

# FIRE PROTECTION PLAN

## Equestrian Center MUP

5820 W. Lilac Road, Bonsall, CA 92003

PDS2016-MUP-16-013

North County Fire Protection District  
San Diego County

May 17, 2019 (revised July 11, 2019, October 10, 2019)



Prepared for: Ocean Breeze Ranch, LLC  
Jim Conrad  
1550 S. Coast Highway, Suite 201  
Laguna Beach, CA 92651

Revision Prepared by: Mel Johnson  
Senior Wildland Fire Associate, **FIREWISE 2000, Inc.**

Reviewed and Certified by: David C. Bacon  
David C. Bacon, Certified Fire Consultant  
President Emeritus, **FIREWISE 2000, Inc.**  
1320 Scenic Drive, Escondido, CA 92029  
760-745-3947  
firewise2000@sbcglobal.net

## **TABLE OF CONTENTS**

<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>1.0 INTRODUCTION</b>	<b>1</b>
1.1 Project Location	2
1.2 Project Description	2
1.3 Environmental Setting	2
<b>2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE</b>	<b>3</b>
2.1 Compliance with Existing Wildland Fire Regulations	3
2.2 Project Consistent with Recommendations in the FPP	3
2.3 Adequate Fire Services Available	4
2.4 Sufficient Water Services Available	4
<b>3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY</b>	<b>4</b>
3.1 On-Site Vegetation	5
3.2 Off-Site Vegetation	5
<b>4.0 ANALYSIS OF PROJECT EFFECTS</b>	<b>5</b>
4.1 Adequate Emergency Services	5
4.2 Fire Apparatus Access	7
4.3 Water Supply	7
4.4 Resistant Construction and Fire Protection Systems -Residential	8
4.5 Fire Fuel Assessment	8
4.6 Fire Behavior Modeling	9
4.7 Defensible Space and Vegetation Management	11
4.8 Cumulative Impact Analysis	12
<b>5.0 EVACUATION PLAN</b>	<b>13</b>
<b>6.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS</b>	<b>13</b>
<b>7.0 CONCLUSION</b>	<b>14</b>
<b>8.0 LIST OF PREPARERS, PERSONS, AND ORGANIZATIONS CONTACTED</b>	<b>14</b>
 <b>TECHNICAL APPENDICES</b>	 <b>15-34</b>
APPENDIX A – EQUESTRIAN CENTER SITE PLAN	
APPENDIX B – FIRE ACCESS PLAN MAP	
APPENDIX C – FUEL MODIFICATION ZONE MAP	
APPENDIX D – EVACUATION PLAN	
APPENDIX E – WATER SERVICE AVAILABILITY FORM 399W	
APPENDIX F – FIRE SERVICE AVAILABILITY FORM 399F	
APPENDIX G – UNDESIRABLE PLANT LIST FOR SAN DD=	
APPENDIX H – LITERATURE REFERENCES	
APPENDIX I – PROJECT PHOTOS	

## **EXECUTIVE SUMMARY**

Ocean Breeze Ranch (OBR) is a planned residential community located in north San Diego County, in the unincorporated community of Bonsall. The OBR project is located west of Interstate 15, south of State Highway 76 in the San Luis Rey River valley. As part of the OBR development project, the owner of the existing Equestrian Center (EC) has applied to the County of San Diego (County) to formalize approvals for the existing horse facility. The County has determined that the appropriate permit for the EC shall be a Major Use Permit (MUP). The EC consists of 203.15 acres within the larger ranch previously known as Vessels Ranch. The EC conducts active equestrian activities for training and breeding which have occurred at the property in excess of 35 years. The EC is located within an area the State has designated as a Very High Fire Hazard Severity Zone (VHFHSZ). This designation reflects past fire history combined with extreme fire weather conditions that prevail during the dry summer/fall months in San Diego County. The presence of large tracts of Coastal sage scrub/buckwheat vegetation surrounding the EC indicates that the threat of wildland fire is an ever present risk to public safety. The wildland areas around the EC facility were burned in the December 2017 Lilac Fire.

### **1.0 INTRODUCTION**

This Fire Protection Plan (FPP) has been prepared for the Equestrian Center (hereafter referred to as the EC) as part of the approval process for an MUP. The purpose of the FPP to evaluate the EC's potential wildland fire hazard and the potential fire risk to private property. Further, this FPP details the methods proposed to minimize potential fire risk. This FPP also evaluated the consistency of the proposed project with applicable fire protection regulations. 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 ignition resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies areas for hazardous fuel reduction treatments and recommends the types and methods of such treatment. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the development addressed by this plan.

An initial field visit was conducted on September 7, 2018 with included the Fire Consultant, the Project Manager and Fire Marshal for the North County Fire Protection District. Additional subsequent site visits took place between the Project Manager and the District's Fire Marshal. The purpose of the site visits was to evaluate EC layout, primary and secondary access road locations, building assessment, hazardous fuels and topography.

#### **1.1 Project Location**

The EC is located at 5820 West Lilac Road, Bonsall, California. A private road with security gate provides access to the property off West Lilac Road. General location is

east of Camino Del Rey and west of Old Highway 395 and Interstate 15. The project site is south of State Highway 76 and the San Luis Rey River.

## **1.2 Project Description**

The EC is a nationally renowned equestrian training and breeding facility, consisting of ranch staff housing, barns, indoor and outdoor stables, arenas, large pastures, veterinary buildings, business office and equipment/storage buildings. The EC has plans to add thirteen (13) new structures most of which consist of outside equestrian arenas, pasture pens, an exercise pool, and one maintenance shop.

The EC includes an extensive private roadway system around the facility. A few roads are paved but a majority are hard surface gravel roads. Primary access into the EC will be provided by way of a private road. A new entrance will be provided when the OBR development begins phasing in Planning Area 1 (PA-1).

A secondary access for emergencies will eventually be provided during Phase 2 of the OBR development by way of Dulin Road which exits out to the east through PA-3 eastward to the Rancho Monserate Mobile Home Park and tying into Old Highway 395. The road that travels through PA3 is a private road that will have security gates at both ends. PA-3 will be constructed during Phase 5 of the OBR Project.

## **1.3 Environmental Setting**

The EC property consists of flat river bottom lands along the San Luis Rey River Valley. Elevations increase progressively to the south, into the property to become the OBR development. The site has been used as a horse breeding farm for several decades, dating to the purchase of the property by the Vessels Family in 1981. Large portions of the property's lower elevations have been used over many decades, first as a grazing area for cattle beginning in the late 1800's, and subsequently as pastures for horses. Portions of the property have also been utilized for agriculture. Extensive areas along the hillsides have been farmed for avocados for many decades. In addition, portions of the property have been converted from pastures to row crops such as tomatoes over the past several years.





*Photo 1. View of the Ocean Breeze Ranch project perimeter and the location of the Equestrian Center.*

## **CHAPTER 2. GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE**

These Guidelines for Determining Significance for Wildland Fire Protection shall be used by County staff for the review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. The intent of these Guidelines is to provide a consistent, objective and predictable evaluation of significant effects.

### **2.1 Is the Project Compliant with Existing Wildland Fire Regulations?**

The Fire Protection Plan (FPP) prepared for the EC MUP will ensure compliance with the State and County fire codes and ordinances for new construction in areas designated as *Very High Fire Hazard Severity Zones*. The FPP will ensure the building codes are followed to allow the structures to resist ignition from a wildland fire and develop adequate fuel modification around the structures to meet County and State fire code requirements. The Project would comply with applicable fire and building codes and would include other fire protection measures such as a 100' fuel modification zone around all structures, brushing along all roadways, redundant water supply systems and adequate fire/emergency access.

### **2.2 Will the Project Be Consistent with the Recommendations in the Fire Protection Plan?**

The FPP will conduct the required fire behavior modeling to assess the impacts from wildland fire to ensure relatively safe building construction within high fire hazard

areas. If some portions of the project cannot meet the requirements for fuel modification, mitigations will be developed to meet equivalency with the fire code.

**2.3 Will the Project have adequate Fire Services available in Order to Provide Sufficient emergency response in the event of an emergency?**

The proponent has obtained a completed Project Facility Availability form (DPLU Form #399F) from the local fire agency with jurisdiction prior to submitting the project application to the County. The project is located within the jurisdiction of the North County Fire Protection District which can provide fire service to the project. This project, along with all other new development, will have a cumulative impact on the emergency services for this community. When completed, the Project would result in a development that is less susceptible to loss from threat than the surrounding landscapes and provide improved Fire/EMS response.

**2.4 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 will be served by the Rainbow Municipal Water District and sufficient water supplies will be available to serve the EC Facility from existing resources. APPENDIX E contains a copy of the Water Service Availability Form 399W for the EC. The Water District has indicated that service can be provided to the project within the next five years based on facility plans of the district. Additional information is available on water supply requirements in more detail in Section 4.3 of this FPP.

**3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY**

The wildland area surrounding the OBR development and EC property is designated as “Very High Fire Hazard Severity Zone”. The EC itself would be considered a low fire severity zone due to the existing open irrigated pastures and past agricultural practices such as orchards and row crop farming. The creation of open pastures and agricultural land uses on the EC property has eliminated the native fuels to significantly reduce the wildfire threat. In the OBR Fire Protection Plan several scenarios were evaluated to determine the potential fire behavior of a wildland fire that might occur in the vicinity of the Ocean Breeze Ranch Project. These fire behavior projections became reality during the 2017 Lilac Fire when the open space areas with native vegetation on the upper slopes and in the San Luis Rey River were completely burned. The EC was not impacted allowing ranch staff to shelter-in-place to care for animals by moving them to the open irrigated pastures for safety.

### **3.1 On-site Conditions**

The EC Facility encompasses 203.15 acres of which most of it is comprised of open irrigated pastures to support the rearing and training of thoroughbred horses. The infrastructure to support the operation is for the most part centered in the middle of the property far removed from any wildfire threat from the surrounding native vegetation. The entire EC Facility is considered a low Fire Hazard Severity Zone due to the lack of highly flammable native fuels within close proximity to the on-site structures. The EC has survived two major wildfires that have burned around the facility without having to implement a full evacuation. The EC property provides ample area to shelter-in-place for the horses and support staff. The most hazardous fuel type on the surrounding hillsides to the south is an annual grass fuel type (Fuel Model GR2). When the OBR development is completed, most of this wildfire threat will be reduced significantly due to planned fuel modification treatments with landscaping in and around the planned residential community.

### **3.2 Off-site Conditions**

Fuel conditions off-site vary from riverbed vegetation along the San Luis Rey River to the north and west, to the highly flammable open space areas of Coastal sage scrub vegetation on the slopes along West Lilac Road. To the north, the EC is buffered from wildland fires coming off the riverbed by the wide-open green pastures. To the west of the EC, open areas of native vegetation can fuel fires that would spread under southwest wind conditions. The property has a significant buffer from wildfire threats due to the extensive pastures that occur on the property. The only areas of concern within the EC are the along the south property boundary where five (5) residential structures are located that abut the OBR development. Until development occurs, this hillside area is vegetated with an annual grass with low shrub cover. This area will require fuel modification where the structures are currently exist (See APPENDIX C).

## **4.0 ANALYSIS OF PROJECT EFFECTS**

### **4.1 Adequate Emergency Services**

North County Fire Protection District is the jurisdictional fire agency for the area. The Project is situated between two NCFPD fire stations. The primary fire station is NCFPD Station #5 at 5906 Olive Hill Drive in Bonsall and is located 1.8 miles west of the Project. Station #5 access into the OBR development and the Equestrian Center is via Olive Hill Road to West Lilac Road. An analysis of the travel response times for Station #5 into PA 2 And the EC indicate a 5-minute response time

The second station is NCFPD Fire Station #4 at 4375 Pala Mesa Drive located north of the Project. The primary access into the EC for Station #4 is through the Rancho

Monserate Mobile Home Park off Old Highway 395 onto Dulin Road. This road is currently a 14' dirt surface roadway that will be improved to meet NCFPD road standards for approved fire access. The total distance from Station #4 into the EC by way of Dulin Road is estimated to be 3.1 miles. When PA-3 is completed for the OBR development, security gates will be installed on Dulin Road for private access (See Appendix D). Those gates shall be installed with emergency access mechanisms for compliance with Section 503.6 – Security Gates, 2017 County Consolidated Fire Code. Vehicles exiting either the EC or PA3 will have unrestricted egress through Dulin Road, to Old Highway 395.

The NCFPD has estimated that the OBR development combined with the EC Facility would add 139 emergency service calls per year or 12 calls per month to the fire district workload. This increase is not considered a significant impact to the District's emergency services.

Other fire agencies outside the NCFPD that can provide additional emergency responses include CAL FIRE Stations 15 (Miller Station) and Station 10 (Red Mountain), and the Deer Springs Fire Protection District, Stations 11 and 12. Emergency services are provided via contract by CAL FIRE (California Department of Forestry and Fire Protection) and the Deer Springs Fire Protection District. An Automatic Aid Agreement exists between Deer Springs Fire Protection District and North County Fire Protection to provide a response upon request as part of the County closest resources/drop boundary agreement.

#### **4.2 Fire Apparatus Access**

Currently the primary emergency access into the EC facility is from West Lilac Road through the private road and security gate. The gate does have a Knox-Box mechanism to allow emergency vehicles into the EC Facility. When the OBR development completes the first phase, emergency access route will change to go through PA-1 with new public road off West Lilac Road (Road A). Access into the EC facility would be byway of a newly constructed road through PA-1 to a new driveway entrance. The current roadway surface throughout the EC is compacted fine gravel-base. The width of the roads vary from 20-24'. This surface does not meet standards for fire access road as described in CFC Section 503.2.1. In order to meet the District's requirements, the primary access road into and through the EC will be improved to a 24 foot wide, all-weather access capable of supporting a 75,000 lb fire vehicle. This main access route will provide access to the majority of structures within the EC. However, certain secondary access routes serving only one or two structures within the EC shall be improved to a width of 16 feet. (See Exhibit B – EC Road System).

The OBR residential project proposes to use a portion of the EC internal main access route as an interim fire evacuation route for the residential neighborhood, prior to full

completion of all access routes for the residential project. The Interim Evacuation Route (IER) represents the use of selected existing roadways with the EC, coupled with a portion of the permanent Dulin Road east of the EC, in order to provide an emergency evacuation route to the east. These roadways are currently dirt roads composed of decomposed granite and will be improved to meet the NCFPD's standards for supporting 75,000 lbs. of fire apparatus. Hardening these roads will be accomplished using "soil cement", which results in a road surface meeting the requirements for the County and NCFPD to support fire apparatus.

Once the OBR development begins construction of Phase 1, the project would be allowed issuance of a certain number of building permits without use of the IER. As the OBR development progresses, and prior to the issuance of the 51st building permit, a secondary access will be required. The IER will use a portion of improved roads within the EC, along with a portion of Dulin Road east of the EC, to provide such access. (See APPENDIX A – Part 2). This access would allow an evacuation route out through the Rancho Monserate Mobile Home Park onto Old Highway 395.

The EC facility will install a security gate at the main entrance to the ranch and another at the east EC exit point at Dulin Road. An automatic gate across a fire access roadway shall be equipped with an approved emergency key-operated switch overriding all command functions and opening the gate. All gates across fire access roadways shall be installed with approval of the fire code official and comply with all requirements listed in CFC Section 503.6.

Maintenance of the private roads and security gates within the EC will be responsibility of the EC Owner.

In addition to the foregoing, The Equestrian Facility will also need to comply with the following standard fire & life safety requirements:

4.2a Fire apparatus access roads that are public or private roads which are provided or improved as a result of a Tentative Map, Tentative Parcel Map or a Major/Minor Use Permit shall have the dimensions as set forth by the County of San Diego Standards for Public and Private Roads, unless otherwise approved by the Fire District and the County.

4.2b Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. Fire lanes will be properly identified and the HOA will be responsible for enforcing parking regulations on private roads.

4.2c All fire apparatus access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches.

4.2d The standard cross-slope shall be 2 percent; minimum cross-slope shall be 1 percent; maximum cross-slope shall be 5 percent.

4.2e Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus not less than 75,000 lbs. and shall be provided with an approved paved surface so as to provide all-weather driving capabilities. The paving and sub-base shall be installed to the standards specified in the County of San Diego Parking Design Manual, or as otherwise approved by the Fire District and the County.

4.2f A residential driveway constructed of 3½" Portland cement concrete may be installed on any slope up to 20% provided that slopes over 15% have a deep broom finish perpendicular to the direction of travel to enhance traction.

4.2g The horizontal inside radius of a fire apparatus access road shall comply with the County public and private road standards approved by the Board of Supervisors. The horizontal inside radius for a private residential driveway shall be a minimum of 28 feet, as measured on the inside edge of the improvement width or as approved by the fire code official. The length of vertical curves of fire apparatus access roads shall not be less than 100 feet, or as approved by the fire code official.

4.2h All dead-end fire access roads in excess of 150 feet in length shall be provided with approved provisions for turning around emergency apparatus. A cul-de-sac shall be provided in residential areas where the access roadway serves more than 2 structures. The minimum unobstructed radius width for a cul-de-sac in a residential area shall be 36 feet paved, 40 feet graded.

4.2i Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits and clearance limitations shall be posted at both entrances to bridges when required by the fire code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained when required by the fire code official.

4.2i The gradient for a fire apparatus access roadway shall not exceed 15.0%. The fire code official may allow roadway grades up to 20.0% provided that the roadway surface is constructed of 3 ½ inches of Portland cement concrete having a deep broom finish perpendicular to the direction of travel or another approved surface to enhance traction. The angle of departure and angle of approach of a fire access roadway shall not exceed 7 degrees (12 percent).

4.2j According to the County of San Diego Consolidated Code and the California Code of Regulations, Title 14, the maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served. A dead-end road includes; A road that has only one point of vehicular ingress/egress, including cul-de-sacs and looped roads.

ZONING FOR PARCEL SERVED BY DEAD-END ROAD(s)	CUMULATIVE LENGTH OF DEAD-END ROAD(s)
Parcels zoned for less than 1 acre	800 feet
Parcels zoned for 1 acre to 4.99 acres	1,320 feet
Parcels zoned for 5 acres to 19.99 acres	2,640 feet
Parcels zoned for 20 acres or larger	5,280 feet

The Dulin Road extension will serve as secondary access for all planning areas and mitigate for dead-end road lengths that exceed maximum allowable lengths. Dulin Road will also serve as an emergency egress for all areas providing for greater fire safety.

#### **4.3 Water Supply**

Water is supplied by the Rainbow Municipal Water District. The EC facility does have a main supply line to provide water for both domestic and fire suppression use. One fire hydrant was noted in the middle of the facility near the cluster of main buildings. A copy of the Water Service Availability form (399W) for the Project is attached in APPENDIX E. Fire flows at mains in wildland areas for new developments must be a minimum of 2500 GPM, unless reduced by the NCFPD fire official. The preliminary review of the facility does indicate that 3 additional hydrants will be needed to meet the demand for fire suppression. Fire hydrants shall be spaced 500 feet from structures as required in Section 507.5.1.1.1 – NCFPD amendment, County Consolidated Fire Code. The construction and configuration for all fire hydrants shall comply with Section 507.5.1.1.3 of the 2017 County Consolidated Fire Code.

#### **4.4 Ignition-Resistant Construction & Fire Protection Systems**

All new structures within the development site shall meet all construction standards for building in high fire hazard areas to the satisfaction of the NCFPD and the County Building Division. Design and construction shall meet the requirements listed in the 2016 Edition of the California Fire and Building Codes, with special adherence to Chapter 7A, and the 2016 Edition of the California Residential Code section R327, with other local amendments/ordinances adopted by NCFPD #2016-02. Other applicable codes include the 2013 International Wildland-Urban Interface Code (IWUIC).

A review of the existing EC structures indicates that one of the buildings, a storage building, is equipped with fire sprinklers. The facility includes five (5) historic residential structures, two existing modern-era mobile homes, and one new proposed mobile home, all of which are used to house ranch employees. Based on the building size and use, the NCFPD will make a determination of whether the owner will be required to install fire sprinklers in the existing buildings.

The NCFPD has stated that construction or building permits shall not be issued until the fire code official inspects and approves required vegetation clearance, fire apparatus access and water supply for the construction site. The issuance of building permits with regard to these requirements shall be in accordance with NCFPD.



#### **4.5 Fire Fuel Assessment**

The EC facility is surrounded by wildland vegetation designated by the State as a Very High Fire Hazard Severity Zone. The EC property itself would be considered a “Low Fire Hazard Severity Zone” based on a lack of native vegetation actually on the property. The entire EC is fuel-modified with established irrigated pastures, road system, and manicured oak woodland. A majority of the area to the north and south of the EC was burned in the 2017 Lilac Fire and is currently in a state of recovery. During that fire, the EC was not directly impacted allowing a shelter-in-place strategy to be implemented by the ranch. The only area that would present a wildfire threat would along the north property line in the San Luis Rey riverbed. All of the existing structures are located a safe distance from the riverbed vegetation away from direct flame impingement from a possible wildfire. The other area of concern are the residential structures along the south property line (See APPENDIX C – Fuel Modification Zones). The potential impact from burning embers into the structures, igniting receptive fuels is of most concern. Until Phase 1 (PA-1) is built out and the residential homes are established, these structures will be at moderate risk from wildfire.



*Photo 2. View of grass fuel type on the slope behind ranch housing where 100' of fuel modification is required.*

#### **4.6 Fire Behavior Modeling**

As described in Section 4.5 above, the EC Facility lacks the presence of any native shrub vegetation and the potential wildfire threat from the surrounding property is considered low. The adjacent OBR development will eventually eliminate all native vegetation along the south property line. Until OBR development is completed, Fire Behavior Modeling will project the fire behavior for annual grass fuel model (GR2) that



currently exists along parts of the south property line, specifically the area south of the five existing residence structures (See Photo 2).

The primary driving force in the fire behavior calculations is the dead fuel, less than one-fourth inch in diameter. These are the fine fuels that carry the fire. Fuels larger than 1/4-inch contribute to fire intensity, but not necessarily to fire spread. The BehavePlus 5.0.5 fire model describes a wildfire spreading through surface fuels, which are the burnable materials within six (6') feet of the ground and contiguous to the ground. Regardless of the limitations expressed, experienced wildland fire managers can use the BehavePlus 5.0.5 modeling system to project the expected fire intensity (expressed as Btu/ft/sec), rate-of-spread (feet/minute) and flame lengths (feet) with a reasonable degree of certainty for use in Fire Protection Planning purposes. Of these three fire behavior parameters, the projected flame length is the most critical in determining structure protection requirements.

The **FIREWISE 2000** evaluation team used the computer based BehavePlus 5.0.5 Fire Behavior Prediction Model to make the fire behavior projections for the flammable vegetative fuels on the areas in close proximity to the structures. Two (2) worst case fire scenarios are displayed based on 'worst case' fire weather assumptions for the project area. Each fire scenario displays the expected Rate of Fire Spread (expressed in feet per minute), Fire Line Intensity (expressed in BTU's/foot/sec, and Flame Length (expressed in feet). These fire behavior parameters are calculated for the following scenarios: 1) untreated fuels in a worst case scenario under a northeast 60-MPH Santa Ana wind event in low fuel load dry climate annual grass fuel model – GR2; 2) treated fuels with thinning in the fuel modification zones in late fire season northeast Santa Ana winds, 3) untreated fuels in above average 15 MPH southwest wind conditions in annual grass. The Tables below include the calculation inputs used in the BEHAVE Plus program which were obtained from project site observations and fuel levels typically observed during the local fire season.

In order to provide wildland fire protection measures for this project, fire behavior parameters were calculated for the hazardous native vegetation/fuels historically located on- and off-site. These calculations will be the basis for recommended fuel modifications for the project site development. The existing on-site and off-site fuels will also be considered in evaluating the wildfire threat to this proposed development.

Normal weather conditions consist of an onshore flow from the southwest at speeds of 5-10 MPH. This condition has a slightly lower temperature and higher humidity than does a Santa Ana condition. A fire under normal conditions is typically a fuel driven fire. However, wind will also contribute to the rate of spread. The late fire season strong non-typical southwest winds and the late fire season northeast winds (Santa Ana winds) create the dangerous and severe conditions for wildfires as experienced in the 2017 Lilac Fire.

Modification and/or elimination of hazardous fuels and the reduction of fuel loading around residences are key to safe “firewise” planning.

After the fuel modification zone is treated by mowing or weed-whacking, the fuels would most resemble a sparse GR2 Fuel Model. This treatment would be accomplished by reducing the vegetation cover to 50%, removing dead material and lowering the vertical height of the vegetation down to a 6” stubble height.

The worst-case climate parameters and assumptions used for the fire behavior modeling process were as follows:

1. 1-Hour Fine Fuel Moisture 2%
2. 10-Hour Fuel Moisture 3%
3. 100-Hour Fuel Moisture 5%
4. Live Herbaceous Fuel Moisture 30%
5. Live Fuel Moisture 50%
6. Slope 20%

**Fuel Models.** The majority of the on-site and off-site fuels are composed of a light annual grass fuel model (GR2), and this will be used to represent the native vegetation predominately and historically found both on-site and off-site. The historic native fuels on the project site have been modified significantly by past agricultural and equestrian activity, and previous fire events.

#### **Fire Behavior Predictions using BehavePlus 5.0.5**

**Fire Behavior Summary Tables.** The two worst case fire scenario behavior calculations are summarized in Table 1 and 2, including the reduction in flame length that fuel treatment in Thinning Zone 2 will provide. The Tables show that the flame length and fire intensity would be reduced significantly with the implementation of fuel modification around structures along the south propertyline.

**Table 1 – Fire Scenario 1 Summary**

<b>Fire Scenario 1 – 60 MPH Northeast Wind, in a Low Load Dry Climate Grass (GR2)</b>		
<b>Wildland Fire threat to the south side of the EC Facility</b>		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment in 100’ Fuel Mod Zone</u>
<b>GR2 Fuel Model</b>		<b>Converts to a sparse Grass Fuel Model (GR1)</b>
Rate of Spread: 368.5 ft. /min		Rate of Spread: 41.4 ft. /min
Fire line Intensity: 1,790 BTU/ft./sec		Fire line Intensity: 67 BTU/ft./sec
Flame Length: <b>14.1 Feet</b>		Flame Length: <b>3.1 Feet</b>

**Table 2 – Fire Scenario 2 Summary**

<b>Fire Scenario 2 – 15 MPH Southwest Wind, in Low Load Dry Climate Grass (GR2) Wildland Fire Threat to the south side of the EC Facility</b>		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment in the 100' Fuel Mod Zone</u>
<b>GR2 Fuel Model</b>		<b>Converts to a sparse Grass Fuel Model (GR1)</b>
Rate of Spread: 114.2 ft. /min		Rate of Spread: 27.0 ft. /min
Fire line Intensity: 554 BTU/ft./sec		Fire line Intensity: 44 BTU/ft./sec
Flame Length: <b>8.2 Feet</b>		Flame Length: <b>2.6 Feet</b>

#### **4.7 Defensible Space and Vegetation Management**

As required by the 2016 California Fire Code and the 2017 County Consolidated Fire Code, all new structures located within high fire hazard areas shall have a fuel modification zone of 100' around each building. The 100' fuel modification zone shall consist of two zones, a **Zone 1** – shall be the first 50' from structure within which the only vegetation allowed will be irrigated approved-landscaping. **Zone 2** extends from 50 to 100' from the structure, with thinning the native vegetation to 50% cover is required. Hardscape surfaces such as roads, cement walkways, gravel roads/walkways can be used to meet these requirements. All fuel modification work on the property shall be the responsibility of the property owner. (See Appendix C – Fuel Modification Zones).

**Zone 1** (irrigated landscape) is comprised of the immediate defensible space around the structure out to 50' from the structure. **Zone 2** (thinning zone) would be from 50-100' from the structure to remove 50% of the vegetation cover

If a landscape plan is prepared around the residential structures, prior to construction, this plan will need to be reviewed and approved by the NCFPD. The plan will provide a plant list of species to be planted and other information about tree placement, irrigation and slope planting. The review will ensure that those species planted are acceptable to be planted in high fire hazard areas. The Undesirable Plant List issued by the County of San Diego (See APPENDIX F) recommends that none of these plants be placed within 50-feet (or Zone 1) of residential structures.

**Roadside Brushing:** All roadways within the EC that abut an area of native vegetation shall be brushed back 20 feet from both sides of the edge of the roadway. This would also include the eastern off-site extension of Dulin Road that would provide an emergency evacuation route. This complies with Section 4907.2.1 of the 2017 County Consolidated Fire Code – Fuel Modification of Combustible Vegetation from Sides of Roadways. The result of such treatment would reduce the vegetation down to a 6" stubble height and prune up trees up to six feet above the shrubs.

#### **4.8 Cumulative Impact Analysis**

Because of the increase in human population and activities associated with OBR development, the added human activity will increase the potential wildfire risk to the area. Fire ignitions may increase due to the expected rise in vehicle traffic along West Lilac Road and other associated residential activities within the OBR development in close proximity to a high fire hazard severity area. It is important that the community increase its awareness for fire prevention and maintain clearances around dwellings. Working with the local Fire Safe Councils are great ways for communities to interact with their neighbors to ensure that everyone has been educated on a fire safe environment. The OBR development and the EC will need to develop an Emergency Evacuation Plan that meets all of the criteria of the NCFPD and the San Diego County Office of Emergency Services.

#### **5.0 EVACUATION PLAN**

The OBR development and the EC are surrounded by a High Fire Hazard Severity Zone where the existing and planned roads will provide adequate multi-directional emergency evacuation routes. As the OBR Project is phased in, the road system will be designed to be wide enough to accommodate efficient traffic flow during emergencies. Should it be needed, the EC would utilize the same evacuation routes as identified for the OBR residential community. In the interim until the first phase of OBR is completed, the EC will utilize the main gated entrance to the ranch as an exit out to West Lilac Road during emergencies.

The primary evacuation route for the EC to the west would be through Road A onto West Lilac Road, during Phase 1 of the OBR Project (first 50 homes in PA-1). As the OBR development progresses, and prior to the issuance of the 51st building permit, a secondary access will be required. Beginning with the issuance of the 51<sup>st</sup> building permit, an Interim Evacuation Route (IER) shall allow emergency egress to the east for PA-1 residents and EC personnel out through the existing ranch road east onto Dulin Road, eventually exiting onto Old Highway 395. An Emergency Evacuation Plan jointly developed by the OBR and EC with input from the NCFPD would allow traffic to move unimpeded through the security gates on Dulin Road.

#### **6.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS**

The EC Facility plans to construct additional structures on the site. The EC proposal shall implement the ignition-resistant construction standards compliant with 2016 California Fire Code and Chapter 7A of the 2016 California Building Code for all residential structures. The following is a list of design features that are proposed to meet equivalency with the fire code where deficiencies are recognized:

1. **CFC - Section 503.2.3 Road Surface** – The EC facility shall construct all-weather access roads with a width no less than 24 feet, with a structural design capable of supporting a fire apparatus weighing 75,000 lbs. Where an internal access road provides access for two or less structures, the width may be reduced to 16 feet.. The owner has the option of constructing roadways using conventional asphaltic concrete, or of other alternative hardened materials such as soil cement. The owner shall submit documents to the NCFPD, prepared by a qualified licensed geotechnical engineer, demonstrating the alternative roadway construction is capable of supporting the weight of the fire apparatus, will not erode due to rain or water runoff, and provides a reasonable lifespan for length of service.
2. **CFC Section 903.2 Automatic Fire Sprinklers** – Approved automatic sprinkler systems shall be installed in all new construction on the EC facility. The NCFPD will make a determination on whether the existing buildings will be required to be retrofitted with fire sprinklers. **CFC Section 4907.2** – A 100-foot fuel modification zone shall be required around every building that is designed primarily for human habitation or use or a building designed specifically to house farm animals. The fuel modification zones consist of: (1) Zone 1 - a 50-foot irrigated landscape zone planted with fire-resistant plants or a hardscape surface (those plants not allowed within Zone 1 are listed in APPENDIX G); (2) Zone 2 – 50-100 feet from Zone 1 a thinning native vegetation zone that reduces fuel load by 50%.

For the EC Facility, this requirement would apply to those six (6) residential structures and a stallion barn on the premises where there is a low-moderate probability of a wildland fire threat. Appendix C – Fuel Modification Zone Exhibit, identifies the residential structures for which this shall apply. Because all of the other structures (barns, shops, office, and equipment sheds) are located in areas that lack native vegetation, the requirement for formalized fuel modification zones are less emphasized as long as the surrounding landscape area is maintained.

## 7.0 CONCLUSIONS

The Equestrian Center has addressed each of the guidelines that determine significant impacts in Chapter 2. The result is that the Equestrian Center as it is designed, combined with the fire protection measures, have effectively reduced the significance level to “less than significant” in accordance with the stated Significance Guidelines. As the OBR development progresses through its building phases, landscape features will be implemented to reduce the wildland fire threat which in turn protects the adjacent Equestrian Center.

## 8.0 LIST OF PREPARERS & PERSONS/ORGANIZATIONS CONTACTED

- Ronald Woychak– *FIREWISE* 2000, Inc., President, *Certified Fire Protection Planning Consultant* with County of San Diego

- David C. Bacon - *FIREWISE* 2000, Inc., President Emeritus, *Certified Fire Protection Planning Consultant* with County of San Diego
- Mel Johnson, Senior Wildland Fire Associate, *Firewise* 2000, Inc.
- Patty Koch – Fire Prevention Specialist, North County Fire Protection District
- Peter Fagrell – Ocean Breeze Project Manager, Helios Property Solutions, LLC
- Mike Cho – Project Architect, TRG Land, Inc.
- Jim Conrad – Ocean Breeze Ranch Development, LLC
- James Pine – Deputy Fire Marshall, San Diego County Fire Authority

## **TECHNICAL APPENDICES**

**APPENDIX A – EQUESTRIAN CENTER SITE PLAN**

**APPENDIX B – FIRE ACCESS PLAN MAP**

**APPENDIX C – FUEL MODIFICATION ZONE MAP**

**APPENDIX D – EVACUATION PLAN**

**APPENDIX E – WATER SERVICE AVAILABILITY FORM 399W**

**APPENDIX F – FIRE SERVICE AVAILABILITY FORM 399F**

**APPENDIX G – UNDESIRABLE PLANT LIST for SAN DIEGO COUNTY**

**APPENDIX H – LITERATURE REFERENCES**

**APPENDIX I – PROJECT PHOTOS**

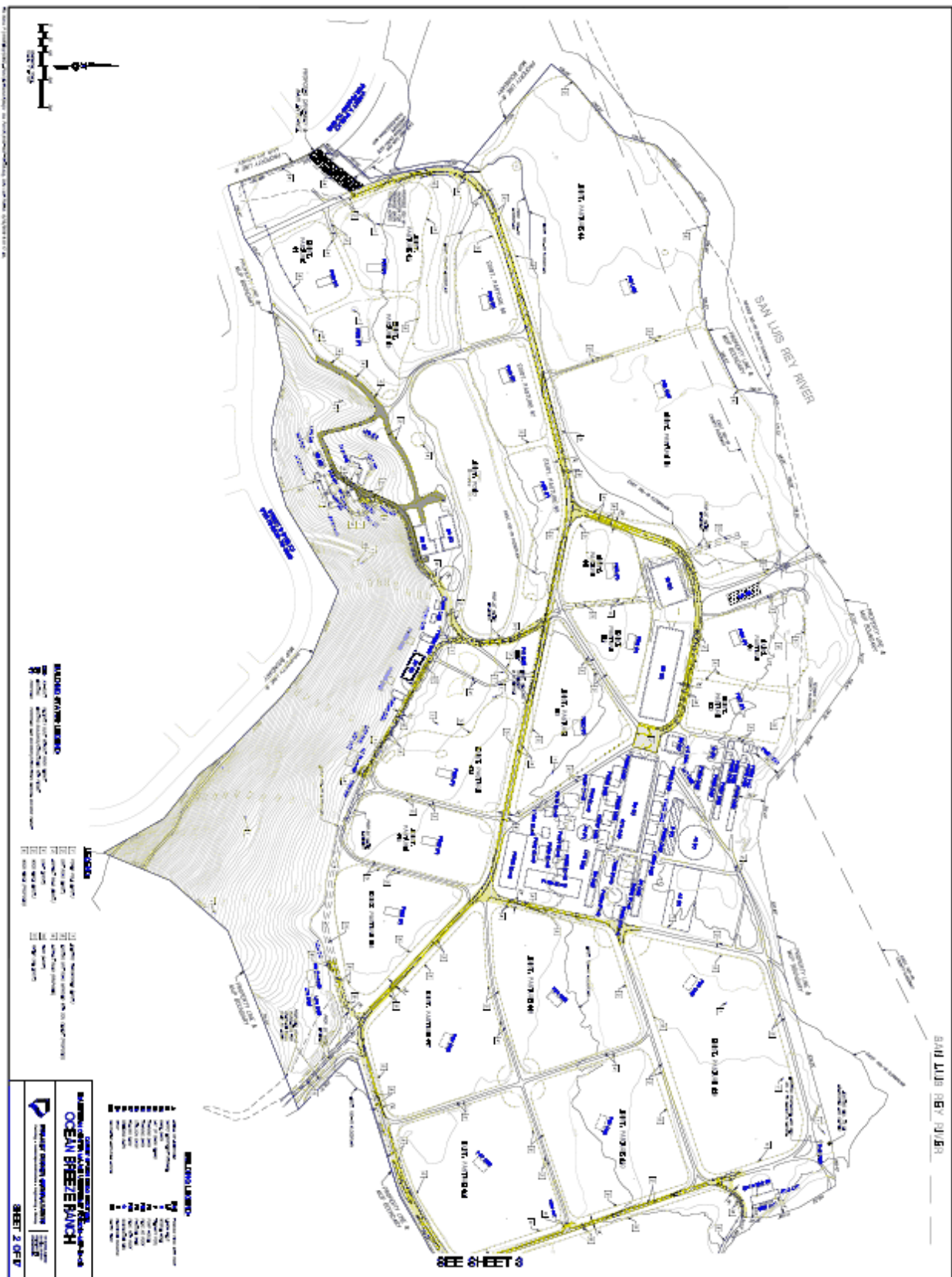
# **APPENDIX A**

## **Equestrian Center Site Plan**

### **(3 pages)**

[illegible]









## EQUESTRIAN CENTER - FPP

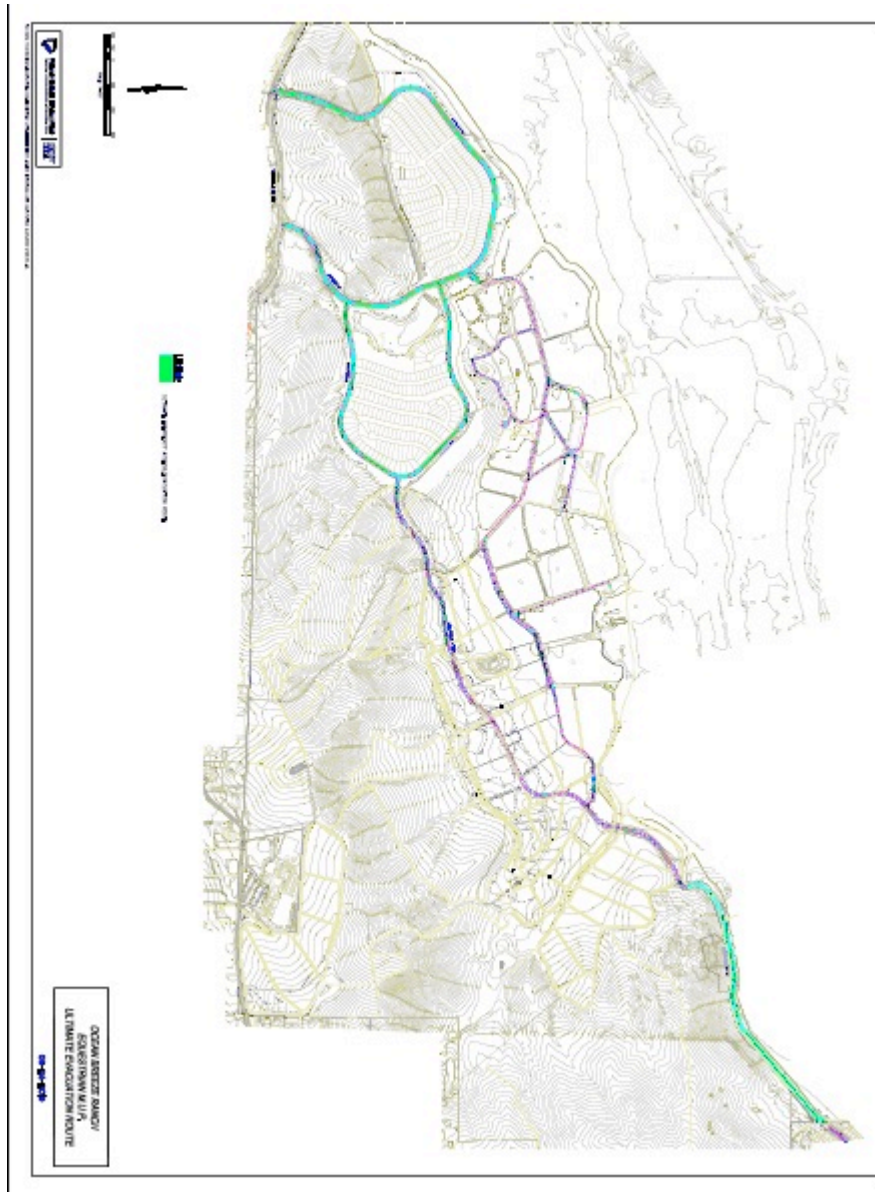


## EQUESTRIAN CENTER - FPP



# APPENDIX D

## EVACUATION PLAN



# **APPENDIX E**

**Water Service Availability Form 399W**  
**(To be attached when all new fire hydrants are installed & tested)**





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

Please type or use pen

Frank N Vessels Family Trust; Attn William Thead, Trustee			ORG _____	<b>W</b>
Owner's Name	Phone _____		ACCT _____	
5256 So. Mission Road, Suite 204			ACT _____	
Owner's Mailing Address	Street		TASK _____	
Bonsall	CA	92003	DATE <u>9/30/14</u> AMT \$ <u>30<sup>00</sup></u>	
City	State	Zip	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 400  
☐ Commercial. . . . . Gross floor area \_\_\_\_\_  
☐ Industrial . . . . . Gross floor area \_\_\_\_\_  
☐ Other . . . . . Gross floor area \_\_\_\_\_
- C. ☐ Total Project acreage 1400 Total number of lots 400
- 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)

See exhibit	
attached	

Thomas Guide Page \_\_\_\_\_ Grid \_\_\_\_\_  
5820 W Lilac Road  
Project address \_\_\_\_\_ Street \_\_\_\_\_  
Bonsall \_\_\_\_\_ 92003  
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: William Thead, Trustee

Date: 9/5/14

Address: 5256 So. Mission Road, Suite 204; Bonsall, CA 92003

Phone: (760) 414-3220

(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: Rainbow Municipal Water District Service area: Bonsall
- 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: 1  
☐ 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? 750

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: Sherry Rehner

Print Name Sherry Rehner

Print Title Acting District Engineer

Phone (760) 728-1178

Date 9/16/14

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



September 30, 2014

Planning & Development Services  
5510 Overland Ave. Suite 110  
San Diego, CA 92123

**Subject: Conditions for APN 126-060-78, 124-150-28, 127-191-20, 127-230-59, 127-271-02, 125-131-49, 127-271-01, 124-150-35, 124-131-48, 125-131-54, 125-080-21 and 124-150-34, Vessels DPLU 399W and 399S**

To Whom It May Concern:

C. Rainbow Municipal Water District (District) conditions regarding the parcel referenced above are as follows:

1. Facilities must be extended to serve all parcels of the development and all work must conform to the current District standards and specifications
2. District must be at a Drought Level 2 or lower in order to supply water meters or development must prove an offset of water per District Drought Ordinance
3. Development may be required to upsize sewer lines to accommodate flows and pay additional fees to fund sewer upsizing projects impacted by the development
4. If the District does not have adequate capacity to treat sewer per the contract with the San Luis Rey Treatment Plant, development must pay to increase the treatment capacity

3707 Old Highway 395 • Fallbrook, CA 92028-2500  
Phone: (760) 728-1178 • Fax: (760) 728-2575 • [www.rainbowmwd.com](http://www.rainbowmwd.com)

# **APPENDIX F**

## **Fire Service Availability Form 399F**





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

Please type or use pen		<b>F</b>
Frank N Vessels Family Trust Attn William Thead		ORG _____
Owner's Name	Phone	ACCT _____
5256 So. Mission Road, Suite 204	(760) 414-3220	ACT _____
Owner's Mailing Address	Street	TASK _____
Bonsall	CA 92003	DATE _____
City	State Zip	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 400  
☐ Commercial ..... Gross floor area \_\_\_\_\_  
☐ Industrial ..... Gross floor area \_\_\_\_\_  
☐ Other ..... Gross floor area \_\_\_\_\_
- C. Total Project acreage 1400 Total lots 400 Smallest proposed lot 6000

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

See exhibit	
attached	

Thomas Guide. Page \_\_\_\_\_ Grid \_\_\_\_\_  
 5820 W Lilac Rd  
 Project address \_\_\_\_\_ Street \_\_\_\_\_  
 Bonsall 92003  
 Community Planning Area/Subregion \_\_\_\_\_ Zip \_\_\_\_\_

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

Applicant's Signature: William Thead Date: 9/5/14  
 Address: 5256 So. Mission Road, Suite 204; Bonsall, CA 92003 Phone: (760) 414-3220  
 (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: North County Fire Protection District  
 Indicate the location and distance of the primary fire station that will serve the proposed project:  
5906 Olive Hill Rd Fallbrook CA Approx 6 miles
- 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 10-15 minutes 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. A FPP will be required

**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: Dottie Koch Print Name and Title: Dottie Koch FPS Phone: 760 723-2040 Date: 9-18-14

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

# APPENDIX G

## Undesirable Plant List for San Diego County

### UNDESIRABLE PLANT LIST

The following species are highly flammable and should be 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.

<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>
<u>Abies species</u>	Fir Trees
<u>Acacia species</u> groundcovers)	Acacia (trees, shrubs,
<u>Adenostoma sparsifolium**</u>	Red Shanks
<u>Adenostoma fasciculatum**</u>	Chamise
<u>Agonis juniperina</u>	Juniper Myrtle
<u>Anthemis cotula***</u>	Mayweed, Stinking Chamolile
<u>Araucaria species</u>	Monkey Puzzle, Norfolk Island Pine
<u>Arctostaphylos species**</u>	Manzanita
<u>Artemisia californica**</u>	California Sagebrush
<u>Arundo donax</u>	Giant Cane
<u>Bambusa species</u>	Bamboo
<u>Brassica species***</u>	Mustard
<u>Callistemon species</u>	Bottlebrush
<u>Calocedrus decurrens</u>	Incense Cedar
<u>Cardaria draba***</u>	Hoary Cress, Perennial
<u>Peppergrass</u>	
<u>Ceanothus species</u>	Ceanothus
<u>Cedrus species</u>	Cedar
<u>Chamaecyparis species</u>	False Cypress
<u>Cinnamomum species</u>	Camphor Tree
<u>Cirsium vulgare***</u>	Wild Artichoke
<u>Conyza Canadensis***</u>	Horseweed
<u>Coprosma pumila</u>	Prostrate Coprosma
<u>Cortaderia selloana</u>	Pampas Grass
<u>Cotoneaster lacteus</u>	Cotoneaster
<u>Cryptomeria japonica</u>	Japanese Cryptomeria
<u>Cupressocyparis leylandii</u>	Leylandii Cypress
<u>Cupressus forbesii</u>	Tecate Cypress
<u>Cupressus glabra</u>	Arizona Cypress
<u>Cupressus macrocarpa</u>	Monterey Cypress
<u>Cupressus sempervirens</u>	Italian Cypress
<u>Cynara cardunculus***</u>	Artichoke Thistle
<u>Cytisus species</u>	Scotch Broom, French
<u>Broom,etc.</u>	
<u>Dodonea viscosa</u>	Hopseed Bush



Elaeagnus angustifolia  
Elaeagnus pungens  
Eriogonum fasciculatum\*\*  
Eucalyptus species  
Gensita species\*\*\*  
Heterotheca grandiflora\*\*  
Jubaea chilensis  
Juniperus species  
Lactuca serriola\*\*\*  
Larix species  
Lonicera japonica  
Miscanthus species  
Muehlenbergia species\*\*  
Nicotiana species  
Palmae species  
Pennisetum setaceum  
Picea species  
Pickeringia Montana\*\*  
Pinus species  
Podocarpus species  
Pseudotsuga menziesii  
Ricinus communis  
Rosmarinus species  
Salsola australis\*\*\*  
Salvia species\*\*  
Schinus molle  
Schinus terebinthifolius  
Silybum marianum\*\*\*  
Spartium junceum  
Tamarix species  
Taxodium species  
Taxus species  
Thuja species  
Trachycarpus fortunei  
Tsuga species  
Ulex europeae\*\*\*  
Urtica urens\*\*  
Washingtonia species  
 Palm

Russian Olive  
 Silverberry  
 Common Buckwheat  
 Eucalyptus  
 Broom  
 Telegraph Plant  
 Chilean Wine Palm  
 Junipers  
 Prickly Lettuce  
 Larch  
 Japanese Honeysuckle  
 Eulalia Grass  
 Deer Grass  
 Tree Tobacco  
 Palms  
     Fountain Grass  
     Spruce Trees  
 Chaparral Pea  
     Pines  
     Fern Pine  
 Douglas Fir  
 Castor Bean  
     Rosemary  
 Russian Thistle, Tumbleweed  
 Sage  
     California Pepper  
 Brazilian Pepper  
 Milk Thistle  
 Spanish Broom  
 Tamarisk  
 Cypress  
     Yew  
     Arborvitae  
     Windmill Palm  
     Hemlock  
 Gorse  
 Burning Nettle  
     California/Mexican Fan

\*\* San Diego County native species  
 \*\*\* Introduced weeds to San Diego County

California Department of Forestry and Fire Protection (619) 590-3100
United States Forest Service (619) 674-2901
County Fire Service Coordinator (858) 495-5092
County Farm and Home Advisor (858) 694-2845
Insurance Information Network of California -- Brochures

([www.iinc.org](http://www.iinc.org) <<http://www.iinc.org>>) or call (800) 397-1679

#### REFERENCES

- Combustible Vegetation and Other Flammable Materials Ordinance. Sections 68.401 thru 86.406 of the County of San Diego's Zoning Ordinance.
- California Department of Fish and Game (858) 467-4201
- U.S. Fish and Wildlife Service (760) 431-9440
- Protecting Your Property From Soil Erosion  
([www.sdcounty.ca.gov/dpw/docs/fire/homeerosion.pdf](http://www.sdcounty.ca.gov/dpw/docs/fire/homeerosion.pdf)  
<<http://www.sdcounty.ca.gov/dpw/docs/fire/homeerosion.pdf>>)
- Homeowner's Guide for Flood, Debris, and Erosion Control After Fires  
([www.sdcounty.ca.gov/dpw/docs/fire/AfterFire.pdf](http://www.sdcounty.ca.gov/dpw/docs/fire/AfterFire.pdf)  
<<http://www.sdcounty.ca.gov/dpw/docs/fire/AfterFire.pdf>>)
- Burn Institute ([www.burninstitute.org](http://www.burninstitute.org))

# APPENDIX H

## Literature 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. *BEHAVEPlus: Fire Modeling System, version 5.0.5: Variables*. General Technical Report RMRS-GTR-213WWW Revised. September 2009. Patricia L. Andrews, United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.
3. *BEHAVEPlus Fire Modeling System, Version 5.0.0* General Technical Report RMRS-GTR-106WWW Revised. June 2008. Patricia L. Andrews, Collin D. Bevins and Robert C. Seli. United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.
4. California Code of Regulations, Title 14, section 1280; California Public Resources Codes sections 4201 through 4204
5. California Government Code, sections 51175 through 51189
6. 2016 Fire Code portion of the CBSC, including appendices to Chapters 1 & 4 and appendices B, F & H
7. The 2016 California Fire Code with and adopted Local Amendments.
8. The 2016 California Residential Code, Section R327.
9. Chapter 7A-2016 California Building Code
10. 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, 2013 Editions
11. National Fire Protection Association - NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildfire* (2013).
12. National Fire Protection Association - NFPA 1142, 2012 Edition. Table C.11 (b) Time-Distance Table Using an Average Speed of 30 mph
13. International Urban-Wildland Interface Code, 2012 Edition
14. *The California State and Local Responsibility Area Fire Hazard Severity Zone Map – Fire and Resource Assessment Program of CAL FIRE*
15. County of San Diego 2017 Consolidated Fire Code with local amendments.
16. North County Fire Protection District Ordinance 2016-02, adopting the 2016 California Fire Code with certain amendments, additions and deletions.



# APPENDIX I

## PROJECT PHOTOS



*PHOTO 3. VIEW OF THE MAIN OFFICE BUILDING ON SITE.*



*PHOTO 4. VIEW OF A STALLION BARN ON THE PROPERTY.*





*PHOTO 5. VIEW OF ONE THE MANY GRAVEL ROADWAYS INTO THE EC FACILITY.*



*PHOTO 6. VIEW OF ONE OF THE MANY LARGE OPEN IRRIGATED PASTURES ON THE PROPERTY.*





*PHOTO 7. VIEW OF ONE OF MANY OPEN-SIDED BARNs AT THE FACILITY.*



*PHOTO 8. EXISTING RESIDENTIAL HOUSING ON THE FACILITY.*





*PHOTO 9. GROUP OF RESIDENTIAL HOUSING FOR RANCH SUPPORT STAFF.*



*PHOTO 10. VIEW OF SINGLE MOBILE HOME LOCATED ON EAST SIDE OF EC FACILITY.*