETATION – Means material that in its natural state will readily ignite, burn, and transmit fire from native or landscape plants to any structure or other vegetation. Combustible vegetation Includes dry grass, brush, weeds, litter or other flammable vegetation that creates a fire hazard.

DEFENSIBLE SPACE – Is an area either natural or man-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

EXTREME FIRE BEHAVIOR – "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One of more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is

difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

FIRE BEHAVIOR – The manner in which a fire reacts to the influences of fuel, weather and topography.

FIRE HAZARD SEVERITY ZONES – Are geographical areas designated pursuant to California Public Resources Code sections 4201 through 4204 and classified as Very High, High and Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code sections 51175 through 51189. The California Code of Regulations, Title 14, Section 1280 entitles maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

FIRE RESISTIVE – Construction designed to provide reasonable protection against fire.

FIRE RESISTIVE PLANTS – Plants that do not readily ignite from a flame or other ignition sources. These plants can be damaged or even killed by fire; however, their foliage and stems do not significantly contribute to the fuel and, therefore, the fire's intensity.

FLAME LENGTH – The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

FUEL MOISTURE – The quantity of moisture in vegetative fuels expressed as a percentage of the weight when thoroughly dried at 212 degrees F.

FUEL MODEL – Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified. Fuel models are utilized in the BehavePlus Fire Model to aid in forecasting fire behavior.

FUEL MODIFICATION – Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

GROUND FUELS - All combustible materials such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat, or sawdust that typically support combustion.

LADDER FUELS – Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

LIMITED BUILDING ZONE – A protective buffer that surrounds a biological open space area. A LBZ would prohibit the building of structures that would require vegetation clearing within the protected open space for fuel management purposes.

MITIGATION – Action that moderates the severity of a fire hazard or risk.

ONE-HOUR FUEL - 1-hour fuels consist of those portions of vegetation that are < 0.625 cm (0.25 in.) in diameter. 1-hour fuels are the most important for carrying surface fires and their moisture content governs fire behavior.

RADIANT HEAT – Transfer of heat in straight lines through a gas or vacuum other than by heating of the intervening space.

RELATIVE HUMIDITY – A weather term, the amount of moisture in the air as a percentage of the maximum the air will hold at a given temperature. The amount of moisture in a given parcel of air expressed as a percentage of the maximum amount that parcel of air could hold at the same air temperature.

REMOTE AUTOMATED WEATHER STATION – Is a combination of sensors, radios and related electronic equipment installed in wildland areas that are designed to monitor the weather and provide weather data that assists land management agencies with a variety of projects such as monitoring air quality, fire danger rating, and providing information for research applications.

SHALL - Indicates a mandatory requirement.

RISK – The measure of the probability of ignition and severity of adverse effects that result from an exposure to a wildland fire (direction flames, radiant heat, or firebrands (embers).

SLOPE – Is the variation of terrain from the horizontal; the number of feet, rise or fall per 100 feet, measured horizontally, expressed as a percentage.

STANDPIPE – A type of rigid water piping which is built into multi-story buildings in a vertical position, to which fire hoses can be connected, allowing manual application of water to a fire. Within buildings, standpipes thus serve the same purpose as fire hydrants.

TEN-HOUR FUELS – 10-hour fuels are those portions of plant material that are between (0.625 - 2.5 cm (0.25 to 1 in.) in diameter. Ten-hour fuels are readily consumed when dead fuel moistures are low.

WILDFIRE – Is any uncontrolled fire spreading through vegetative fuels that threaten to destroy life, property, or resources as defined in Public Resources Code sections 4103 and 4104.

WILDFIRE EXPOSURE – One or a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment.

WILDLAND-URBAN INTERFACE – The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

9.0 REFERENCES

1. *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model,* General Technical Report RMRS-GTR-153. June 2005. Joe H. Scott, Robert E. Burgan, United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.

2. *Behave Plus Fire Modeling System, Version 5.0.5,* General Technical Report RMRS-GRT-106WWW Revised. July 2008. Patricia L. Andrews, Collin D. Bevins, Robert Seli. United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.

3. National Fire Protection Association - NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildfire.*

4. National Fire Protection Association - NFPA 13 Standard for the Installation of Sprinkler Systems in One and Two-Family Dwellings and Manufactured Homes, 13-R &13-D

5. 2019 California Code of Regulations, Title 14, section 1280 and Title 24 Part 9

6. 2019 California Public Resources Codes sections 4201 through 4204

7. California Government Code, sections 51175 through 51189

8. 2019 California Fire Code including Local Amendments and Appendices to Chapters 1 & 4 and Appendices B, F & H

9. 2018 International Wildland-Urban Interface Code

10. International Fire Code 2018

11. *County of San Diego. Plant List and Acceptable Plants for a Defensible Space in Fire Prone Areas. Department of Planning and Land Use, December 1998*

12. 2020 County of San Diego Consolidated Fire Code

13. County of San Diego. *Plant List and Acceptable Plants for a Defensible Space in Fire Prone Areas.* Department of Planning and Land Use, December 15, 1998.

14. *2019 Chapter 7A-California Building Code*

15. *The California State and Local Responsibility Area Fire Hazard Severity Zone Map*

16. City of Escondido Fire Department Requirements *Ordinance No. 2016-09*

17. Escondido Weed Abatement *Standards*

18. Escondido Fire Prevention Requirements

19. Escondido Wildland/Urban Interface Standard Development Guidelines

20. County of San Diego. *Guidelines for Determining Significance and Report Format and Content Requirements Wildland Fire and Fire Protection.* Land Use and Environment Group - Department of Planning and Land Use and the Department of Public Works. December 19, 2008. 19 pages.

21. Western Region Climate Center. *Historic Climate Data from Remote Automated Weather Stations.* RAWS USA Climate Archive. Reno, NV. Data for all Remote Automated Weather Stations is available at the following web site: http://www.raws.dri.edu/index.html

APPENDIX 'A'

Recommended Plant List

APPENDIX 'A'

COUNTY OF SAN DIEGO
ACCEPTABLE PLANTS FOR DEFENSIBLE SPACE
IN FIRE PRONE AREAS

ALL NATIVE PLANTS ON THE FOLLOWING LIST are considered to be drought-tolerant in the particular climate zone they are found. Those that grow best in riparian areas, as indicated by the "R", are generally the least drought-tolerant plants on the list.

SPECIAL NOTE: When planting, it is necessary to water deeply to encourage the plant roots to seek natural moisture in the soil. This watering should continue for at least three years to allow the plants to naturalize. More water should be provided in summer and less (if any) in the winter. These plants should be weaned off the supplemental irrigation and become less dependent on it over the establishment period.

No plant is totally fire resistant. The plants listed were chosen to due to their high water content, minimum amount of flammable resins and/or low fuel volume.

Definitions:

Drought-Tolerant Plant Materials: Trees, shrubs, groundcovers, and other vegetation capable of sustained growth and reproduction with only natural moisture. Occasional supplemental irrigation is necessary only in extreme drought situations.

Establishment Period: The time it takes for a plant to become drought-resistant. This is usually a period of three years and is the time when supplemental irrigation is necessary.

Native or Naturalizing Plant Species: Plant species native to the region or introduced which, once established, are capable of sustaining growth and reproduction under local climatic conditions without supplemental irrigation.

***FIREWISE* 2000, LLC. Note:** The plant list which follows was developed using the plants found on the San Diego County approved plant list. This list was then compared to those plants which are suitable for the climatic zone in which the project is located. Only those plants suitable for the project area are listed below. The list is therefore shorter than that provided by the County. By providing this custom list, plants that are likely to be killed or seriously damaged by frost or will not perform in hot dry conditions have been eliminated. ***FIREWISE* 2000, LLC.** believes that the planting of species suited to the site is essential to fire management goals and is an environmentally sound practice.

San Diego County
Customized Acceptable Plant List
For The Escondido Estates Project

No.	Type	Genus	Species	Common Name
1	Annual	Lupinus spp.	nanus	Lupine
2	Groundcover	Achillea	millefolium	Yarrow
3	Groundcover	Aptenia	cordifolia	Aptenia
4	Groundcover	Arctostaphylos spp.		Manzanita
5	Groundcover	Cerastium	tomentosum	Snow-in-Summer
6	Groundcover	Coprosma	kirkii	Creeping Coprosma
7	Groundcover	Cotoneaster spp.		Redberry
8	Groundcover	Drosanthemum	hispidum	Rosea Ice Plant
9	Groundcover	Dudleya	brittonii	Britton's Chalk Dudleya
10	Groundcover	Dudleya	pulverulenta	Chalk Dudleya
11	Groundcover	Dudleya	virens	Island Live-Forever
12	Groundcover	Eschscholzia	californica	California Poppy
13	Groundcover	Ferocactus	viridescens	Coast Barrel Cactus
14	Groundcover	Gaillardia	grandiflora	Blanket Flower
15	Groundcover	Gazania spp.		Gazania
16	Groundcover	Helianthemum spp.		Sunrose
17	Groundcover	Lantana spp.		Lantana
18	Groundcover	Lasthenia	californica	Common Goldfields
19	Groundcover	Lasthenia	glabrata	Coastal Goldfields
20	Groundcover	Lupinus spp.		Lupine
21	Groundcover	Myoporum spp.		Myoporum
22	Groundcover	Pyracantha spp.		Firethorn
23	Groundcover	Rosmarinus	officinalis	Rosemary
24	Groundcover	Santolina	chamaecyparissus	Lavender Cotton
25	Groundcover	Santolina	virens	Santolina
26	Groundcover	Trifolium	frageriferum	O'Connor's Legume
27	Groundcover	Verbena	rigida	Verbena
28	Groundcover	Viguiera	laciniata	San Diego Sunflower
29	Groundcover	Vinca	major	Periwinkle
30	Groundcover	Vinca	minor	Dwarf Periwinkle
31	Perennial	Coreopsis	gigantea	Giant Coreopsis
32	Perennial	Coreopsis	grandiflora	Coreopsis
33	Perennial	Coreopsis	maritima	Sea Dahlia
34	Perennial	Coreopsis	verticillata	Coreopsis
35	Perennial	Heuchera	maxima	Island Coral Bells
36	Perennial	Iris	douglasiana	Douglas Iris
37	Perennial	Kniphofia	uvaria	Red-Hot Poker
38	Perennial	Lavandula spp.		Lavender
39	Perennial	Limonium	californicum perezii	Coastal Statice
40	Perennial	Limonium	californicum var. mexicanum	Coastal Statice
41	Perennial	Oenothera spp.		Primrose
42	Perennial	Penstemon spp.		Penstemon
43	Perennial	Satureja	douglasii	Yerba Buena
44	Perennial	Sisyrinchium	bellum	Blue-Eyed Grass

45	Perennial	Sisyrinchium	californicum	Golden-Eyed Grass
46	Perennial	Solanum	xantii	Purple Nightshade
47	Perennial	Zauschneria	'Catalina'	Catalina Fuschia
48	Perennial	Zauschneria	californica	California Fuschia
49	Perennial	Zauschneria	cana	Hoary California Fuschia
50	Shrub	Agave	americana	Desert Century Plant
51	Shrub	Agave	Amorpha fruticosa	False Indigobush
52	Shrub	Agave	deserti	Shaw's Century Plant
53	Shrub	Agave	shawii	NCN
54	Shrub	Agave		Century Plant
55	Shrub	Arctostaphylos spp		Manzanita
56	Shrub	Atriplex	canescens	Hoary Saltbush
57	Shrub	Baccharis	pilularis	Coyote Bush
58	Shrub	Baccharis	salicifolia	Mule Fat "R"
59	Shrub	Carissa	macrocarpa	Natal Plum
60	Shrub	Ceanothus spp.		California Lilac
61	Shrub	Cistus spp.		Rockrose
62	Shrub	Cneoridium	dumosum	Bush rue
63	Shrub	Comarostaphylis	diversifolia	Summer Holly
64	Shrub	Convolvulus	cneorum	Bush Morning Glory
65	Shrub	Dalea	attenuata v orcuttii	Orcutt's Delea
66	Shrub	Elaeagnus	pungens	Silverberry
67	Shrub	Encelia	californica	Coast Sunflower
68	Shrub	Encelia	farinosa	White Brittlebush
69	Shrub	Eriobotrya	deflexa	Bronze Loquat
70	Shrub	Eriophyllum	confertiflorum	Golden Yarrow
71	Shrub	Escallonia spp.		Escallonia
72	Shrub	Feijoa	sellowiana	Pineapple Guava
73	Shrub	Fremontodendron	californicum	Flannelbush
74	Shrub	Fremontodendron	mexicanum	Southern Flannelbush
75	Shrub	Galvezia	juncea	Baja Bush-Snapdragon
76	Shrub	Galvezia	speciosa	Island Bush-Snapdragon
77	Shrub	Garrya	elliptica	Coast Silktassel
78	Shrub	Garrya	flavescens	Ashy Silktassel
79	Shrub	Heteromeles	arbutifolia	Toyon
80	Shrub	Lantana spp.		Lantana
81	Shrub	Lotus	scoparius	Deerweed
82	Shrub	Mahonia spp.		Barberry
83	Shrub	Malacothamnus	clementinus	San Clemente Island Bush Mallow
84	Shrub	Malacothamnus	fasciculatus	Mesa Bushmallow
85	Shrub	Melaleuca spp.		Melaleuca
86	Shrub	Mimulus spp.		Monkeyflower
87	Shrub	Nolina	parryi	Parry's Nolina
88	Shrub	Photinia spp.		Photinia
89	Shrub	Pittosporum	crassifolium	NCN
90	Shrub	Pittosporum	rhombifolium	Queensland Pittosporum
91	Shrub	Pittosporum	tobira 'Wheeleri'	Wheeler's Dwarf
92	Shrub	Pittosporum	undulatum	Victorian Box
93	Shrub	Pittosporum	viridiflorum	Cape Pittosporum
94	Shrub	Plumbago	auriculata	Cape Plumbago

95	Shrub	Prunus	caroliniana	Carolina Laurel Cherry
96	Shrub	Prunus	ilicifolia	Hollyleaf Cherry
97	Shrub	Prunus	lyonii	Catalina Cherry
98	Shrub	Puncia	granatum	Pomegranate
99	Shrub	Pyracantha spp.		Firethorn
100	Shrub	Quercus	dumosa	Scrub Oak
101	Shrub	Rhamus	alaternus	Italian Buckthorn
102	Shrub	Rhamus	californica	Coffeeberry
103	Shrub	Rhaphiolepis spp.		Rhaphiolepis
104	Shrub	Rhus	continus	Smoke Tree
105	Shrub	Rhus	integrifolia	Lemonade Berry
106	Shrub	Rhus	laurina	Laurel Sumac
107	Shrub	Rhus	ovata	Sugarbush
108	Shrub	Rhus	trilobata	Squawbush
109	Shrub	Romneya	coulteri	Matilija Poppy
110	Shrub	Rosa	californica	California Wild Rose
111	Shrub	Rosa	minutifolia	Baja California Wild Rose
112	Shrub	Salvia spp.		Sage
113	Shrub	Sambucus spp.		Elderberry
114	Shrub	Symphoricarpos	mollis	Creeping Snowberry
115	Shrub	Syringa	vulgaris	Lilac
116	Shrub	Tecomaria	capensis	Cape Honeysuckle
117	Shrub	Teucrium	fruticans	Bush Germander
118	Shrub	Verbena	lilacina	Lilac Verbena
119	Shrub	Xylosma	congestum	Shiny Xylosma
120	Shrub	Yucca	schidigera	Mojave Yucca
121	Shrub	Yucca	whipplei	Foothill Yucca
121	Tree	Acer	macrophyllum	Big Leaf Maple
122	Tree	Acer	saccharinum	Silver Maple
123	Tree	Alnus	rhombifolia	White Alder "R"
124	Tree	Arbutus	unedo	Strawberry Tree
125	Tree	Archontophoenix	cunninghamiana	King Palm
126	Tree	Brahea	armata	Blue Mexican Palm
127	Tree	Brahea	edulis	Guadalupe Palm
128	Tree	Ceratonia	siliqua	Carob
129	Tree	Cercis	occidentalis	Western Redbud
130	Tree	Cornus	stolonifera	Redtwig Dogwood
131	Tree	Eriobotrya	japonica	Loquat
132	Tree	Erythrina	caffra	Kaffirboom Coral Tree
133	Tree	Gingko	biloba "Fairmount"	Fairmount Maidenhair Tree
134	Tree	Juglans	californica	California Walnut
135	Tree	Lagerstroemia	indica	Crape Myrtle
136	Tree	Ligustrum	lucidum	Glossy Privet
137	Tree	Liquidambar	styraciflua	Sweet Gum
138	Tree	Liriodendron	tulipifera	Tulip Tree
139	Tree	Lyonothamnus	floribundus asplenifolius	Fernleaf Catalina Ironwood
140	Tree	Melaleuca spp.		Melaleuca
141	Tree	Myoporum spp.		Myoporum
142	Tree	Nerium	oleander	Oleander
143	Tree	Parkinsonia	aculeata	Mexican Palo Verde

144	Tree	Pistacia	chinensis	Chinese Pistache
145	Tree	Pistacia	vera	Pistachio Nut
146	Tree	Pittosporum	phillyreoides	Willow Pittosporum
147	Tree	Pittosporum	viridiflorum	Cape Pittosporum
148	Tree	Platanus	acerifolia	London Plane Tree
149	Tree	Platanus	racemosa	California Sycamore "R"
150	Tree	Populus	alba	White Poplar
151	Tree	Populus	fremontii	Western Cottonwood "R"
152	Tree	Populus	trichocarpa	Black Cottonwood "R"
153	Tree	Prunus	caroliniana	Carolina Laurel Cherry
154	Tree	Prunus	cersifera 'Newport'	Newport Purple-Leaf Plum
155	Tree	Prunus	ilicifolia	Hollyleaf Cherry
156	Tree	Prunus	lyonii	Catalina Cherry
157	Tree	Prunus	xblireiana	Flowering Plum
158	Tree	Quercus	agrifolia	Coast Live Oak
159	Tree	Quercus	engelmannii	Engelmann Oak
160	Tree	Quercus	suber	Cork Oak
161	Tree	Rhus	lancea	African Sumac
162	Tree	Salix spp.		Willow "R"
163	Tree	Tristania	conferta	Brisbane Box
164	Tree	Ulmus	parvifolia	Chinese Elm
165	Tree	Ulmus	pumila	Siberian Elm
166	Tree	Umbellularia	californica	California Bay Laurel "R"
167	Vine	Antigonon	leptopus	San Miguel Coral Vine
168	Vine	Distictis	buccinatoria	Blood-Red Trumpet Vine
169	Vine	Keckiella	cordifolia	Heart-Leaved Penstemon
170	Vine	Lonicera	japonica 'Halliana'	Hall's Honeysuckle
171	Vine	Lonicera	subspicata	Chaparral Honeysuckle
172	Vine	Solanum	jasminoides	Potato Vine

For plants to be used in fuel treatment Zones A or B that are not found on this list, acquire approval from your local fire department first before installing them. Only "*firewise*" plants can be used in these zones.

APPENDIX 'B'

Prohibited/Invasive Plant List

UNDESIRABLE PLANT LIST

The following species are highly flammable and avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio. Many of these species, if existing on the property and adequately maintained (pruning, thinning, irrigation, litter removal, and weeding) may remain as long as the potential for spreading a fire has been reduced or eliminated.

BOTANICAL NAME	COMMON NAME
Abies species	Fir Trees
Acacia species	Acacia (trees, shrubs, groundcovers)
Adenostoma sparsifolium**	Red Shanks
Adenostoma fasciculatum**	Chamise
Agonis juniperina	Juniper Myrtle
Araucaria species	Monkey Puzzle, Norfolk Island Pine
Artemesia californica**	California Sagebrush
Bambusa species	Bamboo
Cedrus species	Cedar
Chamaecyparis species	False Cypress
Coprosma pumila	Prostrate Coprosma
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
Cupressus forbesii**	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Dodonea viscosa	Hopseed Bush
Eriogonum fasciculatum**	Common Buckwheat
Eucalyptus species	Eucalyptus
Heterotheca grandiflora**	Telegraph Plant
Juniperus species	Junipers
Larix species	Larch
Lonicera japonica	Japanese Honeysuckle
Miscanthus species	Eulalia Grass
Muehlenbergia species**	Deer Grass
Palmae species	Palms
Picea species	Spruce Trees
Pickeringia Montana**	Chaparral Pea
Pinus species	Pines
Podocarpus species	Fern Pine
Pseudotsuga menziesii	Douglas Fir
Rosmarinus species	Rosemary
Salvia mellifera**	Black Sage
Taxodium species	Cypress
Taxus species	Yew
Thuja species	Arborvitae
Tsuga species	Hemlock
Urtica urens**	Burning Nettle

** San Diego County native species

APPENDIX 'B' References:

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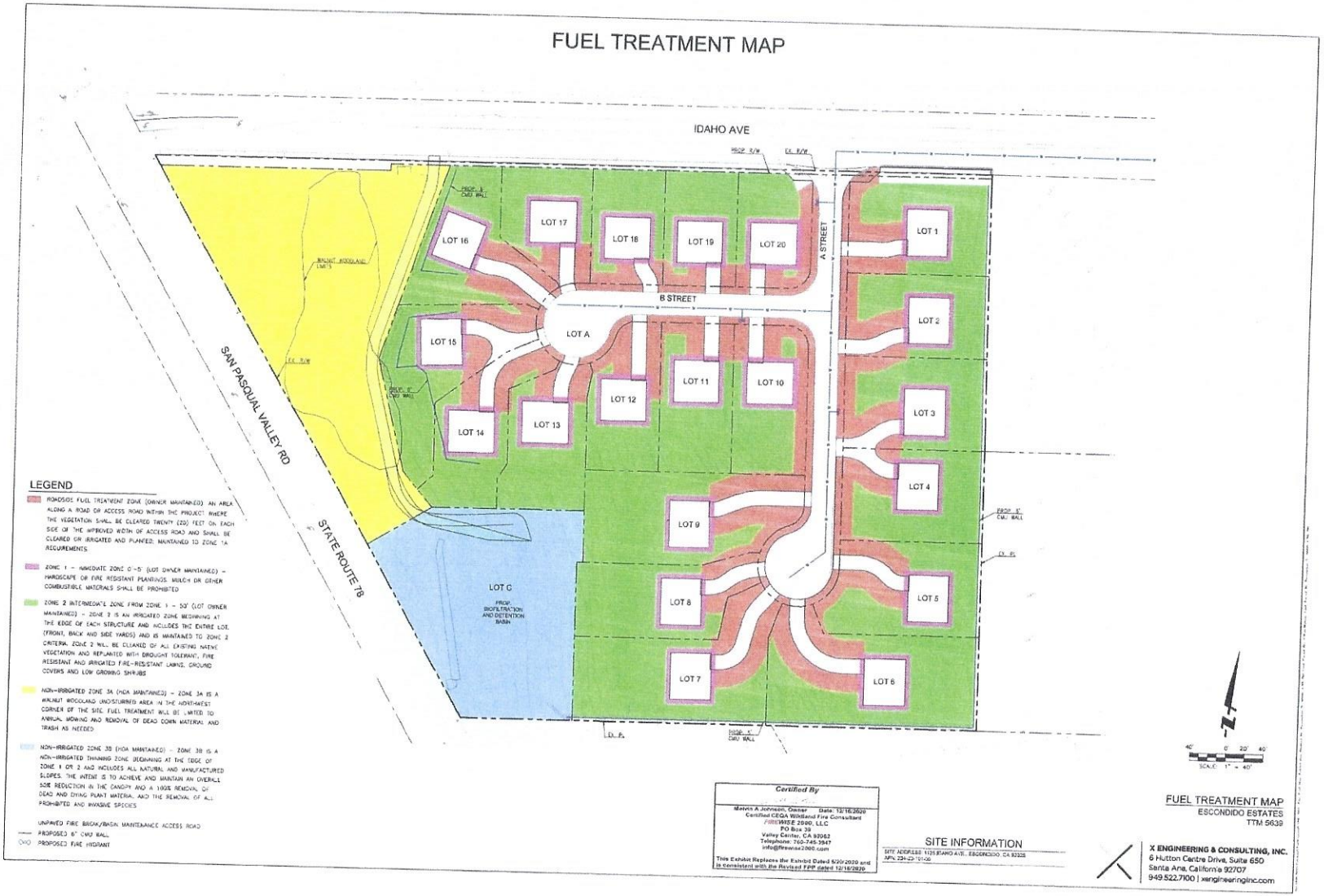
APPENDIX 'C'

Fire Protection Plan/Plot Maps &Photos

FUEL TREATMENT MAP



LEGEND

- ROADSIDE FUEL TREATMENT ZONE (OWNER MAINTAINED): AN AREA ALONG A ROAD OR ACCESS ROAD WITHIN THE PROJECT WHERE THE VEGETATION SHALL BE CLEARED TWENTY (20) FEET ON EACH SIDE OF THE IMPROVED WIDTH OF ACCESS ROAD AND SHALL BE CLEARED OR IRRIGATED AND PLANTED, MAINTAINED TO ZONE 1A REQUIREMENTS.
- ZONE 1 – IMMEDIATE ZONE 0'-5' (LOT OWNER MAINTAINED) – HARDSCAPE OR FIRE RESISTANT PLANTINGS. MULCH OR OTHER COMBUSTIBLE MATERIALS SHALL BE PROHIBITED
- ZONE 2 INTERMEDIATE ZONE FROM ZONE 1 – 50' (LOT OWNER MAINTAINED) – ZONE 2 IS AN IRRIGATED ZONE BEGINNING AT THE EDGE OF EACH STRUCTURE AND INCLUDES THE ENTIRE LOT (FRONT, BACK AND SIDE YARDS) AND IS MAINTAINED TO ZONE 2 CRITERIA. ZONE 2 WILL BE CLEARED OF ALL EXISTING NATIVE VEGETATION AND REPLANTED WITH DROUGHT TOLERANT, FIRE RESISTANT AND IRRIGATED FIRE-RESISTANT LAWNS, GROUND COVERS AND LOW GROWING SHRUBS
- NON-IRRIGATED ZONE 3A (HOA MAINTAINED) – ZONE 3A IS A WALNUT WOODLAND UNDISTURBED AREA IN THE NORTH-WEST CORNER OF THE SITE. FUEL TREATMENT WILL BE LIMITED TO ANNUAL MOWING AND REMOVAL OF DEAD DOWN MATERIAL AND TRASH AS NEEDED
- NON-IRRIGATED ZONE 3B (HOA MAINTAINED) – ZONE 3B IS A NON-IRRIGATED THINNING ZONE BEGINNING AT THE EDGE OF ZONE 1 OR 2 AND INCLUDES ALL NATURAL AND MANUFACTURED SLOPES. THE INTENT IS TO ACHIEVE AND MAINTAIN AN OVERALL 50% REDUCTION IN THE CANOPY AND A 100% REMOVAL OF DEAD AND DYING PLANT MATERIAL AND THE REMOVAL OF ALL PROHIBITED AND INVASIVE SPECIES

UNPAVED FIRE BREAK/BASIN MAINTENANCE ACCESS ROAD
PROPOSED 6" CMU WALL
PROPOSED FIRE HYDRANT

Certified By

Melvin A Johnson, Owner Date: 12/16/2020
Certified CEQA Wildland Fire Consultant
FIREWISE 2000, LLC
PO Box 39
Valley Center, CA 92082
Telephone: 760-745-3947
info@firewise2000.com

This Exhibit Replaces the Exhibit Dated 6/20/2020 and is consistent with the Revised FPP dated 12/16/2020

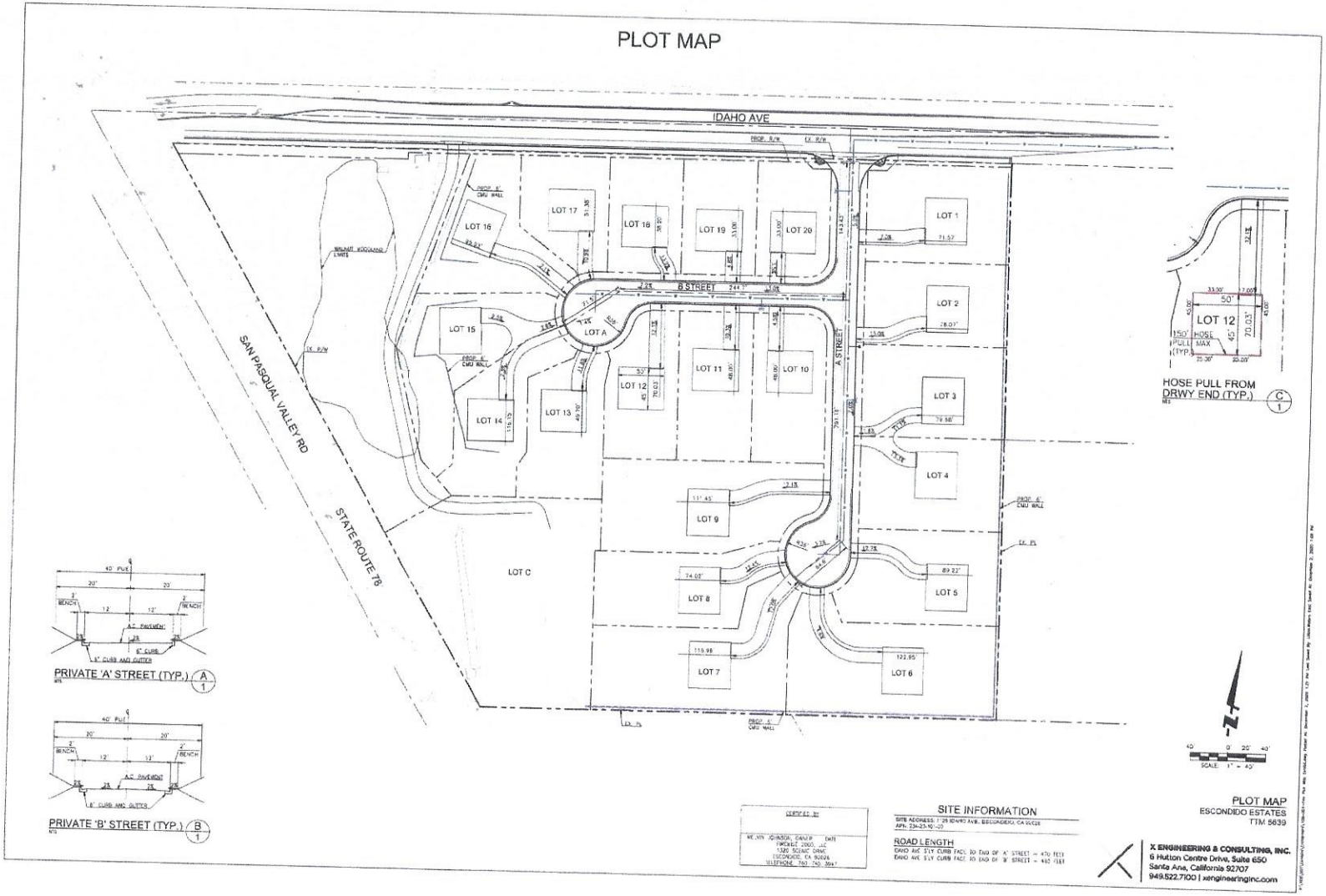
SITE INFORMATION

SITE ADDRESS: 1125 IDAHO AVE., ESCONDIDO, CA 92025
APN: 234-23-19-00

FUEL TREATMENT MAP
ESCONDIDO ESTATES
TTM 5639

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.922.7100 | xengineeringinc.com

PLOT MAP



SITE INFORMATION

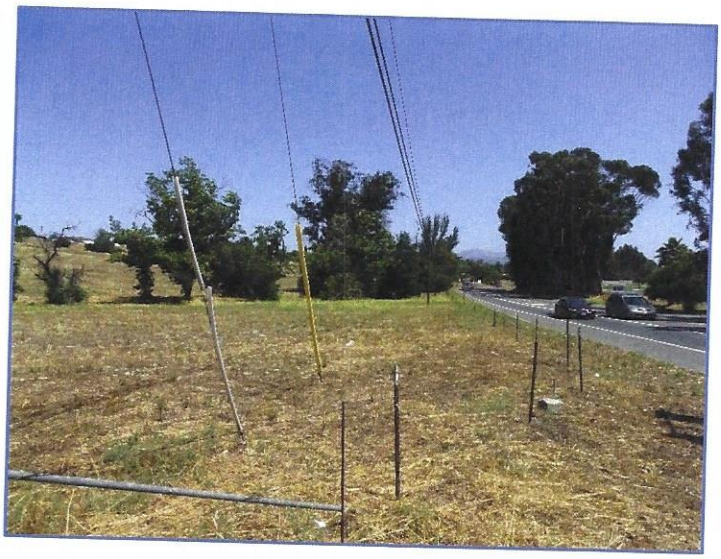
SITE ADDRESS: 1125 IDAHO AVE., ESCONDIDO, CA 92025
APN: 224-251-10 -00

ROAD LENGTH

IDAHO AVE S'LY CURB FACE TO END OF 'A' STREET = 470 FEET
IDAHO AVE S'LY CURB FACE TO END OF 'B' STREET = 440 FEET

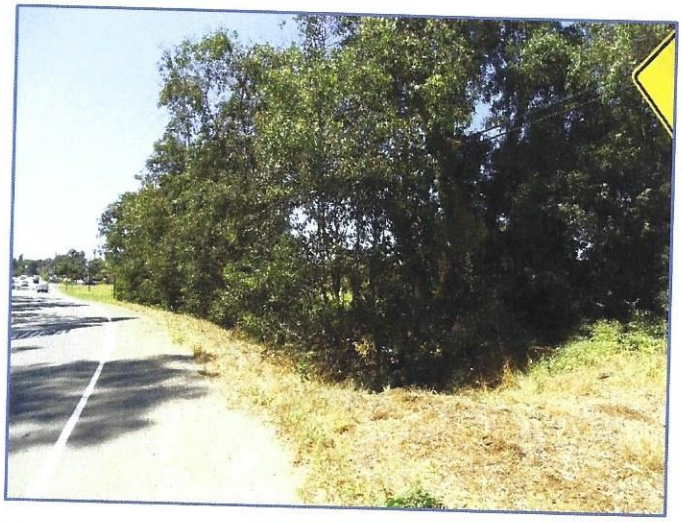
PLOT MAP
ESCONDIDO ESTATES
TTM 5639

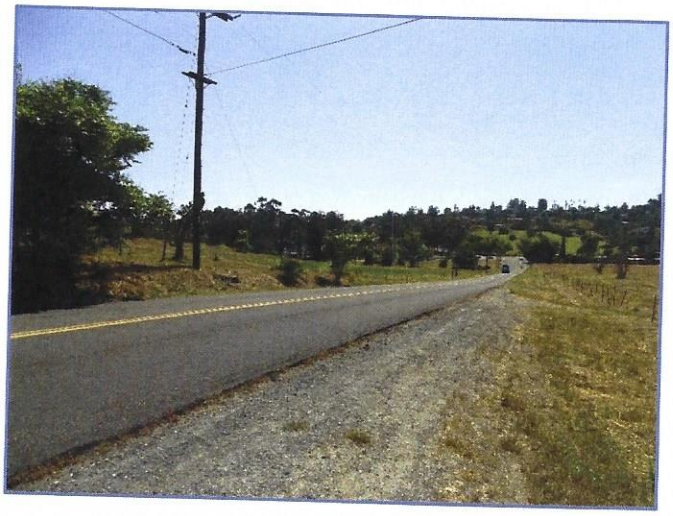
X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com



Escondido Estate, Western Boundary Along San Pasqual Valley Road

San Pasqual Valley Rd., Northern View from Southwestern Corner





Northern Property Boundary along Idaho Ave. View is West from Northeast Corner of Project

Fuels After Current Annual Treatments
Above: Midslope, West Facing Slope
Below: Creek Bed, Northwestern Corner of Development

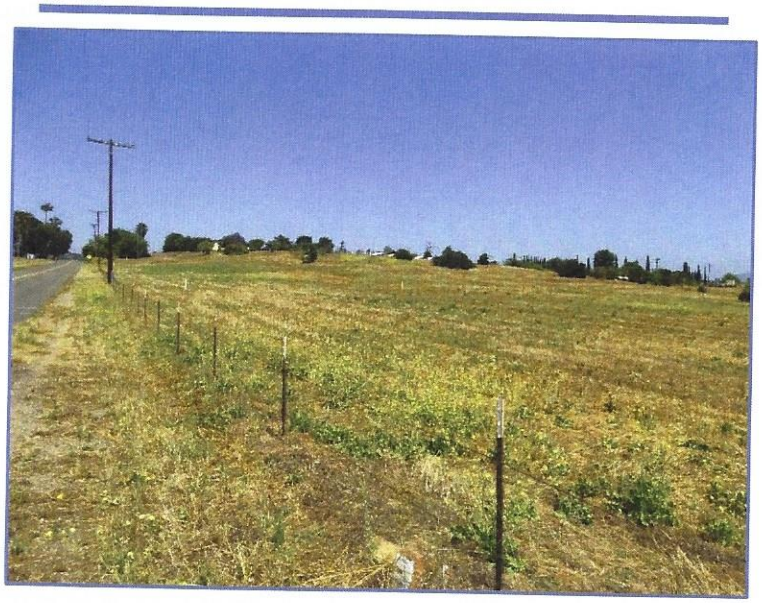
Southern Property Boundary
Top: Heavy Fuel Conditions Along Fence line.
Note: Fuel Accumulation is Off-site
Bottom: Native and Non-native Trees in Creek Bed

ABOVE: EXISITING WELL WITH PUMPHOUSE NOT SHOWN TO THE LEFT. PUMPHOUSE, WELL AND POWER LINE WILL BE REMOVED DURING CONSTRUCTION

BELOW: SOUTHERN PROPERTY BOUNDARY WITH OFF-SITE FUEL LOAD

Below: Annual Fuel Treatments with Trees in Creek Bed, Northwest Corner of site, Looking Southeast

Below: Northwest Corner of Property Looking East



APPENDIX 'D'

Non-Combustible & Ignition Resistant Building Materials

APPENDIX 'D'

Non-Combustible & Ignition Resistant Building Materials For Balconies, Carports, Decks, Patio Covers and Floors

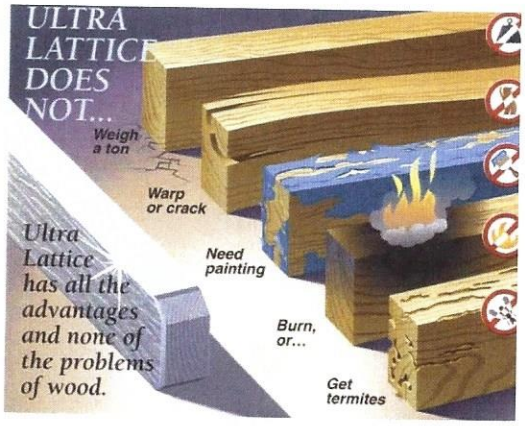
Examples of non-combustible & fire resistant building materials for balconies, carports decks, patio covers and floors are as follow:

I. **NON-COMBUSTIBLE HEAVY GAGE ALUMINUM MATERIALS** - *Metals USA Building Products Group - Ultra-Lattice*

Ultra-Lattice Stand Alone Patio Cover

Ultra-Lattice Attached Patio Cover

Ultra-Lattice Solid Patio Cover



Ultra-Lattice Vs. Wood

II. FRX Exterior Fire-Retardant Treated Wood

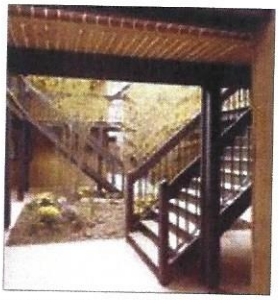
Exterior Fire Retardant Treated (FRT) Wood

FRX® fire retardant treated wood may be used in exterior applications permitted by the codes where: public safety is critical, other materials would transfer heat or allow fires to spread, sprinkler systems cannot easily be installed, corrosive atmospheres necessitate excessive maintenance of other materials, or fire protection is inadequate or not readily available. The International Building, Residential and Urban-Wildland Interface Codes and regulations permit the use of fire retardant treated wood in specific instances. See below for typical exterior uses and typical residential uses.

Typical Exterior Uses

- Balconies
- Decks

Homeowners and Residential Architects: See this 2-minute video and the diagram below.



For information on fire retardant treated wood for exterior uses, visit www.frxwood.com.

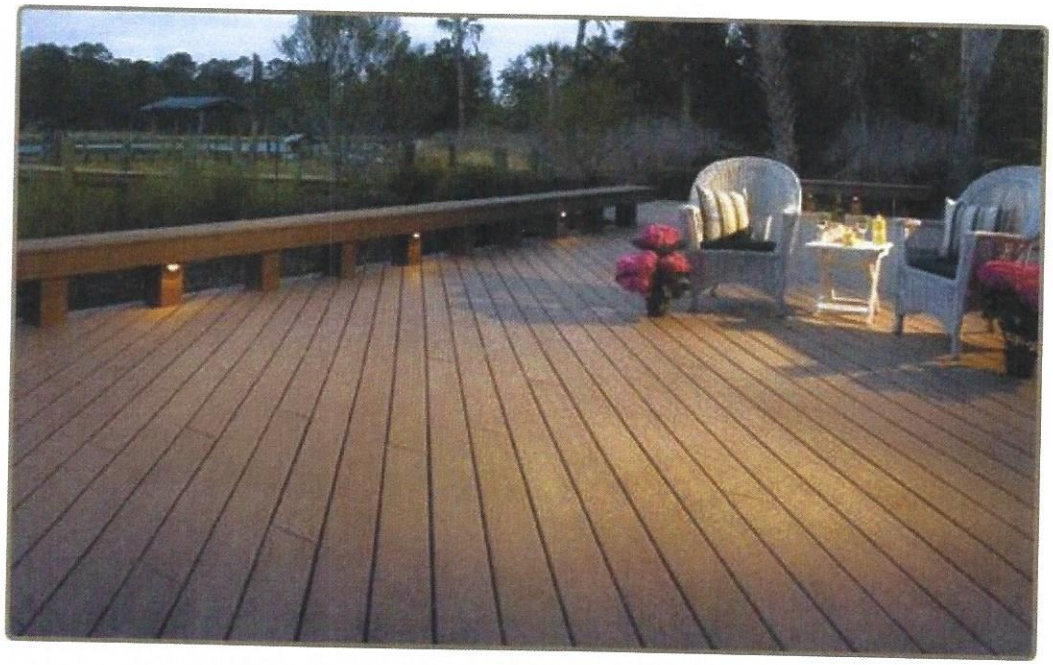
Decking (SFM Standard 12-7A-4)

III. TREX COMPANY, LLC –"Trex Accents ®: Fire Defense ™ " wood and polyethylene composite deck board, nominal 5/4" thick x 5-1/2" width, nominal density of 0.036 lb./in^3.

Trex Accents®: Fire Defense™

The perfect blend of beauty and brawn.

Trex's #1 selling platform, Trex Accents®, exceeds the strict fire regulations set by the State of California and San Diego County.



- Offers superior safety performance:
  - Exceeds ASTM E84 Class B Flame Spread.
  - Exceeds 12-7A-4 Part A (underflame) and Part B (Burning Brand).
- Self-extinguishing even under extreme fire exposure.
- Approved for use by the California State Fire Marshal's Office and San Diego County. Read the California Department of Forestry and Fire Protection, Office of the State Fire Marshal WILDLAND URBAN INTERFACE (WUI)PRODUCTS Report. (PDF)

IV. SOLID "WOOD" DECKING

◇Company Name: Various Manufacturers
Product Description: Solid "Wood" decking: "Redwood", "Western Red Cedar", "Incense Cedar", "Port Orford Cedar", and "Alaska Yellow Cedar".
Sizes: Minimum nominal 2" thickness (American Softwood Lumber Standard PS 20).
Lumber grades: Construction Common and better grades for Redwood, 3 Common and better grades for Cedars, and commercial decking or better grades for both Redwood and Cedars.

Special Instructions: Solid wood decking shall be installed over solid wood joists spacing 24" or less on center.

APPENDIX 'E'

Ignition-Resistant Building Requirements

APPENDIX 'E'

As of the date of this FPP, the following is a list of ignition resistant construction requirements for buildings located in an Wildland Urban Interface Fire Area under the 2016 California Fire Code (CFC), Chapter 7A of the California Building Code (CBC) and the California Residential Code (CRC) R337. However the requirements listed below are not all LLClusive and all exterior building construction Including roofs, eaves, exterior walls, doors, windows, decks, and other attachments must meet all of the CBC Chapter 7A ignition resistance requirements, CRC R337, CFC and local requirements in force at the time of building permit application. See the currrent applicable codes for a detailed description of these requirements and any exceptions.

1. All structures will be built with a Class A Roof Assembly, Including a Class A roof covering, Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.

2. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be fire stopped with approved materials or have one layer of No. 72 ASTM cap sheet installed over the combustible decking.

3. When provided, exposed valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of No. 72 ASTM cap sheet running the full length of the valley.

4. All rain gutters, down spouts and gutter hardware shall be constructed from metal or other noncombustible material to prevent wildfire ignition along eave assemblies .

5. Gutters shall be provided with the means to prevent the accumulation of leaf litter and debris that contribute to roof edge ignition.

6. All chimney, flue or stovepipe openings will have an approved spark arrester. An approved spark arrester is defined as a device constructed of nonflammable materials, 12-gauge minimum thicknesses or other material found satisfactory by the Fire Protection District, having ½-inch perforations for arresting burning carbon or sparks. It shall be installed to be visible for the purposes of inspection and maintenance.

7. The exterior walls surface materials shall be non-combustible or ignition resistant. In all construction, exterior walls shall extend from the top of the foundation to the roof and terminate at 2-inch nominal solid blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.

8. All eaves, fascias and soffits will be enclosed (boxed) with non-combustible materials. This shall apply to the entire perimeter of each structure. Eaves of heavy timber construction are not required to be enclosed as long as attic venting is not installed in the eaves. For the purposes of this section heavy timber construction shall consist of a minimum of 4x6 rafter ties and 2x decking.

9. Paper-faced insulation shall be prohibited in attics or ventilated spaces.

10. All residential structures will have automatic interior fire sprinklers installed according to the National Fire Protection Association (NFPA) 13D - *Standard for the Installation of Sprinkler Systems in One and Two-family Homes and Manufactured Homes* . Fire sprinklers are not required in unattached non-habitable structures greater than 50 feet from the residence. All structures will have automatic fire alarms.

11. Roof vents, dormer vents, gable vents, foundation ventilation openings, ventilation openings in vertical walls, or other similar ventilation openings shall be louvered and covered with 1/8-inch, noncombustible, corrosion-resistant metal mesh or other approved material that offers equivalent protection. Turbine attic vents shall be equipped to allow, one-way direction rotation only; they shall not free spin in both directions.

12. Attic or foundation ventilation louvers or ventilation openings in vertical walls shall not exceed 144 square Inchess per opening and shall be covered with 1/8-inch mesh corrosion-resistant metal screening or other approved material that offers equivalent protection. Attic ventilation shall also comply with the requirements of the Uniform Building Code (U.B.C.). Ventilation louvers and openings may be incorporated as part of access assemblies.

13. No attic ventilation openings or ventilation louvers shall be permitted in soffits, in eave overhangs, between rafters at eaves, or in other overhanging areas.

14. All side yard fence and gate assemblies (fences, gate and gate posts) when attached to the home shall be of non-combustable material. The first five feet of fences and other items attached to a structure shall be of non-combustible material.

15. All projections (exterior balconies, decks, patio covers, unenclosed roofs and floors, and similar architectural appendages and projections) or structures less than five feet from a building shall be of non-combustible material, one-hour fire resistive construction on the underside, heavy timber construction or pressure-treated exterior fire-retardant wood. When such appendages and projections are attached to exterior fire-resistive walls, they shall be constructed to maintain same fire-resistant standards as the exterior walls of the structure.

16. Accessory structures attached to buildings with habitable spaces and projections shall be in accordance with the Building Code. When the attached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have all underfloor areas and exterior wall construction in accordance with Chapter 7A of the Building Code.

17. Detached accessory structures located less than 50 feet from a building containing habitable space shall be constructed in accordance with Chapter 7A of the Building Code.

18. Exterior doors shall be approved non-combustible construction, solid core wood and shall conform to the performance requirements of standard SFM 12-7A-1 or shall be of approved noncombustible construction, or solid core wood having stiles and rails not less than 1⅜ inches thick with interior field panel thickness no less than 1¼ inches thick, or shall have a fire-resistance rating of not less than 20 minutes when tested according to ASTM E2074.

19. All glass or other transparent, translucent or opaque glazing materials including skylights shall be constructed multi-layered glazed panels one layer of which must be tempered glass.

20. Vinyl window assemblies are deemed acceptable if the windows have the following characteristics:
    - Frame and sash are comprised of vinyl material with welded corners
    - Metal reinforcements in the interlock area
    - Glazed with insulating glass, annealed or tempered (one layer of which must be tempered glass).
    - Frame and sash profiles are certified in AAMA Lineal Certification Program
    - Certified and labeled to ANSI/AAMA/NWWDA 101/LS2-97 for Structural Requirements

City of Escondido General Requirements

1. All awnings attached to any structure shall meet the 15-foot structure setback requirement and be identified as fire rated. Additionally, the awning shall be contained in a metal, self-enclosing or box-protected cover.
2. Portable awnings shall have UL Approved Fire Retardant Rating and be no closer than 20 feet from any combustible structures.
3. The following requirements apply to both pool heating and power supply. Solar panels located less than 20 feet to a combustible structure shall have a metal frame, otherwise the size and type of materials of the entire solar panel system will determine the separation distance to combustible structures. All solar panels placed on a roof top shall comply with the Class "A" roof assembly and materials requirements.
4. Trash enclosures or trash can storage shall be located at least 10 feet or more from any structure. Trash enclosures trellis or roof should be non-combustible or made of heavy timber.
5. Small storage buildings shall be located at least 20 feet from any structure.
6. Clearance too combustibles shall be kept a minimum of 10 feet from any propane tanks or containers.

AUXILLARY STRUCTURES: PAVILIONS, TRELLISES, ARBORS, PERGOLAS, CABANAS, PALAPAS, AND PLAYGROUND EQUIPMENT

Auxiliary Structures are evaluated for a fire event (i.e., type of combustible materials, size of structure, distance from house and intended use). In addition, if structure is more than 50% covered, a Class A noncombustible roof is required.

ATTACHED, AUXILLARY STRUCTURE TO HOME; i.e., Overhead covers and decking not enclosed on three sides:

a. 100-foot Fuel Modification Zone extends from the attached structure perimeter.
b. Maximize the use of non-combustible material. Columns must be non-combustible masonry and/or stucco or pre-cast concrete.
c. Nominal timber size requirements (4"x 6") for fire resistive construction will be required.
d. Attached structure may not extend into the pre-determined, structure setbacks.
e. Any covered area shall be required to be protected with fire sprinkler system when the dimension from the wall of the structure to the edge of the covered area exceeds ten feet.

DETACHED, AUXILLARY STRUCTURES LESS THAN 250 SQUARE FEET; i.e., small playground equipment, gazebos, shed, trellis, palapas and arbor:

1. When structure is 250 square feet or less, the 100-foot Fuel Modification Zone extends from the house outwards, not the auxiliary structure.
2. The structures shall be a minimum of 20 feet from other combustible structures.
3. Maximize the use of non-combustible material. Columns must be non-combustible Masonry and/or stucco or pre-cast concrete.
4. Nominal timber size requirements (4"x 6") for fire resistive construction will be required
5. Structure may not extend into the fuel modification setbacks from top of slope.
6. The canvas awnings for playground equipment shall be identified and maintained, annually, as fire retardant.
7. Structures enclosed on three or more sides may require an automatic fire sprinkler system.
8. All palapas with thatched roof shall be at a minimum 30 feet from any combustible structure. Roofing materials shall be applied with a fire retardant chemical. Proof of application and UL rating of fire retardant chemical shall be provided to Fire District prior to installation of palapas.

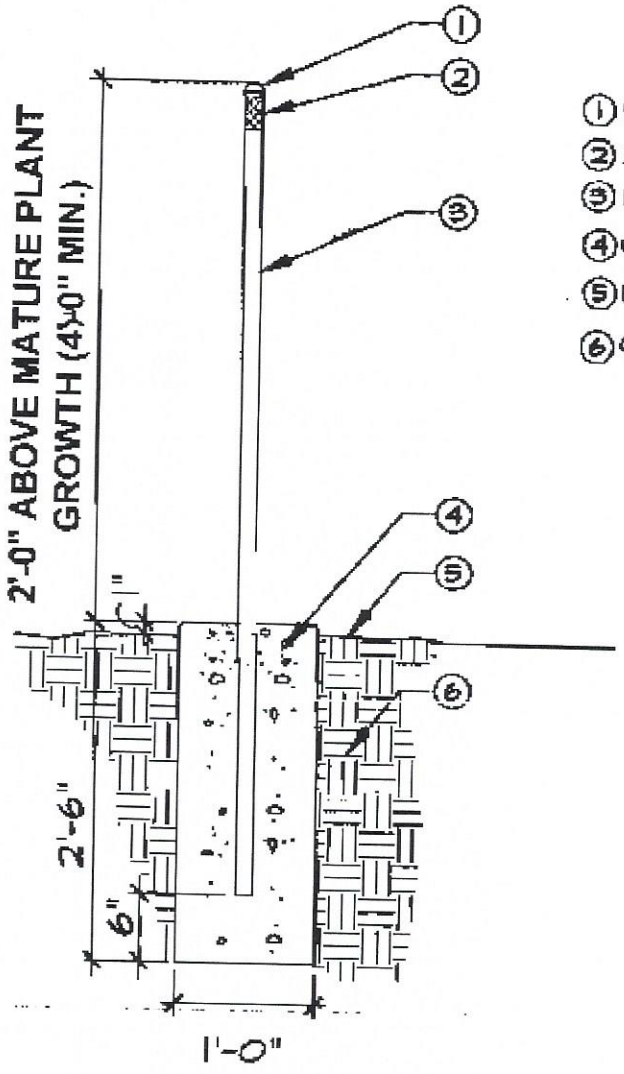
DETACHED AUXILLARY STRUCTURES GREATER THAN 250 SQUARE FEET; i.e., large playground equipment (*e.g., King Kong Clubhouse*), guesthouse, cabana, palapas and pool house)

1. When structure is 250 square feet or greater, the 100-foot Fuel Modification Zone extends from the auxiliary structure.
2. The structures shall be a minimum of 30 feet from other combustible structures, unless otherwise permissible by local zoning requirements.
3. Maximize the use of non-combustible material. Columns must be non-combustible Masonry and/or stucco or pre-cast concrete.
4. Nominal timber size requirements (4"x 6") for fire resistive construction will be required.
5. Structure may not extend into the fuel modification setbacks from top of slope.
6. The canvas awnings for playground equipment shall be identified and maintained, annually, as fire retardant.
7. Structures enclosed on three or more sides may require an automatic fire sprinkler system.10-30-2007 – cfh/ms.

APPENDIX 'F'

Zone Marker Detail

ZONE MARKER DETAILS



1. POST CAP
2. 2"X8" ZONE INDICATOR
3. 1½" DIA. GALV. POST.
4. CONC. PTS. 2500 PSI @ 28 DAYS.
5. FINISH GRADE.
6. COMPACTED SUBGRADE

APPENDIX 'G'

Behave Plus 5.0.5 Fire Behavior Calculations

Inputs: SURFACE

Description		Untreated SCAL 18 North Northeast Wind
Fuel/Vegetation, Surface/Understory		
Fuel Model		SCAL18
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	60.
Wind Adjustment Factor		0.3
Wind Direction (from north)	deg	45
Terrain		
Slope Steepness	%	25
Aspect	deg	90

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ft/min) [SURFACE]

Fireline Intensity (Btu/ft/s) [SURFACE]

Flame Length (ft) [SURFACE]

(continued on next page)

Untreated SCAL 18 North Northeast Wind

Surface Rate of Spread (maximum)	225.4	ft/min
Fireline Intensity	16376	Btu/ft/s
Flame Length	39.1	ft

Inputs: SURFACE

Description		Escondido Estates Treated gr1 East Wind
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr1
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
20-ft Wind Speed	mi/h	30
Wind Adjustment Factor		0.3
Wind Direction (from north)	deg	85
Terrain		
Slope Steepness	%	25
Aspect	deg	50

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ft/min) [SURFACE]

Fireline Intensity (Btu/ft/s) [SURFACE]

Flame Length (ft) [SURFACE]

(continued on next page)

Escondido Estates Treated gr1 East Wind

Surface Rate of Spread (maximum)	41.4	ft/min
Fireline Intensity	67	Btu/ft/s
Flame Length	3.1	ft

Inputs: SURFACE

Description: Escondido Estates Untreated SCAL18 Southwest Wind

Fuel/Vegetation, Surface/Understory

Fuel Model		SCAL18

Fuel Moisture

1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	60

Weather

20-ft Wind Speed	mi/h	30
Wind Adjustment Factor		0.3
Wind Direction (from north)	deg	225

Terrain

Slope Steepness	%	25
Aspect	deg	50

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ft/min) [SURFACE]

Fireline Intensity (Btu/ft/s) [SURFACE]

Flame Length (ft) [SURFACE]

(continued on next page)

Escondido Estates Untreated SCAL18 Southwest Wind

Surface Rate of Spread (maximum)	106.2	ft/min
Fireline Intensity	7678	Btu/ft/s
Flame Length	27.6	ft

Inputs: SURFACE

Description		Escondido Estates Treated gr1 Southwest Wind
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr1
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	60
Weather		
20-ft Wind Speed	mi/h	30
Wind Adjustment Factor		0.3
Wind Direction (from north)	deg	235
Terrain		
Slope Steepness	%	25
Aspect	deg	50

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ft/min) [SURFACE]

Fireline Intensity (Btu/ft/s) [SURFACE]

Flame Length (ft) [SURFACE]

(continued on next page)

Escondido Estates Treated gr1 Southwest Wind

Surface Rate of Spread (maximum)	41.4	ft/min
Fireline Intensity	67	Btu/ft/s
Flame Length	3.1	ft

APPENDIX 'H'

Project Facility Availability Forms For Water and Fire

Project Facility Availability Water Form

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - FIRE
ZONING DIVISION

Please type or use pen

Escondido Estates, LLC c/o Oscar Urangt
Owner's Name — Phone

19782 MacArthur Blvd, Suite 300
Owner's Mailing Address — Street

Irvine, CA 92612
City — State — Zip

ORG________ ACCT________ ACT________ TASK________ DATE________ AMT $________

DISTRICT CASHIER'S USE ONLY

F

SECTION 1. PROJECT DESCRIPTION — **TO BE COMPLETED BY APPLICANT**

A. ☒ Major Subdivision (TM) ☐ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance:________
☐ Boundary Adjustment
☐ Rezone (Reclassification) from________to________zone.
☐ Major Use Permit (MUP), purpose:________
☐ Time Extension...Case No.________
☐ Expired Map...Case No.________
☐ Other________

B. ☒ Residential ...... Total number of dwelling units 20
☐ Commercial ..... Gross floor area________
☐ Industrial .... Gross floor area________
☐ Other .... Gross floor area________

C. Total Project acreage 10.7 Total lots 20 Smallest proposed lot .5 AC

Assessor's Parcel Number(s)
(Add extra if necessary)

234-231-01	

Thomas Guide. Page________ Grid________

Idaho / San Pasqual - SE corner of 1125 Idaho,
Project address — Street

North County Metro
Community Planning Area/Subregion — Zip

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 8/9/19

Address: same as above Phone: 949 933-4103

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below.)

SECTION 2: FACILITY AVAILABILITY — **TO BE COMPLETED BY DISTRICT**

District Name:

Indicate the location and distance of the primary fire station that will serve the proposed project:

A. ☐ Project is in the District and eligible for service.
☐ Project is not in the District but is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the District and not within its Sphere of Influence boundary.
☐ Project is not located entirely within the District and a potential boundary issue exists with the ________ District.

B. ☐ Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is ________ minutes.
☐ Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C. ☐ District conditions are attached. Number of sheets attached:________
☐ District will submit conditions at a later date.

SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by Planning & Development Services.

☐ Within the proposed project ________ feet of clearing will be required around all structures.
☐ The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature — *Print Name and Title* — *Phone* — *Date*

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

PDS-399F (Rev. 09/21/2012)

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - WATER
ZONING DIVISION

Please type or use pen

Escondido Estates, LLC (949) 933-4103
Owner's Name Phone

19782 MacArthur Blvd, Suite 300
Owner's Mailing Address Street

Irvine CA 92612
City State Zip

ORG_____ **W**
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____
DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. ☒ Major Subdivision (TM) ☐ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance:_____
☐ Boundary Adjustment
☐ Rezone (Reclassification) from_____ to _____ zone.
☐ Major Use Permit (MUP), purpose:_____
☐ Time Extension...Case No._____
☐ Expired Map...Case No._____
☐ Other_____

B. ☒ Residential ..... Total number of dwelling units 28
☐ Commercial..... Gross floor area_____
☐ Industrial ..... Gross floor area_____
☐ Other ..... Gross floor area_____

C. ☒ Total Project acreage 4.28 Total number of lots 28

D. Is the project proposing the use of groundwater? ☒ Yes ☐ No
Is the project proposing the use of reclaimed water? ☐ Yes ☒ No

Assessor's Parcel Number(s)
(Add extra if necessary)

234-231-01	

Thomas Guide Page _____ Grid _____
San Pasqual Valley Road. & Idaho Ave.
Project address Street
North County Metropolitan 92027
Community Planning Area/Subregion Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 11/10/20

Address: 19782 MacArthur Blvd, Suite 300, Irvine, CA 92612 Phone: (949) 933-4103

(On completion of above, present to the district that provides water protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: City of Escondido Service area All-Lindley

A. ☒ Project is in the district.
☐ Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the district and is not within its Sphere of Influence boundary.
☐ The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. ☐ Facilities to serve the project ☐ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached_____. (Number of sheets)
☐ Project will not be served for the following reason(s):_____

C. ☒ **District conditions are attached. Number of sheets attached:** 2
☐ **District has specific water reclamation conditions which are attached. Number of sheets attached:**_____
☐ **District will submit conditions at a later date.**

D. ☐ **How far will the pipeline(s) have to be extended to serve the project?**_____

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature: [signature] Print Name Laurie Gordon

Print Title Engineer II Phone 760-839-6290 x7040 Date Dec 17, 2020

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT
On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

Laurie Gordon
Utilities Engineer II
Construction and Engineering
lgordon@escondido.org
Phone: 760-839-6290 x 7040 Fax: 760-738-5168

Dec 17, 2020

Escondido Estates, LLC
ATTN: Oscar Uranga
19782 MacArthur Boulevard, Suite 300
Irvine, CA 92612

Subject: Water Service Availability for San Diego County – 1125 Idaho Avenue (APN 234-231-0100)

Dear Sir or Madam:

The City of Escondido received the attached Water Availability Form for APN 234-231-01. The project is located within the County of San Diego near the intersection of San Pasqual Valley Road and Idaho Avenue and consists of a proposal to construct a residential major subdivision with 20 total lots. The site falls within the City of Escondido's water service area and is eligible for water service. The following conditions of approval must be satisfied prior to obtaining water service from the City of Escondido.

1. Per the attached Water Study prepared by Dexter Wilson dated December 3, 2020, adequate upsizing and replacement of all water infrastructure shall be required to provide adequate water service and/or fire protection for the proposed development. Construction of the water mains shall be in accordance with the Standards and Specifications of the City of Escondido. Please submit to the City of Escondido water line plans for the following:

a) An extension of a 12-inch water line in Idaho Avenue to the project site shall be constructed to the satisfaction of the Utilities Engineer. On-site water mains shall be a minimum of 8-inches and shall be constructed to the satisfaction of the Utility Engineer. Plans for the proposed water system shall be submitted to the City of Escondido for review and approval.

b) All improvements to the existing public potable water system shall be designed and constructed per the City of Escondido Design Standards and Standard Drawings.

c) Minimum 1" water meters and backflow prevention devices shall be required to each lot.

d) If the Fire Department requires fire hydrants, the fire hydrants shall be installed at a location approved by the Fire Marshal. Fire hydrants shall be public and connected to a minimum 8" public water main.

2. A Public Utility Easement shall be granted to the City of Escondido for any proposed public waterlines and/or public water appurtenances on private property. The easement shall include all fire hydrants, water meters and other appurtenances. The minimum easement width shall be 20 feet, or the full width of the private easement road, whichever is greater.

If you have any additional questions, please feel free to contact me at (760) 839-6290 x 7035.

Sincerely,

Laurie A Gordon

Laurie Gordon
Engineer II

Enclosure: Water System Analysis for the Escondido Estates Project APN 234-231-01 prepared by Dexter Wilson dated December 3, 2020.

County of San Diego, Planning & Development Services

PROJECT FACILITY AVAILABILITY - FIRE

ZONING DIVISION

Please type or use pen

Escondido Estates, LLC care of Oscar Uranga
Owner's Name — Phone

19782 MacArthur Blvd, Suite 300
Owner's Mailing Address — Street

Irvine — CA — 92612
City — State — Zip

ORG________
ACCT________
ACT________
TASK________
DATE________ AMT $________

F

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — **TO BE COMPLETED BY APPLICANT**

A. ☒ Major Subdivision (TM) ☐ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance:________
☐ Boundary Adjustment
☐ Rezone (Reclassification) from________to________zone.
☐ Major Use Permit (MUP), purpose:________
☐ Time Extension...Case No.________
☐ Expired Map...Case No.________
☐ Other________

B. ☒ Residential ...... Total number of dwelling units 20
☐ Commercial ..... Gross floor area________
☐ Industrial .... Gross floor area________
☐ Other .... Gross floor area________

C. Total Project acreage 10.7 Total lots 20 Smallest proposed lot .5 AC

Assessor's Parcel Number(s)
(Add extra if necessary)

234-231-01	

Thomas Guide. Page ________ Grid ________

Idaho / San Pasqual - SE corner of 1125 Idaho,
Project address — Street

North County Metro
Community Planning Area/Subregion — Zip

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 8/9/19

Address: same as above Phone: 949 933-4103

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below.)

SECTION 2: FACILITY AVAILABILITY — **TO BE COMPLETED BY DISTRICT**

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SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by Planning & Development Services.

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This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature — *Print Name and Title* — *Phone* — *Date*

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

PDS-399F (Rev. 09/21/2012)

APPENDIX 'I'

Water Flow Requirement Calculations
Needed Fire Flow Calculations

WATER SYSTEM ANALYSIS
FOR THE
ESCONDIDO ESTATES PROJECT
APN 234-231-01

December 3, 2020

Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
Carlsbad, CA 92008

Job No. 1068-001

DEXTER WILSON ENGINEERING, INC.

DEXTER S. WILSON, P.E.
ANDREW M. OVEN, P.E.
STEPHEN M. NIELSEN, P.E.
NATALIE J. FRASCHETTI, P.E.
STEVEN J. HENDERSON, P.E.
FERNANDO FREGOSO, P.E.
KATHLEEN L. HEITT, P.E.

December 3, 2020

1068-001

IMG Construction Management
19782 MacArthur Blvd., Suite 300
Irvine, CA 92612

Attention: Oscar Uranga, Principal

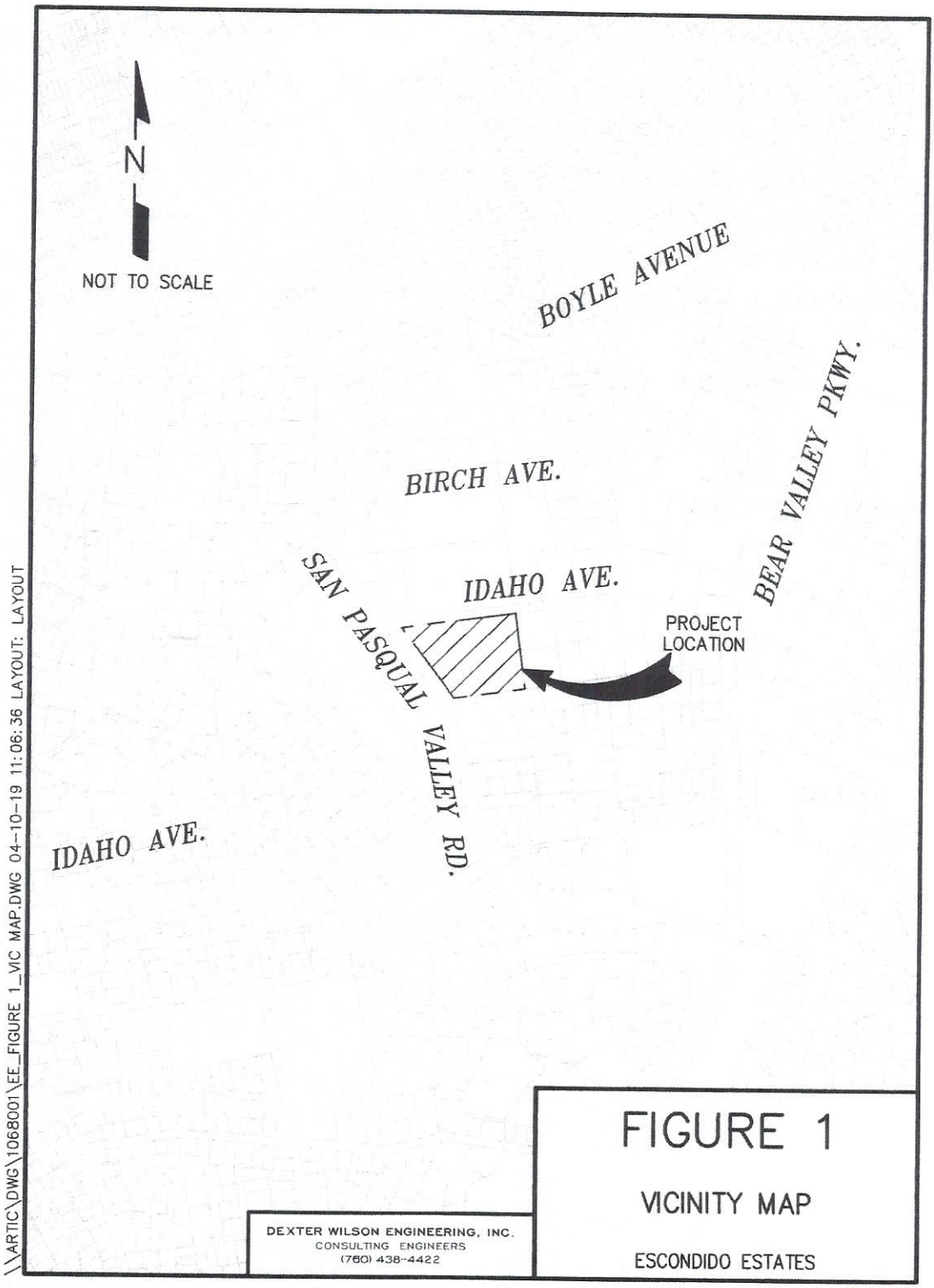
Subject: Water System Analysis for Escondido Estates

INTRODUCTION

This letter-report provides a water system analysis for the Escondido Estates project in the City of Escondido. This report will evaluate water service to the project with recommended required onsite and offsite facilities to serve the project.

PROJECT OVERVIEW

The Escondido Estates project is located in the central portion of the City of Escondido at the southeast corner of the intersection of San Pasqual Valley Road and Idaho Avenue. The project consists of Assessor's Parcel Number 234-231-01. Figure 1 presents a vicinity map showing the subject property.



\\ARTIC\DWG\1068001\EE_FIGURE 1_VIC MAP.DWG 04-10-19 11:06:36 LAYOUT: LAYOUT

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

FIGURE 1

VICINITY MAP

ESCONDIDO ESTATES

To estimate average water demands for the residential lots on this project that are in the range of 7,000 square feet and one acre in size, a factor of 800 gpd/unit is used. To convert average day demands to maximum day demands, a factor of 1.8 is used. To convert maximum day demands to peak hour demands, a factor of 2.7 is used. The fire flow requirement for this project has been determined by others to be 1,500 gpm for two hours.

System pressures are based on a maximum desirable static pressure of 110 psi and a maximum allowable pressure of 150 psi. During a peak hour condition, the minimum allowable residual pressure is 40 psi. during a maximum day demand plus fire flow condition, the minimum allowable residual pressure is 20 psi.

Water pipelines are to be 8-inch minimum in residential areas. The maximum pipeline velocity shall be 10 feet per second under any demand scenario.

PROJECTED WATER DEMANDS

Based on the criteria presented above, Table 1 summarizes the projected average water demands for the Escondido Estates project. The projected maximum day demand is 28,800 gpd (20 gpm) and the projected peak hour demand is 77,760 gpd (54 gpm).

TABLE 1
ESCONDIDO ESTATES
PROJECTED WATER DEMAND

Land Use	Quantity	Demand Factor	Average Demand, gpd
SF Residential	20 units	800 gpd/unit	16,000

Based on the City Water Master Plan, existing average daily demands for the Reed Island Zone are 240 gpm. These demands were included in the hydraulic analysis of the system.

EXISTING WATER FACILITIES

The only existing Reed Island Zone water lines in the immediate vicinity of the project are an 8-inch line in Idaho Avenue, approximately 250 feet east of the property and 6-inch and 8-inch lines in easements to the east of the project. The nearest main transmission line in the vicinity of the project within this pressure zone is an 18-inch line in Boyle Avenue. The location of existing water facilities in the Reed Island Zone are shown on Figure 2.

WATER SYSTEM ANALYSIS

The water system analysis performed to determine water system requirements for the project was based on the Steady State Pipe Network Analysis (KY Pipe) prepared by the University of Kentucky. A Hazen-William coefficient of 100 was used as the pipe roughness coefficient for existing steel pipe and a coefficient of 140 was used for proposed PVC pipe. Appendix A contains the computer analysis output for the demand scenarios considered in this report and Exhibit A provides the corresponding node and pipe diagram.

The results of the analysis indicate that the existing system is capable of meeting project demands under normal and fire flow conditions. During a maximum day demand plus fire flow scenario, maximum velocities of 10.2 feet per second would be experienced in some existing 8-inch piping and the minimum residual pressures in the system is 22.5 psi.

PROPOSED WATER SYSTEM

To receive water service, the project proposes to connect to the existing line in Idaho Avenue east of the project and extend a 12-inch line in Idaho Avenue to the project. Onsite water lines are proposed to be 8-inch and will be adjusted based on the street layout within the project. Figure 3 provides the proposed water system improvements for the project.

Thank you for the opportunity to work on this project. If you have any questions on the content of this report, please let us know.

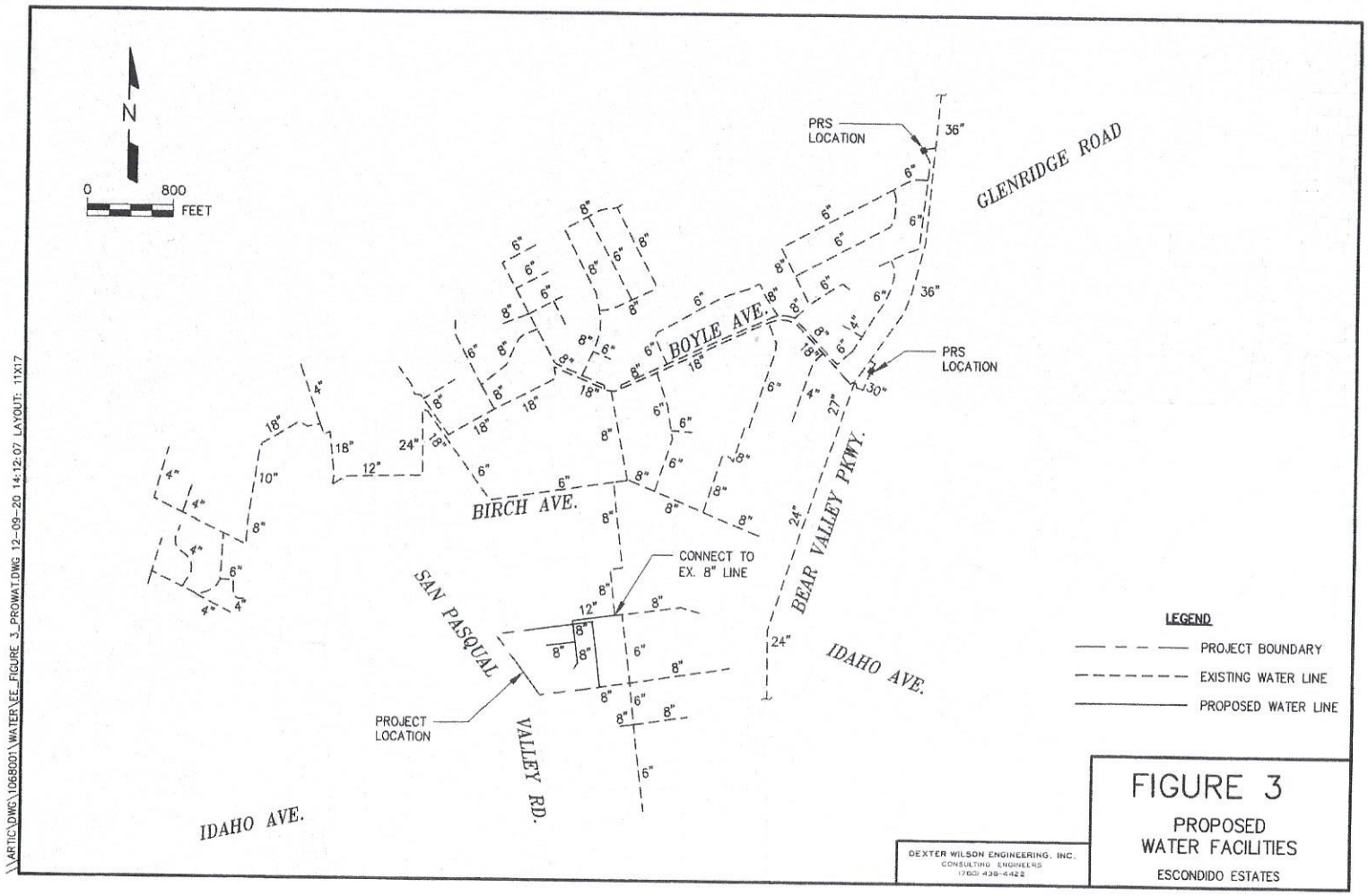
Dexter Wilson Engineering, Inc.

Stephen M. Nielsen

Stephen M. Nielsen, P.E.

SMN:ah

Attachment(s)


N
0
800
FEET
PRS LOCATION
GLENRIDGE ROAD
BOYLE AVE.
PRS LOCATION
BIRCH AVE.
CONNECT TO EX. 8" LINE
SAN PASQUAL VALLEY RD.
BEAR VALLEY PKWY.
IDAHO AVE.
PROJECT LOCATION
IDAHO AVE.
LEGEND
PROJECT BOUNDARY
EXISTING WATER LINE
PROPOSED WATER LINE
FIGURE 3
PROPOSED WATER FACILITIES
ESCONDIDO ESTATES
DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422
\\ARTIC\DWG\1068001\WATER\EE_FIGURE_3_PROWAT.DWG 12-09-20 14:12:07 LAYOUT: 11X17

COMPUTER HYDRAULIC ANALYSIS

The following conditions were modeled:

1. Average day demands
2. Peak hour demands
3. Maximum day demands plus 1,500 gpm fire flow at Node 48.

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Keegan McNamara/Oscar Uranga
From:	Dudek Fire Protection Planning Team, Michael Huff, Director
Subject:	Escondido Estates Fire Protection Planning
Date:	October 2, 2020
cc:	N/A
Attachment(s):	N/A

Mr. McNamara and Mr. Uranga,

Thank you for the opportunity to review your proposed Escondido Estates project located on the southeast corner of the Idaho Avenue and SR-78 intersection in Escondido. It is our understanding that the project is considered by Escondido Fire Department to be within a "High Danger" area, which is between the "Moderate" and "Very High" categories the City utilizes. This designation is ultimately what is triggering code requirements for very high fire flow. Interestingly, CAL FIRE's Fire and Resource Assessment Program (FRAP) mapping shows the project is not within a fire hazard severity zone. Our experience also confirms that the area is not in a wildland urban interface, as it includes developed and developing land uses in all directions, the topography is insignificant, and the vegetation on what is undeveloped is similarly insignificant; in short, the project site does not appear to warrant being characterized as a fire hazard severity zone. The code that requires 2,500 gallons per minute fire flow is based on a high wildfire hazard, which does not appear appropriate. The same code allows for modifications to this requirement on a project basis.

The following discussion focuses on fire flow and our professional opinion on the needs presented by the Escondido Estates project.

Fire Flow

The average home size is anticipated to be approx. 3,000 square feet with typical homes 2,750 – 3,300 square feet. Builder options could push the square footage larger, but that will be determined approximately one year from now, when architectural approvals are processed. For this analysis, we are conservatively assuming 3,600 square feet as the high end of the range, but the analysis shows homes could exceed 13,000 square feet and still meet the fire and life safety standards. Since the 20 single-family residences of the proposed project are all anticipated to average 3,000 square feet and not exceed 3,600 square feet, and afforded automatic fire sprinkler systems, the required fire flow per CFC Appendix B (adopted by the city and other applicable agencies) (specifically, 2019 CFC Section B105.1 and Table B105.1(1)) is 500 gpm. This would be the base code-required fire flow if the project was located anywhere but within a fire hazard severity zone.

SECTION B105
FIRE-FLOW REQUIREMENTS FOR BUILDINGS
B105.1 One- and two-family dwellings, Group R-3 and R-4 buildings and townhouses. The minimum fire-flow and flow duration requirements for one- and two-family dwellings, Group R-3 and R-4 buildings and townhouses shall be as specified in Tables B105.1(1) and B105.1(2).

TABLE B105.1(1)
REQUIRED FIRE FLOW FOR ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES

FIRE-FLOW CALCULATION AREA (square feet)	AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE FLOW (gallons per minute)	FLOW DURATION (hours)
0–3,600	No automatic sprinkler system	1,000	1
3,601 and greater	No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2) at the required fire-flow rate
0–3,600	Section 903.3.1.3 of the *California Fire Code* or Section *313.3* of the *California Residential Code*	500	½
3,601 and greater	Section 903.3.1.3 of the *California Fire Code* or Section *313.3* of the *California Residential Code*	½ value in Table B105.1(2)	1

For SI: 1 square foot = 0.0929 m², 1 gallon per minute = 3.785 L/m.

Based on the engineer's calculations of achievable fire flow from the available 8 inch water mains that are adjacent to the project site, between 1,500 and 1,800 gpm would be provided. In other words, the project is afforded a 300% increase of available fire flow, or 1,500 gpm compared with the 500 gpm required by the fire code.

From a code perspective, a fire flow of 1,500 gpm would allow a residence to be up to 13,400 square feet in size following the code's treatment of sprinklered structures:

1. Per Table B105.1(1) as shown above, the last row is for homes greater than 3,601 SF. The required fire flow is ½ the value from Table B105.1(2) (shown on the next page).

2. Given 1,500 gpm fire flow is *available* means the *required* fire flow from the Table would have been 3,000 gpm. (i.e. ½ of 3,000 gpm = 1,500 gpm).

3. By the Table (shown below), a 1,500 gpm fire flow allows a house to be up to 13,400 square feet

Since the project homes do not exceed 3,600 square feet, this is akin to a safety factor of almost **4.4.**

TABLE B105.1(2)
REFERENCE TABLE FOR TABLES B105.1(1) AND B105.2

FIRE-FLOW CALCULATION AREA (square feet)					FIRE FLOW (gallons per minute)[b]	FLOW DURATION (hours)
Type IA and IB[a]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,[illegible]	11,301-13,400	3,000	3
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m², 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.
a. Types of construction are based on the *California Building Code*.
b. Measured at 20 psi residual pressure.

The code allows significant reductions in fire flow based on the installation of fire sprinklers because fire sprinklers are indisputably the best fire protection that can be provided to a residence's interior. It provides for life safety of the occupants, for firefighters' safety, property protection – and also benefits the environment. The Codes recognize these benefits in many areas, including fire flow. The Rincon code amendment stipulating 2,500 gpm for fire flow in a fire hazard severity zone is 5 times the required amount for this project, arguably excessive and unnecessary.

Furthermore, the lack of actual wildfire exposure at this site based on surrounding land uses, topography, vegetation, and the planned ongoing maintenance of the on-site preserved walnut trees and their understory, justifies the modification of the 2,500 gpm fire flow to the 1,500 that is achievable.

Should additional justification be necessary, the project team proposes the following features to enhance the static and active features of the project structures.

Static Features, in contrast to Active Features, refer to built-in items independent of any detection, activation, water, electricity, or human intervention.

Static (Construction) Feature Enhancements

Although the site does not exhibit fuels, terrain, and wildland exposures typical of fire hazard severity zones, the project team proposes to incorporate the construction features of Chapter 7A / CRC Section 337, primarily related to the potential ember threat from distant wildlands.

Active (Fire Protection System) Feature Enhancements

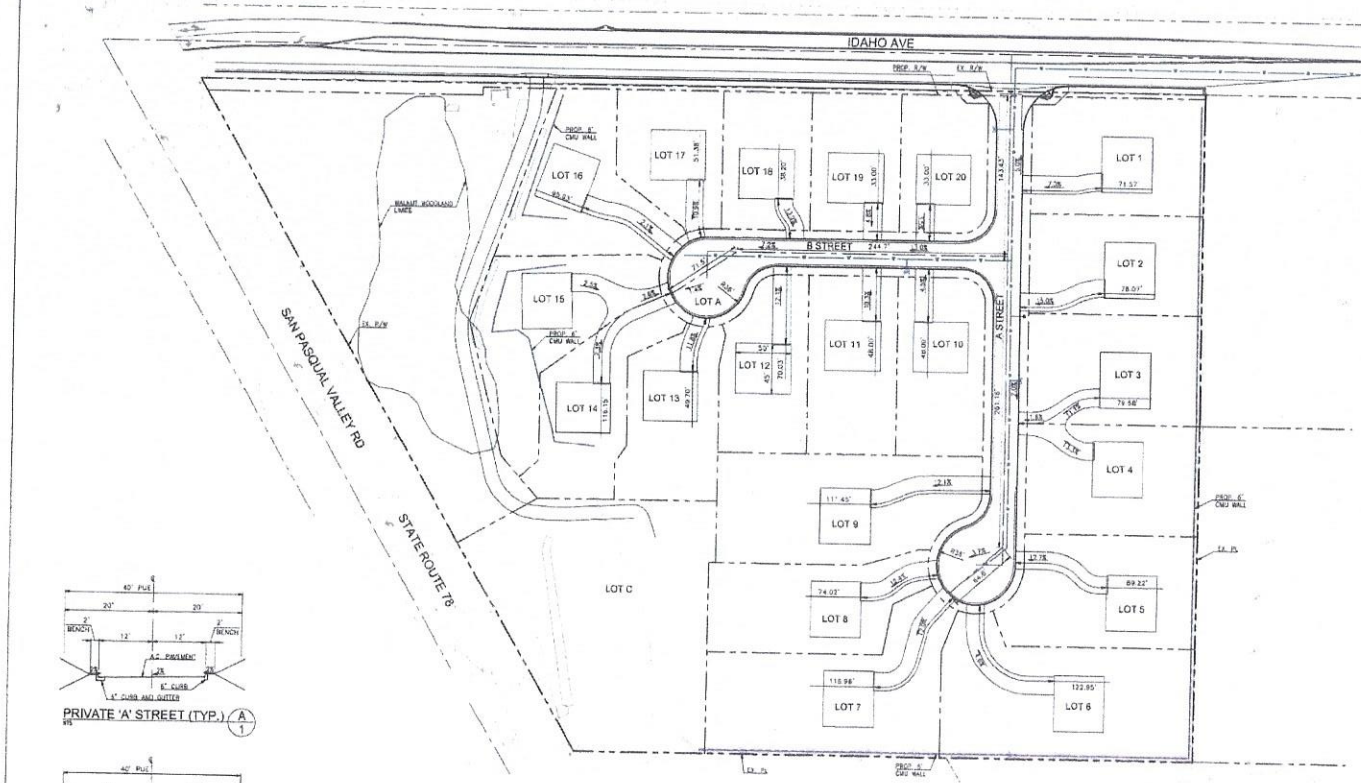
Although not required by the codes or standards, the project team proposes to incorporate these features to further enhance the automatic fire sprinkler systems:

- Incorporate a flow switch in each home's sprinkler system, connected to interior mini-horn(s) and an exterior horn/strobe. These devices will alert occupants of a waterflow activation, neighbors (if nobody is home), and make identifying the location easier for responding firefighters.
- Incorporate a 15% safety factor in the hydraulic design of the systems instead of the industry standard 10%.

Conclusion

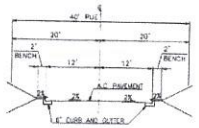
Thank you for the opportunity to submit this request. The Dudek fire protection planning team supports the achievable fire flow at this site, given its location, small number of homes all under 3,600 square feet, and additional fire protection features. Please confirm your receipt of this request and contact me if you have any questions or need any additional information. We look forward to hearing from you and thank you for your consideration.

PLOT MAP

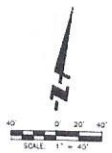


HOSE PULL FROM DRWY END (TYP.) C/1

PRIVATE 'A' STREET (TYP.) A/1



PRIVATE 'B' STREET (TYP.) B/1



CERTIFIED BY

MELVIN JOHNSON, OWNER DATE
FAIRDALE 2000, LLC
1380 SCENIC DRIVE
ESCONDIDO, CA 92026
TELEPHONE: 760.740.3647

SITE INFORMATION

SITE ADDRESS: 1129 IDAHO AVE, ESCONDIDO, CA 92025
APN: 234-23-10 -20

ROAD LENGTH

IDAHO AVE S'LY CURB FACE TO END OF 'A' STREET = 470 FEET
IDAHO AVE S'LY CURB FACE TO END OF 'B' STREET = 460 FEET

PLOT MAP
ESCONDIDO ESTATES
TTM 5639

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