

4.7 HAZARDS AND HAZARDOUS MATERIALS

INTRODUCTION

This section analyzes potential impacts associated with hazards and hazardous materials that could occur with implementation of the Project. Relevant regulations and existing conditions are described as well as the potential for the Project to: create a significant hazard to the public or the environment related to hazardous materials; impair implementation of an adopted emergency response plan; or, expose people or structures to wildland fire hazards. In addition, hazards associated with past and current oil production operations on the site are evaluated. Information in this section is largely based on information and findings obtained in the following documents:

- *Site Assessment Report Sections 13 and 19 T35 R8W Amos Travis and Reeves-Carillo Leases Esperanza Field, Yorba Linda, CA* (herein referred to as the “Site Assessment Report”), prepared by Avanti Environmental, Inc., January 13, 1998;
- *Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment* (herein referred to as the “Phase I and II ESA”), prepared by Phase One Inc., June 2006;
- *Phase II Subsurface Investigation Report* (herein referred to as the “Phase II Subsurface Investigation Report”), prepared by Partner Engineering and Science, Inc., February 28, 2013;
- *Soil Management Plan* (herein referred to as the “SMP”), prepared by Partner Engineering and Science, Inc., February 28, 2013;
- *Fire Behavior Analysis Report Cielo Vista* (herein referred to as the “Fire Behavior Report”), prepared by Firesafe Planning Solutions, August 27, 2013;
- *Fire Master Plan* (included as “**Figure 4.7-1, Fire Master Plan**” in this EIR section); prepared by Firesafe Planning Solutions and Charles Hartman and Associates, August 2013; and
- *Conceptual Fuel Modification Plan*, sheets CFM-1 and CFM-2 (included as “**Figure 4.7-2a** and **Figure 4.7-2b, Conceptual Fuel Modification**”, in this EIR section), prepared by Firesafe Planning Solutions and Charles Hartman and Associates, August 2013.

All report documents listed above are included in Appendix G of this EIR.

With the exception of the existing oil field operations, the site has remains undeveloped since preparation of the reports referenced above. No changes or additions to the oil wells or drilling equipment have occurred since 1998. Further, the nature of the oil operations and activities have remained the same, with the exception that one well has since become idle. Although site conditions regarding oil operations and hazardous materials have remained unchanged since preparation of the above referenced reports, an updated records search was conducted in July 2012 through various databases including the California Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), and the California Environmental Protection Agency (CalEPA). The results of the updated database searches are included in the analysis below.

1. ENVIRONMENTAL SETTING

a. Regulatory Framework

(1) Federal

(a) Federal Resource Conservation and Recovery Act (RCRA)

According to the U.S. Environmental Protection Agency (US EPA), a “hazardous” waste is defined as one “which because of its quantity, concentrations, or physiochemical or infectious properties, may either increase mortality or produce irreversible or incapacitating illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed” (U.S. Public Health and Welfare Code Section 6903). Special handling and management are required for materials and wastes that exhibit hazardous properties. Treatment, storage, transport, and disposal of these materials are highly regulated at both the Federal and State levels. Compliance with Federal and State hazardous materials laws and regulations minimizes the potential risks to the public presented by these potential hazards.

The Federal hazardous waste laws are generally contained in the Resource Conservation and Recovery Act (RCRA). These laws provide the “cradle to grave” regulation of hazardous wastes. Businesses, institutions, and other entities that generate hazardous waste are required to identify and track their hazardous waste from the point of generation until it is recycled, reused, or disposed of. The primary responsibility for implementing RCRA is assigned to the US EPA, although individual states are encouraged to seek authorization to implement some or all RCRA provisions.

(2) State

(a) California Department of Toxic Substances Control (DTSC)

The responsibility for implementation of RCRA was given to the DTSC in August 1992. The DTSC is also responsible for implementing and enforcing California’s own hazardous waste laws, which are known collectively as the Hazardous Waste Control Law. Although similar to RCRA, the California Hazardous Waste Control Law and its associated regulations define hazardous waste more broadly and so regulate a larger number of chemicals. Hazardous wastes regulated by California but not by US EPA are called “non-RCRA hazardous wastes.”

(b) Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Title 27 of the California Code of Regulations, otherwise known as the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (“Unified Program”), was created in 1993 by Senate Bill 1082 to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for environmental and emergency management programs. The Unified Program is implemented at the local government level by Certified Unified Program Agencies (CUPAs). The Unified Program consolidates, coordinates, and makes consistent the following hazardous materials and hazardous waste programs (Program Elements):

- Hazardous Waste Generation (including on-site treatment under Tiered Permitting);
- Aboveground Petroleum Storage Tanks (APST) (only the Spill Prevention Control and Countermeasure Plan [SPCC]);

- Underground Storage Tanks (USTs);
- Hazardous Material Release Response Plans and Inventories;
- California Accidental Release Prevention Program (CalARP); and
- Uniform Fire Code Hazardous Material Management Plans and Inventories.

(c) Accidental Release Prevention Law

The State's Accidental Release Prevention Law provides for consistency with Federal laws (i.e., the Emergency Preparedness and Community Right-to-Know Act and the Clean Air Act) regarding accidental chemical releases and allows local oversight of both the State and Federal programs. State and federal laws are similar in their requirements; however, the California threshold planning quantities for regulated substances are lower than the Federal quantities.

Local agencies may set lower reporting thresholds or add additional chemicals to the program. The Accidental Release Prevention Law is implemented by the CUPA and requires that any business, where the maximum quantity of a regulated substance exceeds the specified threshold quantity, register with the County as a manager of regulated substances and prepare a Risk Management Plan. A Risk Management Plan must contain an off-site consequence analysis, a five-year accident history, an accident prevention program, an emergency response program, and a certification of the truth and accuracy of the submitted information. Businesses submit their plans to the CUPA, which makes the plans available to emergency response personnel. The Risk Management Plan must identify the type of business, location, emergency contacts, emergency procedures, mitigation plans, and chemical inventory at each location.

(d) California Division of Oil, Gas and Geothermal Resources (DOGGR)

The California Division of Oil, Gas and Geothermal Resources (DOGGR) is the State agency responsible for the oversight of drilling, operation, maintenance, plugging and abandonment of gas, oil and geothermal wells. DOGGR established a regulatory program for the management of these resources, emphasizing their responsible development through sound engineering practices that protect the environment, prevent pollution and ensure public safety. DOGGR recommends that construction of buildings over or in the proximity of plugged and abandoned oil wells should be avoided, and if not feasible, then plugging or re-plugging wells should be performed to current DOGGR standards. The State Oil and Gas Supervisor can require the re-abandonment of previously plugged or abandoned wells, when construction will be taking place over or in the vicinity of a well is considered to result in a hazard.

(e) California Health and Safety Code

The Code regulates health and safety including hazardous waste and materials, household waste, vectors, emergency preparedness, fire hazards, radiation, and water protection.

(f) California Fire Plan

The California Fire Plan is the State's plan for reducing the risk of wildfire through a cooperative effort between the State Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection (CAL FIRE). By placing the emphasis on prevention, the Fire Plan looks to reduce firefighting costs and property losses; to increase firefighter safety; and to contribute to ecosystem health. The Fire Plan

sets up the structure of County-level plans. However, the Fire Plan is structured so that individual fire departments can establish plans and policies for land within their respective jurisdictions.

Sections 51175-51189 of the California Government Code (GC) define responsibilities for CAL FIRE and for local agencies. Sections 51178 and 51181 define the CAL FIRE Director's responsibility to identify very high fire hazard severity zones (VHFHSZs); transmit this information to local agencies; and periodically review the recommendations relative to identification of VHFHSZs. In part, Sections 51178.5 and 51179 define the local agency's responsibility to make the recommendation available for public review and to designate, by ordinance, VHFHSZs in its jurisdiction. Section 51176 identifies that land is classified in the State "in accordance with whether a VHFHSZ is present so that public officials are able to identify measures that will retard the rate of spread, and reduce the potential intensity, of uncontrolled fires that threaten to destroy resources, life, or property, and to require that those measures be taken." Sections 51175-51189 direct CAL FIRE to map areas of VHFHSZ within Local Responsibility Areas (LRAs) and State Responsibility Areas (SRAs). Wildland fire protection in California is the responsibility of either the State, local government, or the federal government. LRAs include the incorporated cities, cultivated agricultural lands, and portions of the desert with service typically provided by municipal fire departments, fire protection districts, counties, and by CAL FIRE under contract to the local government. SRAs include areas of the state in which the financial responsibility of preventing and suppressing fires has been determined to be primarily the responsibility of the State.

Mapping of the VHFHSZs is based on relevant factors such as fuels, terrain, and weather. VHFHSZ maps were initially developed in the mid-1990s, but are now being updated based on improved science, mapping techniques, and data. Mapping was prepared by CAL FIRE's Fire and Resource Assessment Program using data and models that describe development patterns, potential fuels over a 30-50 year horizon, expected fire behavior, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure to new construction. Based on the State "Fire Hazard Severity Zones in SRA" for the County of Orange, the project site is designated SRA VHFHSZ. When development is located within a VHFHSZ, annual vegetation clearing, building design/materials restrictions, and other building mandates are required to protect properties from wildfire.

(g) California Fire Code (CFC) 2010, California Code of Regulations, Title 24, Part 9

Division 3 of Title 3 of the County of Orange, Code of Ordinances states that the County has adopted the 2010 CFC, based on the International Fire Code (IFC), 2009 Edition, with errata, published by the International Code Council (ICC), and the whole thereof (including Appendix B, Appendix BB, Appendix C, and Appendix CC of the IFC). The IFC includes regulations for the protection of life and property from the fire and explosion, as enforced by the Orange County Fire Authority (OCFA). The purpose of the CFC is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations.

CFC Chapter 49, Fire Code, Requirements for Wildland-Urban Interface Fire Areas

The purpose of Chapter 49, Requirements for Wildland-Urban Interface Fire Areas, of the CFC is to provide minimum standards to increase the ability of a building to resist the intrusion of flame or burning embers

being projected by a vegetation fire and contributes to a systematic reduction in conflagration losses through the use of performance and prescriptive requirements.

(h) California Building Code Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure

The purpose of Chapter 7A, *Materials and Construction Methods for Exterior Wildfire Exposure*, of the 2010 California Building Code (CBC) is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone (FHSZ) within SRAs or any Wildland-Urban Interface Fire Areas to resist the intrusion of flame or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses. Chapter 7A applies to building materials, systems and or assemblies used in the exterior design and construction of new buildings within a Wildland-Urban Interface Fire Area.

(3) Regional/Local

(a) County of Orange Environmental Health Division

The County of Orange Environmental Health Division was designated as the CUPA for the County of Orange by the State Secretary for Environmental Protection on January 1, 1997. The CUPA is the local administrative agency that coordinates the regulation of hazardous materials and hazardous wastes in the County of Orange through the following six programs:

- Hazardous Waste (HW);
- Underground Storage Tank (UST);
- Aboveground Petroleum Storage Tank (APST);
- Hazardous Materials Disclosure (HMD);
- Business Emergency Plan (BEP); and
- California Accidental Release Prevention (CalARP).

County and city fire agencies have joined in partnership with the CUPA as participating agencies. In most cities within the County, the Environmental Health Division administers the hazardous waste, underground storage tank, aboveground petroleum storage tank, and the CalARP programs while the fire agencies administer the HMD and BEP.

(b) Orange County Fire Authority (OCFA)/Guidelines

The OCFA is a regional fire service agency that serves 23 cities in the County of Orange, including the City of Yorba Linda, and all unincorporated areas, including the project site. The 2010 CFC is enforced by the OCFA. The CFC/ IFC enforces state and locally adopted codes and standards. Through the CFC/IFC, the OCFA implements minimum requirements consistent with nationally recognized good practices to safeguard the health, safety, and general welfare of the community. The OCFA has developed guidelines to assist in understanding specific fire and life safety regulations. Most the guidelines have undergone some changes due to the adoption of the 2010 CFC. The following OCFA guidelines would apply to the Project:

Fire Master Plans for Commercial & Residential Development, Guideline B-09, January 1, 2011

The effectiveness of emergency response and firefighting operations is directly related to the proper installation and maintenance of fire access roadways, the proper siting of hydrants, adequate water supply, and access to structures. This guideline pertains to the creation and maintenance of fire department access roadways, access walkways to and around buildings, and hydrant quantity and placement as required by the 2010 CFC and CBC, as amended by local ordinance.

Development Within the Very High Fire Hazard Severity Zone, Guideline C-04, April 20, 2006

Guideline for Development within Special Fire Protection Areas (SFPA)/Very High Fire Hazard Severity Zones (VHFHSZ) and Instructions to Request a Property Exclusion from SFPA/VHFHSZ, Guideline C-04, April 20, 2006 is currently being revised by the OCFA and is identified as "Expired" on the OCFA website. It is notable that Section R327 of the California Residential (Building) Code (CRC), in effect, addresses these same or similar requirements. Section R327 provides materials and construction methods for exterior wildfire exposure. The methods apply to building materials, systems and or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area. The purpose of this Section R327 is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flame or burning embers projected into the air by a vegetation fire and contributes to a systematic reduction in conflagration losses.

Vegetation Management Technical Design Guideline, Guideline C-05, January 1, 2011

Proper management of vegetation in areas at risk from wildfires has proven to be a major factor in reducing the chances of homes burning, especially when combined with construction techniques designed to further protect a home from approaching flames and burning embers. Over the past 30 years, these approaches have contributed to saving hundreds of homes during major wildfires in the County of Orange.

Vegetation Management practices are implemented and enforced in two ways: defensible space and fuel modification. California state wide law requires that land owners in areas at risk from wildfires implement and maintain a defensible space landscape area between buildings and potential approaching wildfire. Development adjoining grass-covered, brush-covered or chaparral-covered land, canyons, foothills, mountains, non-irrigated former farming areas, and other lands containing combustible vegetation requires modification of natural vegetation at the urban interface, referred to as fuel modification, to reduce the potential for loss of structures during wind driven wildfires. A fuel modification zone is a series of strips of land where, in progressively varying degrees, combustible vegetation has been removed and/or modified and partially or totally replaced with more adequately spaced, drought-tolerant, fire resistant plants in order to provide a reasonable level of protection to structures from wildland and vegetation fires. Since 1979, local agencies served by the OCFA have adopted provisions in local fire codes requiring new buildings to be protected by a fuel modification zone. During the design and construction process, land owners and builders are required to design, implement, and maintain a landscape fuel modification zone. Generally, buildings built prior to 1979 have defensible space and buildings built after 1979 have a fuel modification zone. This purpose of this guideline is to provide information on how fuel modification zones are to be designed, installed, and maintained in order to meet safety requirements.

The County of Orange and the OCFA have adopted fuel modification requirements, most recently revised in January 2011, which are provided within this guideline. The purpose of the fuel modification guidelines is to provide information on how fuel modification zones are to be designed, installed, and maintained in order to meet State and local fire safety requirements. Fuel modification programs vary in complexity and depend upon the type, quantity, and spacing of vegetation, as well as topography, degree/type of exposure, local weather patterns, and the construction, design, and placement of structures. A typical fuel modification installation under the fuel modification guidelines consists of a minimum 20-foot structure setback zone (Zone A), bordered by a minimum 50-foot irrigated zone (Zone B), with an additional 100-foot minimum of non-irrigated vegetation thinning zones (Zones C and D), beyond that.

The minimum width of a fuel modification area is 170 feet and, in some cases, the width increases due to type of terrain and/or type and mass of vegetation. The fuel modification guidelines also describe requirements for an allowable plant palette, which includes species generally more tolerant to the effects of fire that have lower burning characteristics, as well as a list of undesirable plants that are required to be removed annually from the zones. The complete list of plant species for landscaped fuel modification zones is provided in OCFA Guideline C-06, *Acceptable Plant Species for Homes Subject to Wildfires*.

When a fuel modification plan is required, it must be reviewed and approved by the OCFA prior to grading permit issuance. Once installed, the property owner is responsible for the indefinite maintenance of the fuel modification areas in accordance with the notes on the approved fuel modification plan, including growth reduction activities, cutting back landscaping, removal of dead plant materials, removal of trees and shrubs not on the approved plan, removal of highly combustible plant species, and maintenance of the irrigation system. Ongoing maintenance must be conducted a minimum of twice each year, and the OCFA may conduct inspections of established fuel modification areas.

Acceptable Plant Species for Homes Subject to Wildfires, Guideline C-06, January 1, 2011

The purpose of this guideline is to provide a list of plants that are generally more tolerant to the effects of fire and typically have lower burning characteristics.

Requirements for the Construction of Structures Adjacent to Oil Well(s), Guideline C-02, January 1, 2011

Structures located adjacent to oil wells can be negatively impacted by unexpected emergencies and the natural products they produce. The intent of this guideline is to provide plan review processing requirements and to assist with the design of alternative construction materials for structures proposed less than the distances required by the 2010 CFC. The CFC prohibits the construction of any building within 100 feet from an oil well, except for buildings required to operate the well (CFC 3406.3.1.3.2).

Combustible Soil Gas Hazard Mitigation, Guideline C-03, January 1, 2008

This guideline is intended to serve as the OCFA guidance for the scientific investigation, remediation, and/or mitigation of potentially hazardous concentrations of combustible soil gases associated with the construction and occupancy of a building or structure located within an administrative boundary or distance less than or equal to 100 feet beyond the administrative boundary of any oil/gas field that has been defined by the DOGGR; and a distance less than or equal to 100 feet from any active or abandoned oil/gas well that is not located within the administrative boundary of an oil field as defined by the DOGGR.

(c) OCFA Strategic Plan 2010 - 2015

The OCFA Strategic Plan serves as OCFA's decision guide in focusing the organization's material and human resources to the greatest community benefit over the next three to five years. The plan includes an organization chart, a mission, vision, guiding principles, strategic goals, and implementation methodology.

(d) County of Orange Hazard Mitigation Plan

The County of Orange Hazard Mitigation Plan includes resources and information to assist the County residents, public and private sector organizations, and others interested in participating in planning for natural hazards. The mitigation plan provides a list of activities that may assist the County in reducing risk and preventing loss in future hazard events. The mitigation action items address multi-hazard issues and specific activities for flood/storm, wildland fire, earthquakes, dam failure, epidemic, urban fire, vector control, mud/landslide, tornado, and tsunamis. The goal of the plan is to reduce impacts from hazards by increasing public awareness, documenting resources for risk reduction and loss-prevention, and identifying activities to guide the County towards building a safer, more sustainable community.

(e) Orange County Emergency Operations Center (EOC)

The EOC functions as the communication and coordination center for both the County and Operational Area emergency response organization and disaster preparedness, providing a central point for coordinating operational, administrative, and support needs of the County and Operational Area Members. The center also assists in coordination and communication between mutual aid coordinators and the state Office of Emergency Services during county-wide and state-wide emergency response and recovery operations. The Orange County EOC can be used to gather and process information to and from the County, cities, school and special districts, business and industry, volunteer organizations, individuals, and state and federal government agencies. The center has the ability to function as a virtual EOC so that Operational Area Members may communicate between EOCs without co-location. Additionally, the EOC may become responsible for managing the tactical operations of regional resources designed to more efficiently use the pooled resources of Operational Area Members or external resources to benefit the Operational Area as a whole.

(f) Orange County Emergency Response Plan

The Orange County Emergency Response Plan details functional responsibilities and interactions of federal, state, and local governmental agencies, as well as private organizations in the event of natural and/or human-related disasters. The plan addresses County response to extraordinary emergency situations associated with natural disasters, technological incidents, and nuclear defense operations, with a focus on potentially large-scale disasters that can generate unique situations requiring unusual responses. Specifically, these situations include emergencies that threaten life and property, and potentially impact the well-being of a large number of people.

(g) Codified Ordinances of the County of Orange, Title 7 – Land Use and Building Regulations, Division 8 – Oil Drilling and Production Regulations, Article 1 – The Orange County Oil Code

The following excerpts from the County of Orange Code of Ordinances pertain to oil production operations and facilities near residential uses and are applicable to the Project.

Section 7-8-2 – Purpose. (a) *It is the intent of this code to regulate the exploration and drilling for and the production of petroleum so that this activity may be conducted in harmony with other uses of land within this County, thus protecting the people of the County of Orange in the enjoyment and the use of their property and providing for their comfort, health, safety, and general welfare.*

(b) *Is it further the intent of the County Board of Supervisors that petroleum operations shall be permitted in all districts within this County subject to the application of this code, the requirements of which have been carefully designed for the fulfillment of the intent expressed in (a) above.*

Section 7-8-34 – Drilling and Operating.

(a) *Location of Oil Wells.*

(1) *No oil well shall be drilled within the following distances measured from the centerline of any local street or any highway shown on the Master Plan of Arterial Highways, as amended:*

Major highways	210 feet
Primary highways	200 feet
Secondary highways	190 feet
Local streets	180 feet, except

that in case of a local street, the right-of-way of which is more than sixty (60) feet in width, the distance shall be one hundred fifty (150) feet plus one-half of the existing right-of-way of which is more than sixty (60) feet in width, the Director may determine that because of the degree of slope or other feature of the topography, a lesser distance that one-half of the right-of-way in addition to the one hundred fifty (150) feet is reasonable to insure the safety of the traveling public in conformity with the purpose and intent of this provision, in which case the distance thus set by the Director shall prevail.

(2) *No oil well shall be drilled with one hundred fifty (150) feet of any building used for human occupancy, nor shall any such buildings be erected within one hundred fifty (150) feet of any oil well not abandoned, except buildings incidental to the operation of the well. No oil well shall be drilled within one hundred fifty (150) feet from the outer boundary line.*

(6) *The Director may suspend any provision of subsection (a) in whole or in part, or impose less restrictive requirements if such provisions or requirements are rendered unnecessary or unreasonable by the then existing special features, such as: Topography, nature of the use and occupancy of and the proximity to buildings on adjoining property, the height, character and structure of such buildings, the type and character of oil field development and may impose additional safety requirements rendered necessary because of such special features*

Section 7-8-40 – Abandonment Procedure. *It shall be the responsibility of the Director to determine that the drill site and all facilities pertinent thereto have been restored to their original condition as nearly as practicable in conformity with the regulations of this code including the following requirements:*

(a) *Standard.*

(1) It shall be the responsibility of the operator to comply with the abandonment provision of this code and he shall furnish the Director the approval of the Division of Oil and Gas, Department of Natural Resources, confirming compliance with all abandonment proceedings under the state laws.

It shall be the responsibility of the operator to comply with the abandonment provision of this code and he shall furnish the Director with: a) a copy of the approval of Division of Oil and Gas, Department of Natural Resources, confirming compliance with all abandonment proceedings under the State law, and b) a notice of intention to abandon under the provisions of this section and stating the date such work will be commenced. Abandonment may then be commenced on or subsequent to the date so stated.

Abandonment shall be approved by the Director after restoration of the drill site and the subsurface thereof has been accomplished in conformity with the following requirements:

- a) The derrick and all appurtenant equipment thereto shall be removed from the drill site.*
- b) All tanks, towers and other surface installations shall be removed from the drill site.*
- c) All concrete, pipe, wood and other foreign materials shall be removed from the drill site to a depth of six (6) feet below grade, unless part of a multi-well cellar then being used in connection with any other well for which a permit has been issued.*
- d) The oil well casing shall be cut off at a point six (6) feet below the drill site grade at the cellar, but in no case below sea level. Nothing shall be placed in the hole above the point of cutoff until the cutoff has been inspected by the Director and by him found to be in compliance with all applicable provisions of law.*
- e) The top twenty-five (25) feet of the remaining casing shall be filled with a cement plug to prevent gas fumes from escaping.*
- f) A steel cap of not less than the same thickness as the well casing shall be tack welded to the casing in a minimum of four (4) places.*
- g) All holes and depressions shall be filled and packed with native earth. All oil, waste oil, refuse or waste material shall be removed from the drill site.*

(h) County of Orange General Plan

The Public Services and Facilities Element, and Safety Element include goals and policies that are applicable to the Project. The Public Services and Facilities Element sets forth a comprehensive strategy for the planning, management, and implementation of public services and facilities that are necessary to meet the existing and future demands of the County of Orange. The Safety Element identifies public safety concerns that affect the physical and social development of the County which includes fire hazards and hazardous materials, and identifies goals and policies to address such concerns. The Project's consistency with the applicable goals and policies is discussed in the impact analysis below.

(i) City of Yorba Linda General Plan

The City's General Plan contains goals and policies that are relevant to hazards and hazardous materials in the General Plan Land Use Element and Safety Element. The Project's consistency with the applicable goals and policies of these elements is discussed in the impact analysis below.

b. Existing Conditions

The majority of the 84-acre project site is vacant, with the exception of several operational and abandoned oil wells, a natural gas easement, and various dirt access roads and trails which traverse the site. The project site has been subject to a mineral lease for oil production as part of the Esperanza Oil Field. Oil production facilities within the project site include five operational wells, one abandoned well, one idle well and tank batteries, unimproved oil field service roads, and unimproved drill pad sites scattered throughout the site.

(1) Hazardous Materials/Records Review

The Phase I and II ESA and the Site Assessment Report assessed the presence or likely presence of historical, existing, or threatened releases of any hazardous substances or petroleum products into structures, soil, and/or groundwater beneath the project site, to the extent practical. These are referred to as recognized environmental conditions (RECs), as defined under the American Society of Testing and Materials (ASTM) E1528-05.

As part of the Phase I and II ESA and the Site Assessment Report, contacts were made with the OCFA, the Health Care Agency, DTSC, and the State Water Resources Control Board (SWRCB) to inquire about the presence of any RECs on the project site or surrounding area. Also, as a part of the Phase I and II ESA and the Site Assessment Report, other State and Federal databases were reviewed to determine if the project site or any adjacent properties were listed as hazardous waste generators, UST releases or as having other environmental concerns (i.e., spill, leak, or aboveground tank).

For purposes of this analysis, an environmental concern is classified as a major, medium or minor concern when it is one that involves a REC for which further investigation, action and/or remediation is recommended. The distinction among major, medium, and minor concerns is based solely on the relative estimated dollar-costs of completing any next-step recommended action.

Based on the Agency contacts and database search, the project site was listed as a regulatory-listed site by only DOGGR. The site was listed since it contained oil well facilities. The level of concern for the listing was “minor” according to the Phase I and II ESA. The listing is consistent with the site-specific environmental concerns identified below as part of the Phase I and II ESA analysis. The Agency contacts and database search revealed that no sites that are farther than ¼ mile pose a concern to the subject site (that is, listed sites which may have experienced a release of hazardous substances of sufficient magnitude to constitute a regional threat or to have impacted the subject site). The Agency contacts and database search did reveal that one site is within ¼ mile of the subject site that is, close enough, under certain conditions, to possibly constitute an environmental risk to the subject site. The site is an oil well site located east and adjacent to the project site within the Esperanza Hills site. This site was listed by DOGGR as a “completed oil well” site. As such, the level of concern identified by the Phase I and II ESA for this site was minor.

Although the site has remained undeveloped since 2006 and the surrounding area of the project site has also remained unchanged since 2006 from a development perspective (recognizing the consequences of the 2008 Freeway Complex Fire), an updated records search was conducted for the Project to confirm the database search results included in the Phase I and II ESA. The DTSC maintains the EnviroStor database, which includes sites on the Cortese List and also identifies potentially hazardous sites where cleanup actions (such as a removal action) or extensive investigations are planned or have occurred. The database provides a

listing of Federal Superfund sites [National Priorities List (NPL)]; State Response sites; Voluntary Cleanup sites; and School Cleanup sites. Based on a review of the EnviroStor database, the project site and its former uses are not identified on any of the above lists.¹ In addition, the project site is not on the State Water Board's Geotracker Database, which provides a list of leaking underground storage tank sites that are included on the Cortese List.² The nearest hazardous/contaminated offsite location listed, the OCFA Station 32, located at 20990 Yorba Linda Boulevard approximately ¼ mile southwest of the project site, was a completed LUST cleanup site/case closed with no further action needed.³ The project site is not listed on CalEPA's list of sites with active Cease and Desist Orders (CDO) or Cleanup and Abatement Orders (CAO) or list of contaminated solid waste disposal sites.⁴ The updated records search results did not reveal any new on-site or off-site areas in the surrounding project vicinity that would result in new or increased REC's that what were identified in the Phase I and II ESA.

The Phase I and Phase II ESA also included a site-specific analysis, including field reconnaissance, to identify RECs. Again, since no change in development of the site has occurred since 2006, the site-specific analysis in the Phase I and II ESA has been incorporated into this analysis. The Phase I and Phase II ESA included an evaluation of the on-site oil production facilities.

Based on the findings of the Phase I and II ESA, no major or medium environmental concerns were identified in association with the project site. However, three minor environmental concerns and one potential, possible, or historical environmental concern associated with the project site were identified; refer to **Table 4.7-1, Major, Medium, or Minor Items of Environmental Concern** and **Table 4.7-2, Potential, Possible, or Historical Items of Items of Environmental Conditions**. Table 4.7-1 classifies an environmental concern as a major, medium or minor concern when it is one that involves a recognized environmental condition for which further investigation, action and/or remediation is recommended. Table 4.7-2 classifies an environmental condition as a potential or possible condition, as distinct from a major, medium, or minor concern, when it involves a *de minimis* (or minimal) issue that appears to pose no immediate threat to the subject site given the current knowledge of site conditions or it is the current commercial or customary practice to do so. This condition with time, groundwater movement, demolition or other disturbances, or sometimes with the acquisition of further information, may come to pose a long-term, immediate or chronic environmental risk; and/or this condition may appear to have a negligible monetary/physical impact on the project site, and therefore, does not require additional investigation at the this time. A historical recognized environmental condition is classified as an issue which was considered a recognized environmental condition in the past, but is no longer considered a recognized environmental condition as a result of prior investigation and/or mitigation.

The Site Assessment Report assessed soil conditions in the areas of the on-site oil wells and aboveground storage tanks utilized for storage of crude oil. According to the Orange County Groundwater Contour Map, November 1996, groundwater below the site was reportedly located at approximately 300 feet below the surface and was not encountered during the site investigation. Based on the report, with the exception of

¹ Department of Toxic Substances Control, Envirostor Database at <http://www.envirostor.dtsc.ca.gov/public>; accessed July 2012.

² State Water Board Geotracker Database, <http://www.geotracker.waterboards.ca.gov/search/>; accessed July 2012.

³ Department of Toxic Substances Control, Envirostor Database at <http://www.envirostor.dtsc.ca.gov/public>; accessed July 2012 and State Water Board Geotracker Database, <http://www.geotracker.waterboards.ca.gov/search/>; accessed July 2012.

⁴ CalEPA's List of Active CDO and CAO sites; online at <http://www.calepa.ca.gov/SiteCleanup/CorteseList/CDOCAOList.xls>; accessed July 2012.

Table 4.7-1

Major, Medium, or Minor Items of Environmental Concern

Concern #	Location Description	Description of Environmental Concern	Level of Concern ^a
1	Southern third portion of the subject site (Planning Area 1)	Concerns that may be associated with oil wells include the following: (1) It is not uncommon to find an “apron” of surficial petroleum hydrocarbon impact surrounding the well head that can extend to distances of 20 feet; (2) It was a typical practice for several nearby wells to share a “mud pit”. A mud pit is a large (sometimes hundreds of feet in circumference), bermed pit that contains the circulation mud used to cool the drill bit at depth. The mud commonly contains additives that may be considered hazardous by today’s standards. Mud pits were typically abandoned in place by being buried with dirt. There is no indication that a mud pit is located on the site; however, because mud pits did not require permits, few records were kept regarding their exact location. A subsurface investigation performed by Phase One Inc. revealed the presence of elevated levels of total recoverable petroleum hydrocarbons (TRPHs) in stained soil by piping associated with oil production. Further, a Site Assessment report by Avanti Environmental, Inc., dated January 13, 1998, revealed the presence of TRPH-contaminated soil in the vicinity of Amos-Travis Well #1.	Minor
2	Southeast portion of the subject site within Planning Area 1	During the site reconnaissance, an unlabeled 55-gallon drum which was not situated near any of the oil production areas was observed. The contents of the drum are not known. It is also unknown whether staining is present around the drum as the dense vegetation around the drum prevented an inspection for surface conditions. The contents of the drum may potentially be hazardous materials or wastes.	Minor
3	Subject site	A soil-gas survey performed by Phase One Inc. revealed the presence of elevated levels of methane in the vicinity of the oil exploration field on-site. The elevated levels of methane may be associated with oil exploration activities on-site and in nearby properties.	Minor

^a For purposes of this analysis, an environmental concern is classified as a major, medium or minor concern when it is one that involves a recognized environmental condition for which further investigation, action and/or remediation is recommended. The distinction among major, medium, and minor concerns is based solely on the relative estimated dollar-costs of completing any next-step recommended action.

Source: Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment, prepared by Phase One Inc., June 2006.

boring B-6 (refer to the Site Assessment Report for an illustration of Boring B-6 location), soil discoloration and odors were not present in the soil borings below an estimated seven to twelve inches. Borings B-6 showed no soil discoloration but hydrocarbon odors and flame ionization detector (FID) readings were present beginning at the five-foot sample and continuing to the base of the boring. The levels of the total recoverable petroleum hydrocarbons (TRPHs) detected in all but boring B-6 samples were within a range that does not warrant additional investigation. However, boring B-6 did reveal an elevated concentration of TRPH that increases with depth. Further testing using EPA Methods 8015/8020, modified for gasoline, revealed that the contamination was not indicative of a gasoline release. It did indicate that the contamination was consistent with the oil production being performed at the site. The report concluded that the contamination to the depth tested is not significant and the petroleum contamination at the site of the oilfield operations is relatively minor, and consistent with other such sites in a typical oilfield setting.

Table 4.7-2

Potential, Possible, or Historical Items of Environmental Conditions

Potential Condition #	Location Description	Description of Potential, Possible, or Historical Environmental Condition
4	Southern third of the subject site (Planning Area 1)	Oil exploration activities are ongoing on the southern third of the subject site (Planning Area 1). The concern exists that undiscovered stained soil and/or underground structures may exist in this area of the project site.

Note: For purposes of this analysis, an environmental condition is classified as a potential or possible condition, as distinct from a major, medium, or minor concern, when it involves a de minimis issue that appears to pose no immediate threat to the subject site given the current knowledge of site conditions or it is the current commercial or customary practice to do so. This condition with time, groundwater movement, demolition or other disturbances, or sometimes with the acquisition of further information, may come to pose a long-term, immediate or chronic environmental risk; and/or this condition may appear to have a negligible monetary/physical impact on the subject, and therefore, does not require additional investigation at the this time. A historical recognized environmental condition is classified as an issue which was considered a recognized environmental condition in the past, but is no longer considered a recognized environmental condition as a result of prior investigation and/or mitigation.

Source: Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment, prepared by Phase One Inc., June 2006.

To further investigate the potential for petroleum hydrocarbons and/or heavy metals in the soil as a consequence of a release or releases from on-site oil production activities, the Phase II Subsurface Investigation Report was conducted in February 2013 which included the advancement of 12 soil borings with the collection of 27 soil samples; refer to Figures 3 and 4 of the Phase II Subsurface Investigation Report within Appendix G of this EIR for boring locations. The soil samples collected from each boring did not exhibit discoloration or odor; nor contain detectable concentrations of carbon chain total petroleum hydrocarbons (TPH-cc). Total recoverable petroleum hydrocarbons (TRPH) was detected during the previous on-site investigations (Site Assessment Report) mentioned above. However, the method utilized for TRPH has a tendency to produce false positives due to the inexact nature of the methodology. As such, the recent data for TPH-cc did not indicate any areas of impacted soils.⁵

With regards to heavy metals, the analyzed soil samples only exceeded the background molybdenum concentrations, a chemical of concern (COC), for typical California soils in two samples, but did not exceed the residential and/or industrial health risk screening levels, which include regional screening levels (RSLs)⁶, California Human Health Screening Levels (CHHSLs)⁷, Total Threshold Limit Concentrations (TTLs)⁸, or ten

⁵ Phase II Subsurface Investigation Report, prepared by Partner Engineering and Science, Inc., dated February 28, 2013.

⁶ Regional Screening Levels (RSLs) are generic, risk-based chemical concentrations developed by the Environmental Protection Agency (EPA) Region 9 for use in initial screening-level evaluations. RSLs combine human health toxicity values with standard exposure factors to estimate contaminant concentrations that are considered to be health protective of human exposures over a lifetime through direct-contact exposure pathways (e.g., via inhalation and/or ingestion of and/or dermal contact with impacts soil). RSLs are not legally enforceable standards, but rather are considered guidelines to evaluate if potential risks associated with encountered impacts may warrant further evaluation.

⁷ California Human Health Screening Levels (CHHSLs) are tools for evaluating contaminated sites and are concentrations of hazardous chemicals in indoor air, soil, and soil gas that the California EPA (Cal/EPA) considers to be below the thresholds of concern for risks to human health. CHHSLs are not considered standards, but rather guidelines that can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. The soil CHHSLs are intended for the evaluation of potential exposure of humans to contaminants in soil through incidental soil ingestion, dermal absorption, and inhalation of dust or vapors in outdoor air.

times the Soluble Threshold Limit Concentrations (STLCs)⁹. No other metals were detected above their respective background concentrations. Therefore, all detected concentrations of metals were within background levels and/or below available health risk screening levels. Further, no evidence of a significant release of petroleum hydrocarbons and/or heavy metals was observed during the Phase II Subsurface Investigation Report.

(a) Methane Gas

As noted above in Table 4.7-1, a soil-gas survey performed by Phase One Inc. revealed the presence of elevated levels of methane in the vicinity of the oil exploration field on-site. The elevated levels of methane may be associated with oil exploration activities on-site and in nearby properties.

Methane is a naturally occurring gas that typically forms as a by-product of bacterial digestion of organic matter, and therefore occurs ubiquitously, although generally at very low concentrations, in the air we breathe. If free of impurities, methane is colorless and odorless, and under normal atmospheric conditions, does not pose a health hazard. However, at high concentrations, this gas is flammable, and at concentrations of between 55,000 and 140,000 parts per million (ppm), it is explosively combustible. At very high concentrations it can cause asphyxiation due to oxygen displacement. Methane is not toxic below levels that would lead to asphyxiation.

In the subsurface, methane forms in areas where organic-rich sediments, such as in a swamp, are undergoing bacterial decomposition. Because of its origin, this type of methane is referred to as “biogenic.” A man-made example of such an area would be a landfill or dairy pasture. Methane and other natural gases can also form at great depth, where they are most often associated with petroleum deposits. Since this type of methane forms as a result of thermal (heat) alteration of petroleum and/or organic matter in the rocks, it is termed “thermogenic” or “petrogenic.” Methane produced near the surface is generally at low to very low pressures, whereas that derived from oil-producing zones is generally at high pressures. There are numerous chemical characteristics of the gas that may reveal clues about its origin. However, the processes by which the gas forms and moves through the rocks or sediments are often very complex, altering and adding to the chemical characteristics of the gas. Consequently, the source is frequently very difficult to determine. Some gases may be a combination of both thermogenic and biogenic processes.

Regardless of the environment in which it forms, methane is lighter than air, and therefore tends to migrate upward through permeable sediments, rock fractures, and even man-made structures (such as well casings). If the geologic unit is permeable enough, the gases eventually reach the surface and mix with the atmosphere. Under certain conditions, the gas can become trapped under an impermeable layer. In nature, these impermeable layers are typically comprised of claystone or similar fine-grained materials. As the gas accumulates under the impermeable layer, it can build up to high concentrations and pressures. Man-made structures, such as pavement or building foundations, can also prevent gas from venting to the atmosphere.

⁸ Total Threshold Limit Concentrations (TTLCs) are established regulatory limits to evaluate if a waste would be considered hazardous due to toxicity. Generated wastes exceeding TTLCs require special handling procedures and can only be disposed at designated facilities.

⁹ Soluble Threshold Limit Concentrations (STLCs) are established regulatory limits to evaluate if leachate resulting from a waste would be considered hazardous due to toxicity. A factor of 10 is generally applied to solid waste to account for the leachability of the waste.

Methane can accumulate in the upper reaches of poorly ventilated building components, such as basements, crawl-spaces, and attics.

Since the project site includes oil producing wells, the occurrence of methane is not unusual. Within the project site, field investigations conducted during the Phase I and II ESA included 19 soil gas samples analyzed onsite for methane gas using a gas chromatograph equipped with a Flame Ionization Detector and an Electron Capture Detector.¹⁰ Seventeen of the soil gas samples analyzed contained detectable levels of methane ranging from 1.0 µg/L (ppb) (micrograms per liter or parts per billion or “ppb”) to 11.1 µg/L (ppb). Such levels are not considered to be explosively combustible, but nonetheless are considered to be a potential hazard on the site.

(2) Areas of Fire Hazard/Wildfire

Southern California’s Mediterranean climate conditions create a high level of risk for wildland fires. The wet, mild winters and dry, hot summers provide a long growing season that produces an abundance of plant fuel. Heavy rains, and seasonal or prolonged drought all result in excessive plant fuel accumulation and the potential for catastrophic wildfires. Fire hazards are generally highest during late summer and fall when chaparral becomes tinder dry.

The two main weather patterns associated with wildfire in this area are lightning, associated with summer thunderstorms, and the Santa Ana Winds, which are warm, dry winds that blow from the north and northeast over the mountains from the desert. These winds typically occur in the autumn, further drying out already tinder-dried vegetation. Lightning tends to increase in frequency with altitude and distance inland. As a result, the majority of the lightning strikes occur in mountain areas. These ignitions pose a significant fire hazard risk due to the short duration and small quantity of rain, which is often insufficient to extinguish these ignitions before they become wildfires.

Although periodic fires are a natural and essential component of the ecology of certain habitats such as scrub and chaparral, which occur on the project site, an excess of plant fuel may increase the severity of a wildfire and threaten native habitat and neighboring development. Areas most susceptible to fire have three common characteristics: 1) thirty percent slopes or greater; 2) medium to heavy fuel loading of predominantly scrub vegetation communities; and 3) frequent critical fire hazard weather conditions.

The project site and vicinity are located within an area of very high fire risk for wildland fires with a history of wildland fire occurrences. As indicated above, based on the State “Fire Hazard Severity Zones in SRA” for the County of Orange, the project site is designated SRA VHFHSZ. According to the CalFire database, two fires have occurred on the project site. In 1980, the “Owl Fire” destroyed three structures and consumed over 18,330 acres in Orange and Riverside counties. In 2008, the project site and surrounding areas, including residential uses, were burned during the “Freeway Complex Fire.” According to the final cause report released by the Department of Forestry and Fire Protection on January 4, 2010, the cause of the fire was a faulty catalytic converter from a vehicle near the Riverside Freeway (California State Route 91) in the riverbed of the Santa Ana River located in Corona, California.

¹⁰ For the investigation area and the soil boring locations, see Figure 2, Site Plan, in the Phase I and II ESA.

2. ENVIRONMENTAL IMPACTS

a. Methodology

To assist in evaluating potential impacts associated with hazardous materials that would occur from construction and/or operation of the Project, the following reports were reviewed: *Site Assessment Report, Phase I and II ESA, Phase II Subsurface Investigation Report, and the Soil Management Plan*. In addition, the results of an updated database search were considered in evaluating the potential for hazardous materials impacts. Based on the results of the reports and updated database search, the potential for construction and/or operation of the Project to result in significant impacts associated with the use, transport, accidental release and/or disposal of hazardous materials was evaluated.

Understanding that the project site and surrounding area are highly susceptible to wildland fire hazards, the analysis of impacts regarding wildland fires considers the analysis and conclusions provided within the Fire Behavior Report, existing regulations that address fire hazards, the future uses and project features that would occur as a result of Project implementation and the availability of fire protection services. Based on these considerations, a determination is made as to whether there would be an increased potential for wildland fire hazards to occur as a result of Project implementation and whether the Project would expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

b. Thresholds of Significance

Appendix G of the *CEQA Guidelines* and the County of Orange Environmental Analysis Checklist provide thresholds of significance to determine whether a project would have a significant environmental impact regarding hazards and hazardous materials. Based on the size and scope of the Project and the potential for hazards and hazardous materials impacts, the thresholds below are included for evaluation in this EIR. Please refer to Section 6.0, *Mandatory Findings of Significance*, for a discussion of other issues associated with evaluation of hazards and hazardous materials where the characteristics of the Project made it clear that effects would not be significant and further evaluation in this section was not warranted.

Would the Project:

- Threshold 1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (refer to Impact Statement 4.7-1);
- Threshold 2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (refer to Impact Statement 4.7-2);
- Threshold 3: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment (refer to Impact Statement 4.7-3);
- Threshold 4: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (refer to Impact Statement 4.7-4); and

Threshold 5: 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 (refer to Impact Statement 4.7-5).

c. Project Design Features

The following Project Design Features (PDFs) are reflected in the Project plans and would be included in the Mitigation Monitoring and Reporting Program (MMRP) for the Project. These features would prevent the occurrence and/or minimize the significance of potential hazards and hazardous materials impacts.

Oil Production Operations-Related Features

- PDF 7-1: Prior to grading for development, existing on-site oil wells and facilities, and production facilities would be abandoned or re-abandoned, as necessary, in accordance with the standards of the State of California Division of Oil, Gas and Geothermal Resources (DOGGR). All other containers associated with oil production shall also be disposed in accordance with applicable regulatory requirements.
- PDF 7-2: No new residences (habitable structures) would be developed within 150 feet of any surface operational oil well; or within 50 feet of a subsurface pumping unit/well enclosed within a concrete vault, or as otherwise approved by the Director, OC Planning. The buffer(s) would be clearly dimensioned on all applicable plans prior to issuance of building permits to the satisfaction of the Manager, OC Planning.
- PDF 7-3: No new residences (habitable structures) would be developed within ten feet of abandoned wells. The 10-foot buffer would be clearly dimensioned on all applicable plans prior to issuance of permits to the satisfaction of the Manager, OC Planning.
- PDF 7-4: All new wells drilled in the 1.8-acre "oil drilling pad" parcel located in Planning Area 1 for potential continued oil operations would be drilled per applicable DOGGR, OCFA and County of Orange requirements.
- PDF 7-5: The oil drilling pad would not be accessible to the public. Plantings, barriers, signage, and information would be provided where necessary to ensure public safety. (This PDF to be verified prior to issuance of permits for the oil operations by the Manager, OC Planning.)
- PDF 7-6: Access to the oil drilling pad shall be provided within existing oil field service roads. No new roadways for servicing existing or proposed oil wells would be constructed through open space areas. (This PDF to be verified prior to issuance of permits for the oil operations by the Manager, OC Planning.)
- PDF 7-7: The Applicant/developer would provide written notification to all future homeowners regarding the previous use of the site as an oilfield and the extent of continued oil production activities in the area. (This PDF to be verified prior to issuance of certificate of use and occupancy by the Manager, OC Planning.)
- PDF 7-8: At the time oil operations on the 1.8-acre parcel cease, any wells would be abandoned and contaminated soils would be remediated pursuant to all applicable requirements, if necessary.

Fire Protection Features

- PDF 7-9: Prior to issuance of a building permit, the Project would implement a fire protection plan that would comply with OCFA’s standards for VHFHSZ/SFPA. (This PDF to be verified prior to issuance of building permits for habitable structures by the Manager, OC Planning.)
- PDF 7-10: The Project would incorporate fire-resistant construction for all structures adjoining natural open space areas including the use of fire-resistant building materials. Such materials would be clearly shown on construction drawings and reviewed and approved by the Manager, OC Planning prior to issuance of a building permit.
- PDF 7-11: All structures would be protected with smoke detectors and National Fire Protection Association (NFPA) 13-D Automatic Fire Sprinklers. Such features would be clearly shown on construction drawings and reviewed and approved by the Manager, OC Planning prior to issuance of a building permit.
- PDF 7-12: The project shall include fuel modification/management zones to help suppress wildland fires in accordance with OCFA guidelines.
- PDF 7-13: The Project would incorporate a landscape plan that utilizes a plant palette consisting of fire resistant plants, native and appropriate non-native drought tolerant species in accordance with OCFA guidelines. (This PDF to be verified prior to issuance of building permits by the Manager, OC Planning.)
- PDF 7-14: Per OCFA requirements, fire hydrants would be spaced at 600 feet or less and minimum fire access requirements would be met or exceeded (28-foot minimum road width, 17-foot inside and 38-foot outside turning radius). (This PDF to be verified prior to recordation of a subdivision map by the Manager, OC Planning.)

Please refer to Impact Statement 4.7-5 below for further details of the PDFs related to the Project’s proposed fire protection features.

d. Analysis of Project Impacts

HAZARDOUS MATERIALS

Threshold	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
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4.7-1 Implementation of the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. This impact is considered less than significant.

The Project includes the development of residential uses and would not involve the routine transport, use, or disposal of significant amounts of hazardous materials. The Project’s proposed residential uses would utilize ordinary household or general commercial cleaners, solvents, painting supplies, pesticides for landscaping and pool maintenance, and other substances utilized for cleaning and maintenance of residential development. These types of chemicals are not considered acutely hazardous, and would be used in limited quantities. All potentially hazardous materials would be contained, stored, and used in accordance with

manufacturers' instructions and handled in compliance with applicable federal, state, and local health and safety standards and regulations. Any associated risk transport, use, or disposal of hazardous materials would be adequately reduced to a less than significant level through compliance with these standards and regulations. Also, during construction of the Project, contaminated soils and a 55-gallon drum with unknown contents would be removed from the site. Such activities would be short-term in nature and would not involve the "routine" transport, use, or disposal of hazardous materials. These activities are discussed under Impact Statement 4.7-2, below. As discussed therein, a Soils Management Plan (SMP) has been prepared for the Project that outlines the protocol for the handling and/or disposal of impacted soils that could potentially be encountered during construction activities. The SMP is included as Mitigation Measure 4.7-1. Overall, less than significant impacts regarding the routine transport, use, or disposal of hazardous materials would occur with Project implementation.

RISK OF UPSET

Threshold	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
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4.7-2 Implementation of the Project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. However, compliance with applicable regulatory requirements and implementation of the prescribed mitigation measures would reduce potentially significant impacts in these regards to a less than significant level.

The type and amount of hazardous materials to be used in association with operation of the Project would be typical of those used in residential developments. It is anticipated that the use and storage of such materials would occur in compliance with applicable standards and regulations, and would not pose significant hazards.

Construction of the Project would involve the use of potentially hazardous materials such as vehicle fuels, oils, and transmission fluids. All such potentially hazardous materials would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations. As such, the use of such materials would not be expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions.

As indicated in the Existing Conditions above in Tables 4.7-1 and 4.7-2, three "minor" environmental concerns and a potential, possible, or historical item of environmental concern have been identified for the project site. First, Concern No. 1 is the result of past and current oil production operations on-site. In summary, Concern No. 1 is the existence of "aprons" of surficial petroleum hydrocarbon impacts surrounding well heads and the potential for "mud pits" on-site. These concerns are common for oil production activities. This is considered to be a potentially significant impact as contaminated soils in the "aprons" or "mud pits" could expose people or the environment to hazardous conditions.

However, as indicated above and according to the Phase II Subsurface Investigation Report, soil samples were collected to determine whether any COCs [i.e., heavy end petroleum hydrocarbons (e.g., total petroleum hydrocarbons as oil [TPH-o] and heavy metals (e.g., arsenic, lead and chromium)] present any health risk concerns. The soil samples collected from each soil boring did not exhibit discoloration or odor; nor contain

detectable concentrations of TPH-cc. TRPH was detected during the previous on-site investigations mentioned above; however, the method utilized for TRPH has a tendency to produce false positives due to the inexact nature of the methodology. As such, the recent data for TPH-cc did not indicate any areas of impacted soils. The analyzed soil samples exceeded the background molybdenum concentrations, but did not exceed the residential or industrial RSLs, CHSLs, TTLCs, and STLCs. No other metals were detected above their respective background concentrations. Therefore, all detected concentrations of metals were within background levels and/or below available regulatory guidelines. Further, no evidence of a significant release of petroleum hydrocarbons and/or heavy metals was observed during the Phase II Subsurface Investigation Report.

While the Phase II Subsurface Investigation report concluded that the soils tested on the site, including those near the oil facilities, do not contain chemicals of concern (COCs) that exceed applicable health risk screening levels, there is nonetheless still the potential for the Project to encounter impacted soils during soil-disturbing/grading activities associated with Project construction. As such, a Soils Management Plan (SMP) has been prepared for the Project that outlines the protocol for the handling and/or disposal of impacted soils that could potentially be encountered during construction activities. The SMP is included as Mitigation Measure 4.7-1. This mitigation measure ensures that soils impacted with VOCs are handled and disposed of appropriately so that health of the Project's future residents is not endangered. The process for the handling and disposal of VOCs is provided in a VOC mitigation plan as required by Mitigation Measure 4.7-2. The SMP would be subject to review and approval by the SCAQMD, RWQCB, OCFA, OCHCA, and/or any other agency with jurisdiction over site remediation activities. The SMP includes protocols for: screening of soil exhibiting impacts, handling of volatile organic compounds (VOC) contaminated soils; stockpile management; vapor suppression and dust control, surface water protection, soil stockpile sampling; sampling frequency; and exporting of contaminated soils. Per the SMP, should VOC contaminated soils be encountered, a VOC mitigation plan in accordance with South Coast Air Quality Management District (SCAQMD) Rule 1166 would be required. Rule 1166 sets requirements to control the emission of VOCs from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition. The VOC mitigation plan would be subject to review and approval by the SCAQMD Executive Officer. The requirements for a VOC mitigation plan are set forth in Mitigation Measure 4.7-2. In addition, per the SMP, a qualified environmental consultant would be responsible for preparing a separate site-specific health and safety plan (HASP) that would be implemented in conjunction with the SMP when handling soil with suspected or confirmed COC impacts. At a minimum, the HASP would identify the potential COCs and/or other hazards of concern and establish guidelines and/or procedures for controlling/minimizing exposures to potential COCs/hazards, including the appropriate level(s) of personal protective equipment (PPE). The general contractor would be responsible for non-COC-related health and safety concerns associated with the excavation (e.g., excavation stability, stockpile placement, heavy equipment operation). The requirements for a HASP are set forth in Mitigation Measure 4.7-3. In addition to the above mitigation measures addressing VOC-contaminated soil, this mitigation measure ensures that appropriate actions are taken with respect to other chemicals of concern so that they will not endanger future Project residents.

As indicated in the Project Design Features section above, prior to grading activities, existing on-site oil wells and facilities, and production facilities would be abandoned or re-abandoned, as necessary, in accordance with DOGGR standards (PDF 7-1). To ensure that all wells are properly abandoned, Mitigation Measure 4.7-4 requires a qualified environmental consultant to inspect the abandoned wells and perform a review of well decommission documentation. Implementation of PDF 7-1 and Mitigation Measures 4.7-1 to 4.7-4 would

reduce potentially significant impacts regarding contaminated soils from past and current oil activities to a less than significant level. Mitigation Measure 4.7-4 and PDF 7-1 provide for the safe abandonment or reabandonment of oil wells on the project site in compliance with DOGGR requirements to ensure that well externalities do not affect future residences and that residences are constructed at a safe distance from abandoned or reabandoned wells.

Environmental Concern No. 2 involves the presence of an unlabeled 55-gallon drum which was not situated near any of the oil production areas. The contents of the drum are not known. It is also unknown whether staining is present around the drum as the dense vegetation around the drum prevented an inspection for surface conditions. The contents of the drum may potentially be hazardous materials or wastes. This concern is considered to be a potentially significant impact. Thus, Mitigation Measure 4.7-5 has been prescribed to ensure this potentially significant impact is reduced to a less than significant level. Per Mitigation Measure 4.7-5, if soil staining were to occur around and/or beneath the container and the contents of the drum are determined to be hazardous, soil sampling shall be performed to determine if impacts to the near surface have occurred. If so, soil shall be removed in accordance with the measures included in the Project's SMP to be implemented pursuant to Mitigation Measure 4.7-2.

Third, Environmental Concern No. 3 is the presence of elevated levels of methane in the vicinity of the oil exploration field on-site. The elevated levels of methane may be associated with oil exploration activities on-site and in nearby properties. This concern is considered to be a potentially significant impact. Thus, Mitigation Measure 4.7-6 has been prescribed to ensure this potentially significant impact is reduced to a less than significant level. Mitigation Measure 4.7-6 requires a qualified environmental consultant to prepare a combustible gas/methane assessment study for the OCFA for review and approval, prior to issuance of a grading permit. Based on the results of the study, methane mitigation measures would be implemented by the Project, as necessary to ensure methane gases do not pose significant hazards to people or the environment. Mitigation Measure 4.7-6 further provides for vapor barriers or sealed utility conduits to reduce the potential for fire danger during construction and also reduce the potential for any health hazards which could otherwise occur should the future residents be subjected to inhaling methane gas.

Finally, Environmental Concern No. 4 is the potential for unknown stained soil and/or underground structures located in Planning Area 1 from past or current oil production activities. This concern is considered to be a potentially significant impact. Implementation of Mitigation Measure 4.7-2 would ensure this potentially significant impact is reduced to a less than significant level. In compliance with the SMP, during grading of Planning Area 1 in the vicinity of past or current oil production activities, the Project Contractor would stop work immediately if any subsurface structures or environmental conditions such as staining are observed. Immediately following such a work stoppage and prior to work starting again in the noted area, the Project Applicant would retain a qualified oil well remediation environmental consultant to inspect the area and determine if soil or other remediation measures are required.

As indicated in the Project Design Features section above, all new wells drilled in the 1.8-acre "oil drilling pad" parcel located in Planning Area 1 for potential continued oil operations would be drilled per applicable DOGGR, OCFA and County of Orange requirements (PDF 7-4). The oil drilling pad would be improved to accommodate future oil production facilities as a separate project should the oil operators choose to relocate to this area of the project site. The oil drilling pad would not be accessible to the public. Plantings, barriers, signage, and information would be provided where necessary to ensure public safety (PDF 7-5). Access to the oil drilling pad would be provided within existing oil field service roads and no new roadways would be constructed through open space areas (PDF 7-6). Future homeowners would be provided with notification

as to the previous use of the site as an oilfield and the extent of continued oil production activities in the area (PDF 7-7). In accordance with applicable regulatory requirements, no new residences (habitable structures) would be developed within 150 feet of any surface operational oil well or 50 feet of an enclosed subsurface unit/well, or as otherwise approved by the Director, OC Planning and no new residences (habitable structures) would be developed within ten feet of abandoned wells or as otherwise approved by the OCFA (PDF 7-2 and 7-3). In addition, per PDF 7-8, at the time oil operations on the 1.8-acre parcel cease, any wells would be abandoned and contaminated soils would be disposed of at an appropriate disposal facility or remediated pursuant to all applicable requirements, if necessary. Therefore, by compliance with applicable regulatory requirements and implementation of PDFs 7-2 to 7-7, operation of the future oil production facilities within the drilling island would not create a significant hazard to the public or the environment and a less than significant impact would occur with regards to future oil operations.

Also, within the project site is a natural gas easement maintained by the Southern California Gas Company. No residential uses are proposed directly adjacent to the easement. The Project Applicant would coordinate directly with the Southern California Gas Company to ensure no conflicts would occur during construction or long-term operation of the Project. As such, no impacts regarding conflicts with existing natural gas lines/easements would occur with Project implementation.

Overall, based on the above, with implementation of the applicable PDFs, the prescribed mitigation measures and compliance with applicable regulatory requirements, all potentially significant impacts regarding the Project's potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be reduced to a less than significant level.

Mitigation Measures

Mitigation Measure 4.7-1 Prior to the issuance of grading permits, the Project Applicant/developer shall submit the Soil Management Plan (SMP) prepared by a California-licensed professional geologist to the County of Orange Public Works Manager, Subdivision and Grading, or his/her designee for review, approval and implementation by the Project Proponent. The SMP shall include the protocol for the handling and/or disposal of impacted soils, as well as subsurface structures (i.e., underground storage tanks), that could potentially be encountered during construction activities. The SMP shall include protocols for: screening of soil exhibiting impacts, handling of volatile organic compounds (VOC) contaminated soils; stockpile management; vapor suppression and dust control, surface water protection, soil stockpile sampling; sampling frequency; and exporting of contaminated soils.

Mitigation Measure 4.7-2 During ground disturbing construction activities, should VOC contaminated soils be encountered as a result of the screening methods prescribed by the Soils Management Plan (refer to Mitigation Measure 4.7-1), ground disturbing construction activities shall be immediately halted. Ground disturbing activities shall not resume until a VOC mitigation plan in accordance with South Coast SCAQMD Rule 1166 has been reviewed and approved by the SCAQMD Executive Officer. The VOC mitigation plan shall set forth requirements to control the emission of VOCs from excavating, grading, handling and treating VOC-contaminated soil consistent with SCAQMD Rule 1166.

Mitigation Measure 4.7-3 Prior to the issuance of grading permits, a qualified environmental consultant shall prepare and submit a site-specific health and safety plan (HASP) to the County of Orange Public Works Manager, Subdivision and Grading, or his/her designee for review and approval. The HASP shall be implemented in conjunction with the Soils Management Plan (refer to Mitigation Measure 4.7-1) when handling soil with suspected or confirmed chemical of concern (COC) impacts. At a minimum, the HASP shall identify the potential COCs and/or other hazards of concern and establish guidelines and/or procedures for controlling/minimizing exposures to potential COCs/hazards, including the appropriate level(s) of personal protective equipment (PPE). The general contractor shall be responsible for non-COC-related health and safety concerns associated with the excavation (e.g., excavation stability, stockpile placement, heavy equipment operation).

Mitigation Measure 4.7-4 After decommissioning of the oil facilities on the project site, a qualified environmental consultant shall inspect the abandoned wells and perform a review of well decommission documentation. Also, DOGGR shall be contacted to perform a "Construction Site Review" of the abandoned wells on the subject site to determine whether the wells have been abandoned to current standards. The results of the reviews shall be provided to the RWQCB, OCFA, DOGGR, and OCHCA.

Mitigation Measure 4.7-5 The Project Applicant shall retain a qualified environmental consultant to profile the unidentified substance in the unlabeled 55-gallon drum and facilitate its disposal in accordance with regulatory guidelines, including DOGGR, RWQCB, OCFA, OCHCA and/or any other agency with jurisdiction over such disposal measures. If soil staining occurs around and/or beneath the container and the contents of the drum are determined to be hazardous, soil sampling shall be performed to determine if impacts to the near surface soils have occurred. If so, soil shall be removed in accordance with the measures included in the Project's SMP to be implemented pursuant to Mitigation Measure 4.7-1.

Mitigation Measure 4.7-6 Prior to grading activities and concurrent with decommissioning of the on-site oil facilities, the Project Applicant shall retain a qualified environmental consultant/California registered engineer and/or geologist with demonstrated proficiency in the subject of soil gas investigation and mitigation to prepare a combustible gas/methane assessment study to the OCFA for review and approval, prior to grading activities. Prior to conducting the gas/methane assessment study, the site drill locations shall be pre-approved by the OCFA as to ensure approval of the report. Based on the results of the study, methane mitigation measures, which may include, but are not limited to, the use of vapor barriers and/or sealed utility conduits, and other mitigation measures shall be identified in a mitigation plan for implementation during construction and operation of the Project. The mitigation plan shall be subject to review and approval by the OCFA prior to grading activities.

EXISTING ON-SITE HAZARDS

Threshold	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?
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4.7-3 Although the Project would be located on a site that could include hazardous materials as a result of past and current on-site oil production activities, implementation of the applicable PDFs, the prescribed mitigation measures and compliance with applicable regulatory requirements would ensure that no significant hazard occur to the public or the environment.

Government Code Section 65962.5, amended in 1992, requires the CalEPA to develop and update annually the Cortese List, which is a list of hazardous waste sites and other contaminated sites. While Government Code Section 65962.5 makes reference to the preparation of a list, many changes have occurred related to web-based information access since 1992 and information regarding the Cortese List is now compiled on the websites of the DTSC, the State Water Board, and CalEPA. As discussed in the Existing Conditions section above, the project site does not appear on any of the applicable hazardous materials databases, with the exception of the DOGGR database, which indicates the presence of oil production facilities on the project site. Impacts related to past and current oil production activities on the project site are addressed under Impact Statement 4.7-2. As discussed therein, the Project's potentially significant impacts associated with past and current oil production activities on the project site would be reduced to a less than significant level with implementation of the applicable PDFs, the prescribed mitigation measures and compliance with applicable regulatory requirements. As such, although the Project would be located on a site that could include hazardous materials as a result of past and current on-site oil production activities, implementation of the PDFs, the prescribed mitigation measures and compliance with applicable regulatory requirements would ensure that no significant hazard occur to the public or the environment.

Mitigation Measures

Refer to Mitigation Measures 4.7-1 to 4.7-6. No additional mitigation measures are necessary.

EMERGENCY RESPONSE PLAN

Threshold	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
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4.7-4 Implementation of the Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. This impact is considered less than significant.

The project site is currently undeveloped with the exception of oil wells and associated facilities, as well as dirt access roads and trails which traverse the site. These existing dirt roads and trails are located on private property and are not designated or maintained for public use, nor are they part of any adopted emergency response plan or emergency evacuation plan. Primary access to the project site would be provided via Aspen Way from San Antonio Road (Planning Area 2) and from Via del Agua (Planning Area 1). The site is located immediately adjacent to single-family residential uses and various local roadways that include San Antonio Road, Aspen Way, Via del Agua, and Dorinda Road. During construction, no lane closures would be necessary

and all construction staging activities would be confined to the project site. As such, project construction would not impair the ability of vehicles used by residents or emergency personnel to drive along local roadways.

The County has prepared a Hazards Mitigation Plan to provide guidance for the County’s response to emergency situations such as natural disasters, technological incidents, and national security emergencies. All new development must follow the County’s emergency response and evacuation guidelines and be compatible with emergency evacuation routes. The Project would include internal roads and improvements to Aspen Way and Via del Agua at the project access points. All traffic improvements would be reviewed by the OCFA, the Orange County Department of Public Works Road Division, and the City of Yorba Linda (as necessary) for approval of emergency access, which is a required process for all new development projects in the County. Accordingly, development of the Project would comply with the County’s (and City of Yorba Linda) building and applicable fire and safety codes that would require adequate access for vehicles and equipment for fire, ambulance, and police personnel in and out of the project site. Also, according to the OCFA Guidelines B-09, Fire Master Plans for Commercial and Residential Development, the number of fire apparatus access roads required for a residential development is limited to one, if the development contains less than 150 residential units. The portion of the Project taking access from Via del Agua proposes 95 residential units while the portion taking access from Aspen Way proposes 17 residential units, both of which are below the 150 unit threshold. As such, the Project has been designed in accordance with Guideline B-09 as both portions of the Project (located off of Aspen Way and off of Via del Agua) would include a fire apparatus access road. Further, as discussed in Section 4.14, *Traffic/Transportation*, the Project would result in less than significant traffic impacts with implementation of the prescribed mitigation measures. Accordingly, the function of the street system would remain and there would be available capacity to accommodate the projected traffic volumes, in addition to emergency vehicles.

Overall, based on the above, the Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and a less than significant impact would occur in this regard.

WILDLAND FIRES

Threshold	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?
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4.7-5 Implementation of the Project could 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. However, compliance with applicable regulatory requirements and implementation of the project features and prescribed mitigation measures would reduce potentially significant impacts in these regards to a less than significant level.

The project site and vicinity are designated as a VHFHSZ/SFPA with a history of wildland fire occurrences. The regional natural vegetation in this area is highly prone to wildfires. In 1980, the “Owl Fire” destroyed three structures and consumed over 18,330 acres in Orange and Riverside counties. In 2008, the project site and surrounding areas, including commercial structures and numerous residences were burned during the “Freeway Complex Fire”. As such, impacts associated with wildland fires are potentially significant and are

discussed below. Section 4.12, *Public Services*, describes fire protection services and facilities that serve the project site and evaluates the ability of the service providers to provide fire protection service to the site with implementation of the Project. The analysis below focuses on the potential for the Project to expose people and structures to wildland fire hazards. This impact is considered a potentially significant impact given the site's designation and location adjacent to wildlands and history of fire occurrences on and near the project site.

Development of the Project would require compliance with development designs, applicable provisions, and safety requirements of Chapter 49, Fire Code, Requirements for Wildland-Urban Interface Fire Areas, of the 2010 CFC and Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure, of the 2010 CBC, as applicable. The Project would be required to implement a fire protection plan that would comply with OCFA Guideline B-09, Fire Master Plans for Commercial and Residential Development. In addition, the Project would be required to implement construction methods and utilize fire-resistant materials as required by Section R327 of the CRC, as applicable, and provide defensible space and fuel modification with vegetation having low burn characteristics pursuant to the requirements of OCFA Guideline C-05, Vegetation Management Technical Design Guideline, and OCFA Guideline C-06, Acceptable Plant Species for Homes Subject to Wildfires, to help suppress wildland fires.

In accordance with the applicable regulatory requirements, the Project would implement a fire protection plan that would comply with OCFA's standards for VHFHSZ/SFPA (see PDF 7-9). Fire protection measures as part of the Project would include, but are not limited to, fire-resistant construction for all structures adjoining natural open space areas including the use of fire-resistant building materials (see PDF 7-10), automatic sprinklers and smoke detectors (see PDF 7-11); fuel modification/management zones to help suppress wildland fires (described in detail below); and a landscape plan that utilizes a plant palette consisting of fire resistant plants, native and appropriate non-native drought tolerant species (see PDF 7-13). Further, in accordance with OCFA requirements, fire hydrants would be spaced at 600 feet or less and minimum fire access requirements would be met (28-foot minimum road width, 17-foot inside and 38-foot outside turning radius) (see PDF 7-14).¹¹ **Figure 4.7-1, Fire Master Plan**, illustrates the locations of the fire hydrants, fire access roads, OCFA hammerhead locations (locations providing sufficient turning radius for fire engines). As indicated under Impact Statement 4.7-4, the Project would include the required (emergency) access roadways to the project site. The *Fire Master Plan* has been reviewed and approved by OCFA.

Fuel modification would occur within four zones to help suppress wildland fires in accordance with OCFA guidelines (see PDF 7-12). Each zone would be designed specifically to help suppress a fire in different ways. The fuel modification zones are illustrated on **Figure 4.7-2a-b, Conceptual Fuel Modification**, which has been reviewed and approved by OCFA. Below is a summary of the fuel modification zones:^{12,13}

- **Fuel Modification Zone A – Non-Combustible Construction:** Ten- to 95-foot setback zone for non-combustible construction only. Noncombustible materials are those that will not ignite, burn, support combustion, or release flammable vapors when heated. Generally, noncombustible construction includes building materials such as concrete, brick and structural steel. On the other

¹¹ Michael Hernandez, Management Analyst, OCFA, Letter Correspondence, July 11, 2012.

¹² Fire Behavior Analysis Report, Cielo Vista, prepared by Firesafe Planning Solutions, August 27, 2013.

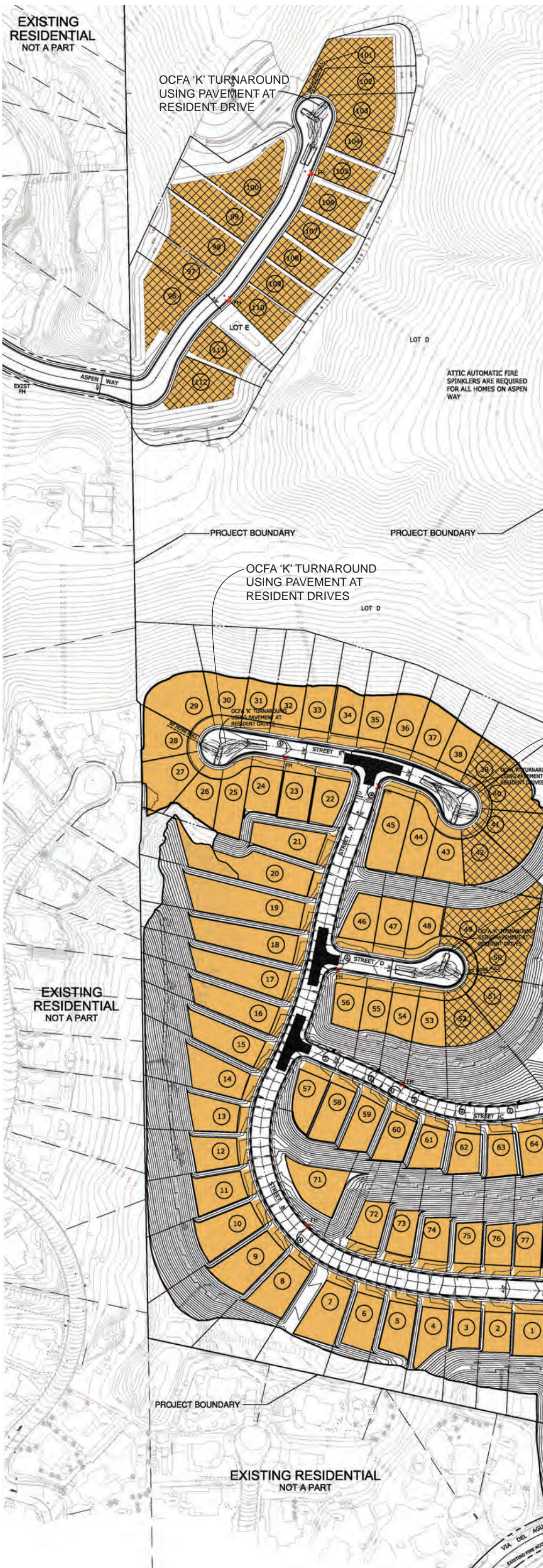
¹³ Conceptual Fuel Modification Plan, sheet CFM-1 and CFM-2, prepared by Firesafe Planning Solutions and Charles Hartman & Associates, December 7, 2012

hand, combustible construction materials will ignite and burn when heated, such as wood-framed structures. Zone A would be maintained by the Homeowner's Association (HOA).

- Fuel Modification Zone B – Wet Zone (100 percent removal undesirable shrubs): First five feet to 186 feet from Zone A. Zone B would be cleared of all undesirable plant species, irrigated and planted with approved species by the OCFA. Exceptions to save desirable species would be submitted for approval by the OCFA on a site specific basis. Zone C would be maintained by the HOA.
- Fuel Modification Zone C – Thinning Zone (50 percent thinning native shrubs): This zone would occur from 21 feet to 100 feet out from Zone B. Zone C would be non-irrigated and required horizontal and vertical spacing of plant groups would occur in accordance with OCFA requirements. Removal of all dead and dying vegetation and undesirable species would occur in accordance with OCFA requirements. Minimum thinning percentage of plant removal would be 50 percent. Zone C would be maintained by the HOA.
- Special Maintenance Area – Wet and Dry Zone: The Special Maintenance Areas (SMAs) would have maintenance requirements to reduce the chances of ignition from wildfires. They need maintenance just as fuel modification zones do and would be maintained on a year round basis, with removal of all dead and dying plant material, replacement of dead or diseased species with plant material with the same growth characteristics from the approved landscape plans. Irrigation would be verified on a regular basis to ensure it is in a working a condition and the plants shall be irrigated as necessary to keep them healthy with their appropriate moisture content. A copy of the approved Landscape Plans would be provided to the HOA by the developer and remain on record indefinitely with the HOA. Copies of plans would be provided to the contracted maintenance company. It would be the responsibility of the HOA to forward a copy of the approved Landscape Plans to any new property management company. The HOA would inspect the special maintenance areas twice a year to ensure the special maintenance areas retain the original design of the areas.

The following are further SMA requirements:

- Other than trees, a large percentage of the SMA would consist of a ground cover that naturally grows no taller than two (2) feet in height.
- The areas would be completely irrigated and have plants that need irrigation to retain healthy fuel moisture.
- Any dead and dying specimens and branches would be removed.
- Leaf litter on top of vegetative cover would be removed.
- Landscape design Plans would be retained by the HOA indefinitely and the slopes shall always remain as they were designed.
- As plants migrate or new plants seed-in, those would be removed to retain the original design.
- Future changes to slope designs would be approved by OCFA.
- The maintenance requirements of the SMAs would be factored into the funding with the fuel modification zones.
- SMAs would be designed and also maintained as to not provide direct flame or an excessive amount of radiant heat on structures.



LEGEND

- OCFA FIRE ENGINE
- RESIDENCES REQUIRING AUTOMATIC FIRE SPRINKLERS IN ATTIC & SMALL SPACES
- OCFA HOSE PULL REQUIREMENT (300' MAX)
- INDICATES FIRE ACCESS ROUTES
- OCFA HAMMERHEAD
- EX FH EXISTING FIRE HYDRANT BY PRIOR APPROVAL
- FH PROPOSED PUBLIC FIRE HYDRANT
- BLUE DOT REFLECTIVE HYDRANT MARKER PER OCFA STANDARDS, 2 FEET FROM CENTERLINE

LOT NUMBER

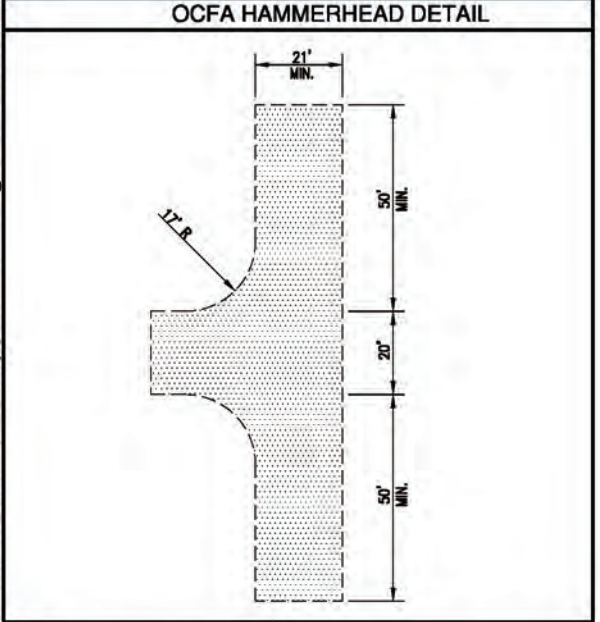
INDICATES O.C.F.A. REQUIRED TURNING RADI

CONSTRUCTION REQUIREMENTS:
All structures within the Cielo Vista project will be constructed per the 2010 California Residential Code Section R327. Additionally all structures shall be protected with NFPA 13-D Automatic Fire Sprinklers. Refer to the Cielo Vista Fire Protection Plan OCFA Service Request 184101 for specific code section requirements for each lot.

LOTS WITH FIRE SPRINKLERS ATTIC PROTECTION:
Lots 39-42, 49-52, 69, 70, 85-88 and 96 thru 112 shall be protected with NFPA 13-D Automatic Fire Sprinklers including attics and small spaces.

CONSTRUCTION NOTES

- 1 INSTALL FIRE LANE ENTRY SIGN PER DETAIL
- 2 INSTALL 'NO PARKING - FIRE LANE' SIGN PER DETAIL
- 3 INSTALL 'BEGIN NO PARKING FIRE LANE' SIGN PER DETAIL
- 4 INSTALL BLUE FIRE HYDRANT MARKER PER OCFA GUIDELINE B-09



SCANNED COPY OF OCFA APPROVAL STAMP

ORANGE COUNTY FIRE AUTHORITY
 REVIEWED by Planning & Development
 Applicability to field inspection and required field conditions in correspondence and conformance with applicable requirements. The stamping of these plans shall not be held to prevent or approve the violation of any law.

OCFA Service Request #: 190617
 Fee Codes: 22, 185, 12, 72
 Plan Type: FIRE MASTER PLAN
 By: BSA/G Date: 7/26/15
 (Employee ID# 60)

REVISION 15660
 ONLY STAMPED SHEETS REVIEWED
 BY ORANGE COUNTY FIRE AUTHORITY

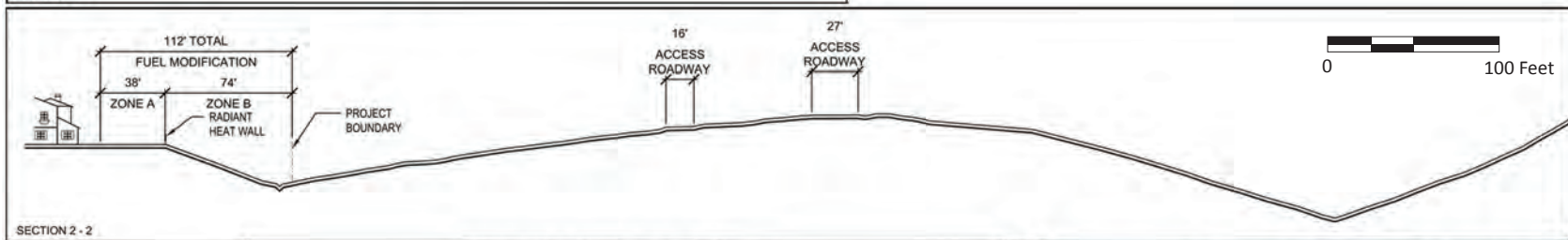
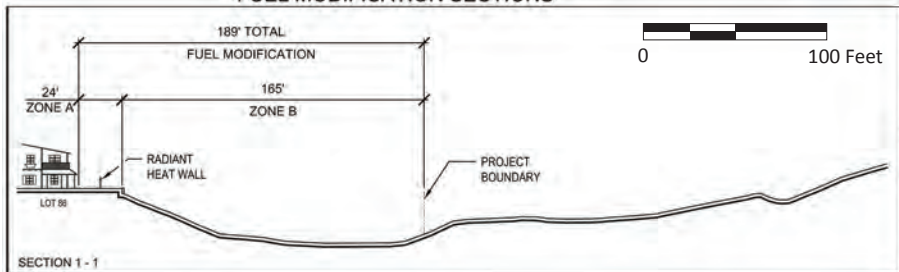
Call 48 hrs. in advance to schedule inspections:
 714-573-8150

ALL OF THE SPECIAL MAINTENANCE AREAS IN PRIVATE OWNED LOTS WILL BE RECORDED AS FUEL MODIFICATION EASEMENTS DEDICATED TO THE HOA FOR THE RESPONSIBILITY OF MAINTENANCE. THE EASEMENTS SHALL BE RECORDED PRIOR TO THE APPROVAL OF THE PRECISE FUEL MODIFICATION PLAN. TYPICAL THROUGHOUT

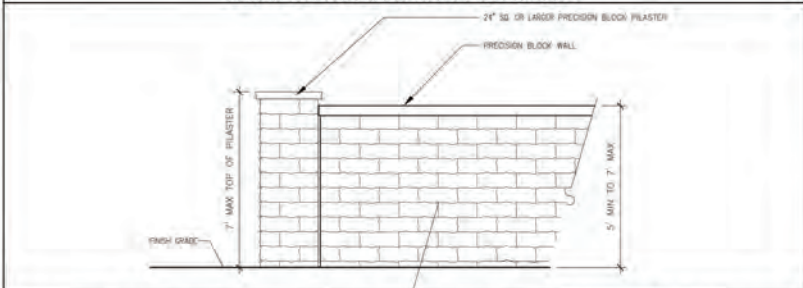
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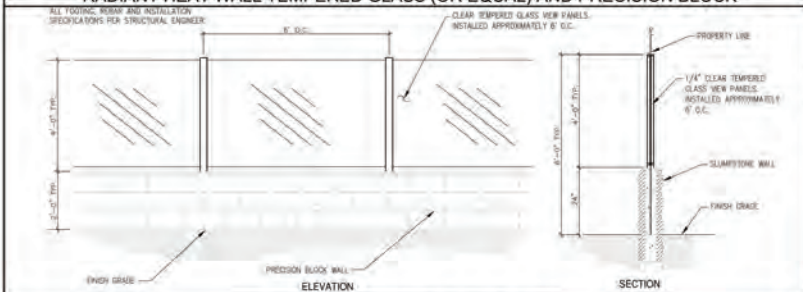
FUEL MODIFICATION SECTIONS



PERIMETER RADIANT HEAT BLOCK WALL



RADIANT HEAT WALL TEMPERED GLASS (OR EQUAL) AND PRECISION BLOCK



SYMBOL LEGEND

- ACCESS POINT: Location of emergency and maintenance access easements...
IDENTIFICATION MARKER: Permanent identification markers shall be constructed...
FUEL MODIFICATION SECTION LOCATIONS: Refer to this sheet for Fuel Modification Sections.
FUEL MODIFICATION LIMITS:
RADIANT HEAT WALL: Constructed per the requirements on the detail provided on this plan.
LOW PROFILE VENTING: Structures adjoining the Fuel Modification shall have low profile vents...
PRIVATE HOMEOWNER PAD REAR YARD FENCING: Indicates location of rear yard fence to separate the private homeowner pad...

FUEL MODIFICATION LEGEND

- ZONE A - NON-COMBUSTIBLE CONSTRUCTION: 10'-0" to 95'-0" setback zone for non-combustible construction only.
ZONE B - WET ZONE (100% REMOVAL UNDESIRABLE SHRUBS): First 5'-0" to 188'-0" from Zone A.
ZONE C - THINNING ZONE (50% THINNING NATIVE SHRUBS): 21'-0" - 100'-0" out from Zone B.
SPECIAL MAINTENANCE AREA (SMA)- WET ZONE: The Special Maintenance Areas have maintenance requirements to reduce the chances of ignition from wildfires.
PRIVATE HOMEOWNER SIDE YARD SLOPES: Planting Plans for the private homeowner side yard slopes shall be reviewed by the HOA.
CONSTRUCTION REQUIREMENTS: All structures within the Cielo Vista project will be constructed per the 2010 California Residential Code Section R327.
LOTS WITH FIRE SPRINKLERS ATTIC PROTECTION: Structures with deficient fuel modification Lots 39-42, 49-52, 69, 70 and 85-88 shall be protected with NFPA 13-D Automatic Fire Sprinklers...

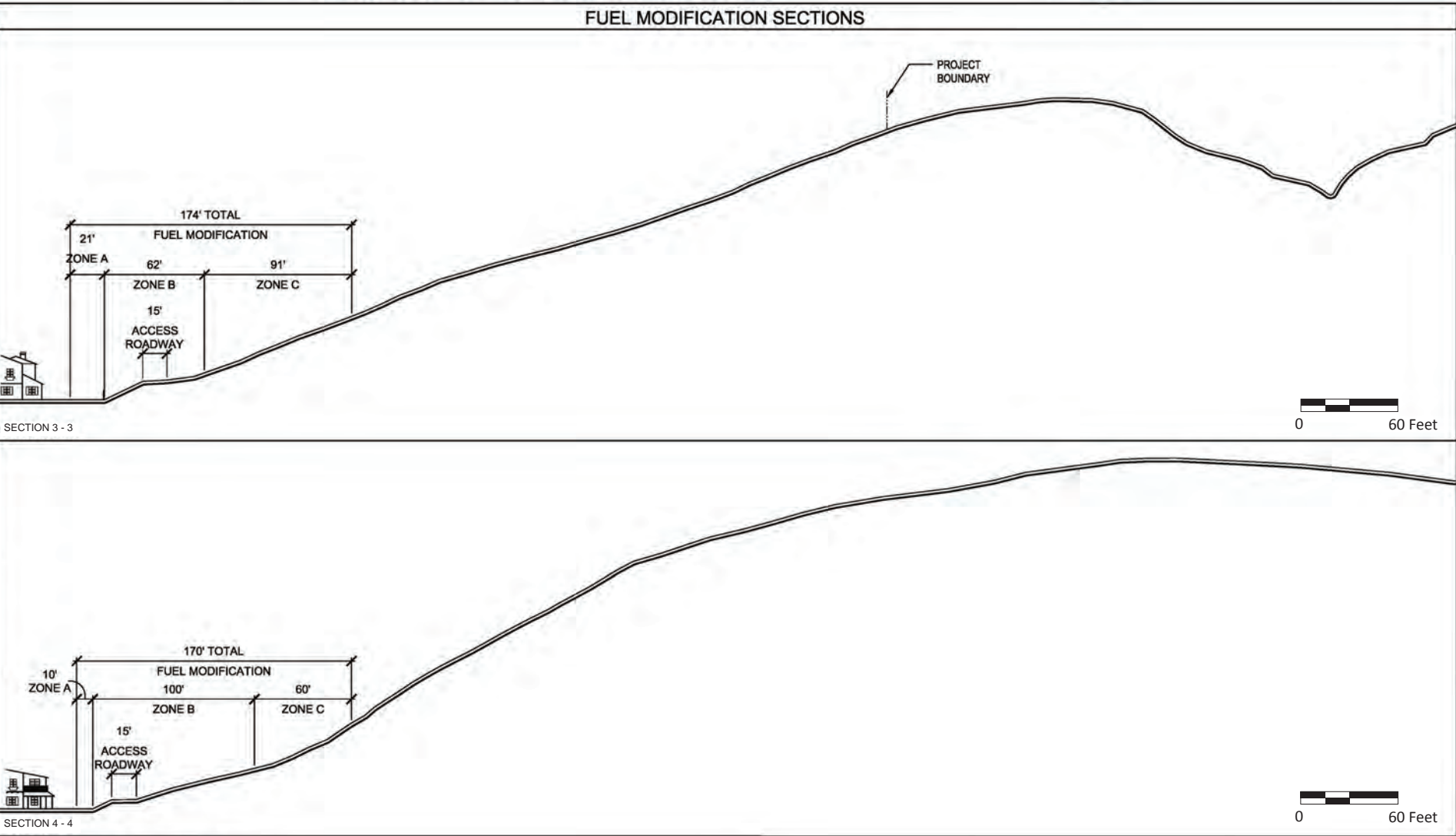
SCANNED COPY OF OCFA APPROVAL STAMP
ORANGE COUNTY FIRE AUTHORITY
Reviewed by Planning & Development
Approval subject to field inspection and required test, notations hereon, conditions in correspondence and conformance with applicable regulations.
OCFA Service Request # 189188
Fee Code: 18-01-2
Plan Type: Construction Fuel Mod
By: C. Hartman Date: 9-27-18
Reviewed by: S. B. 189100
ONLY STAMPED SHEETS REVIEWED BY ORANGE COUNTY FIRE AUTHORITY
Call 48 hrs. in advance to schedule inspections.
714-673-6150





SYMBOL LEGEND	
	ACCESS POINT Location of emergency and maintenance access easements within every 500 lineal feet of the fuel modification area. Access easements shall have a minimum 10-foot width; alternatively, 5-foot wide easements provided every 250 feet may be acceptable. Any gates installed into the fuel modification area and shall be a minimum of 36 inches wide. The easements shall be maintained free of vegetation or any structures greater than 5 inches in height.
	IDENTIFICATION MARKER Permanent identification markers shall be constructed to identify the limits of applicable Fuel Modification zones. marker design shall be 2" dia. x 8'-0" long galvanized pipe, embed minimum 2'-6" into solid ground. 1" reflector tape 1 tape band at top for Zone B and 2 tape bands at top for Zone C. Expose pipe 2'-0" above vegetation minimum.
	FUEL MODIFICATION SECTION LOCATIONS: Refer to this sheet for Fuel Modification Sections.
	FUEL MODIFICATION LIMITS
	RADIANT HEAT WALL Constructed per the requirements on the detail provided on this plan.
	LOW PROFILE VENTING Structures adjoining the Fuel Modification shall have low profile vents on the side facing the fuel modification as indicated on this plan.
	PRIVATE HOMEOWNER PAD REAR YARD FENCING Indicates location of rear yard fence to separate the private homeowner pad and the slopes which will be maintained by the HOA. Final design and location by Landscape Architect, not a part of this review.

FUEL MODIFICATION LEGEND	
	ZONE A - NON-COMBUSTIBLE CONSTRUCTION: 10'-0" to 95'-0" setback zone for non-combustible construction only. Zone A shall be maintained by the Homeowners Association.
	ZONE B - WET ZONE (100% REMOVAL UNDESIRABLE SHRUBS): First 5'-0" to 186'-0" from Zone A. Zone B shall be cleared of all undesirable plant species, irrigated, and planted with species from Attachment 8. Exceptions to save desirable species may be submitted for approval by the OCFA on a site-specific basis.
	ZONE C - THINNING ZONE (50% THINNING NATIVE SHRUBS): 21'-0" - 100'-0" out from Zone B. Zone C shall be non-irrigated and requires horizontal and vertical spacing of plant groups in accordance with Attachment 6 and removal of all dead and dying vegetation and undesirable species from Attachment 7. Minimum thinning percentage of plant removal is 50%. Zone C area shall be maintained the Homeowners Association.
	PRIVATE HOMEOWNER SIDE YARD SLOPES: Planting Plans for the private homeowner side yard slopes shall be reviewed by the HOA and shall be devoid of eucalyptus, juniper, cedar, cypress, washingtonia robusta (mexican fan palm), acacia (except for acacia desert carpet) and pine trees, California sagebrush, chamise, buckwheat and black and white sage (Salvia spp.). Additionally California Fescue (Festuca californica) shall not be planted or included within any seed mix as recorded within the CC&R's.
	CONSTRUCTION REQUIREMENTS: All structures within the Cielo Vista project will be constructed per the 2010 California Residential Code Section R327. Additionally all structures shall be protected with NFPA 13-D Automatic Fire Sprinklers. Refer to the Cielo Vista Fire Protection Plan OCFA Service Request 184101 for specific code section requirements for each lot.
	LOTS WITH FIRE SPRINKLERS ATTIC PROTECTION: Structures with deficient fuel modification Lots 39-42, 49-52, 69, 70 and 85-88 shall be protected with NFPA 13-D Automatic Fire Sprinklers including attics and small spaces. Lots 96 - 112 shall be protected with NFPA 13-D Automatic Fire Sprinklers including attics and small spaces to mitigate for roadway access longer than 800'
	SPECIAL MAINTENANCE AREA (SMA)- WET ZONE: The Special Maintenance Areas have maintenance requirements to reduce the chances of ignition from wildfires. They need maintenance just as fuel modification zones do and shall be maintained on a year round basis, with removal of all dead and dying plant material, replacement of dead or diseased species with plant material with the same growth characteristics from the approved landscape plans. Irrigation shall be verified on a regular basis to ensure it is in a working condition and the plants shall be irrigated as necessary to keep them healthy with their appropriate moisture content. A copy of the approved Landscape Plans shall be provided to the HOA by the developer and remain on record indefinitely with the HOA. Copies of plans shall be provided to the contracted maintenance company. It is the responsibility of the HOA to forward a copy of the approved Landscape Plans to any new property management company. The HOA shall inspect the special maintenance areas twice a year to ensure the special maintenance areas retain the original design of the areas. The following are further Special Maintenance Area (SMA) requirements: <ul style="list-style-type: none"> Other than trees, a large percentage of the special maintenance area shall consist of a ground cover that naturally grows no taller than 2 feet in height. The areas are completely irrigated and have plants that need irrigation to retain healthy fuel moisture. Any dead and dying specimens and branches shall be removed. Leaf litter on top of vegetative cover shall be removed. Landscape design Plans shall be retained by the HOA indefinitely and the slopes shall always remain as they were designed. As plants migrate or new plants seed-in, those shall be removed to retain the original design. Future changes to slope designs shall be approved by OCFA. The maintenance requirements of the special maintenance areas shall be factored into the funding with the fuel modification zones. Special Maintenance Areas shall be designed and also maintained as to not provide direct flame or an excessive amount of radiant heat on structures. Special Maintenance Areas will have a limited use of native grasses as approved by OCFA.



Conceptual Fuel Modification

FIGURE
4.7-2b

Cielo Vista
Source: Charles Hartman & Associates; Firesafe Planning Solutions, 2013.

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- SMAs would have a limited use of native grasses as approved by OCFA.
- Private Homeowner Side Yard Slopes: Planting Plans for the private homeowner side yard slopes would be reviewed by the HOA and would be devoid of eucalyptus, juniper, cedar, cypress, washingtonia robusta (mexican fan palm), acacia (except for acacia desert carpet) and pine trees, California sagebrush, chamise, buckwheat and black and white sage (*Salvia spp.*). Additionally California Fescue (*Festuca californica*) would not be planted or included within any seed mix as recorded within the CC&R's.

The Fire Behavior Report includes numerous recommendations which are intended to minimize wildland fire impacts at the site, which have been prescribed as mitigation measures. As discussed in the Fire Behavior Report, two areas within Planning Area 1 (including, but not limited to areas adjacent to lots 40, 41, 49, 50, 85, 86, and 87) would not be capable of providing a typical 170-foot fuel modification zone. Mitigation Measure 4.7-7 has been prescribed to ensure that these areas are to be protected in an equal but alternative method by increasing the irrigated zone(s) to 100 feet and by providing six-foot high block walls/radiant heat walls at the bottom of the fuel modification zone; refer to Figure 4.7-2a-b for the locations and details of the block walls/radiant heat walls. Mitigation Measure 4.7-8 has been prescribed to protect lots 39-42, 49-52, 69, and 85-88 with NFPA 13-D Automatic Fire Sprinklers throughout the structures as well as within the attics and small spaces. In addition, per Mitigation Measure 4.7-8, lots 96-112 would be protected with NFPA 13-D Automatic Fire Sprinklers including attics and small spaces to mitigate for roadway access longer than 800-feet. Refer to Figures 4.7-1 and 4.7-2a-b for the locations of these lots. Implementation of Mitigation Measures 4.7-7 and 4.7-8 would reduce the potential for fire hazards on these lots to a less than significant level as reflected in the approved plan by the OCFA.

Based on correspondence with the OCFA, Mitigation Measures 4.7-9 and 4.7-10 have been prescribed to ensure that fuel modification easements for maintaining the fuel modification areas must list the OCFA as an authorized user and that for the safety of construction personnel, neighboring homes, and firefighting safety in the wildland areas, the Project Applicant, under the supervision of the Fire Chief, must complete the necessary portions of the roadways in the area prior to building permit issuance. Implementation of these mitigation measures would allow for agency monitoring, maintenance, and access to fuel modification areas, thereby reducing potentially significant fire hazard impacts to a less than significant level.

Fire behavior relative to topography and structures within the project site is an important factor in development of the fire protection system for the Project. The largest flame length impacting the fuel modification zone would be less than 25 feet. While modeling within the Fire Behavior Report indicates that flame lengths of just under 50 feet are possible under perfect conditions, this is unlikely due to predominant winds that drive wildland fires as well as the arrangement of slopes and fuel relative to the structures. The predominant fuel within the project site are grasses, grass/scrub mixtures, and chaparral. The only locations which have areas of moderate to heavy fuels are on the northern slopes of the steeper canyon. Some of these areas would be adjacent to the project site, but none are below or immediately aligned with the wind and topography as to create a condition where slope, wind, and fuel are in full alignment. All of the fuels within the project area would be removed and replaced with plants from the approved palette. Flanking fire of six to eight feet maximum is expected at the property line of the lots within the development or at the base of the fuel modification zones or block walls/radiant heat walls. By compliance with the applicable regulatory requirements cited above and implementation of the prescribed mitigation measures, in all areas, the minimum requirement of providing a 2:1 safety ratio (2 flame heights/lengths in distance from the fuel modification zone) for a "safety zone" needed for protecting the structures would be achieved and in most

areas, the ratio would be 4:1 or greater. A safety zone is an area that firefighters can retreat to and not have to deploy fire shelters to remain safe.¹⁴ Please refer to the Fire Behavior Report in Appendix G of this EIR for additional details on the inputs and methodology regarding the fire behavior analysis conducted for the project site.

Another important component of minimizing the risks associated with wildland fires is the availability of adequate fire flow. The minimum fire flow requirement to the project site is 1,000 gallons per minute (gpm) at 20 pounds per square inch (PSI). The ability of the water service provider to provide water supply to the project site is discussed in Section 4.15, *Utilities and Service Systems*. As discussed therein, with implementation of the prescribed mitigation measures, adequate water supply would be available to serve the project site, including minimum fire flow requirements. To ensure that adequate fire flows are provided to the project site, per correspondence with the OCFA, Mitigation Measure 4.7-11 has been prescribed which requires a service letter from the water agency (Yorba Linda Water District) serving the project area to be submitted and approved by the OCFA water liaison prior to the issuance of building permits, that describes the water supply system, pump system, and fire flow and lists the design features to ensure fire flow during major wildfire incident thereby reducing fire hazard impacts to less than significant.

With implementation of the prescribed mitigation measures and the PDFs described above, which are consistent with the applicable regulatory requirements, the Project would minimize to the maximum extent practical the potential for wildland fires. In addition, under existing conditions, no fuel modification exists on the project site, which exposes the existing single-family residential uses to the west and south of the site to substantial risks of wildland fires. Accordingly, with the Project's fuel modification features, the risk of wildland fires to the existing single-family residential uses to the west and south of the site would be substantially reduced when compared to existing conditions.

Overall, based on these considerations described above, compliance with applicable regulatory requirements and implementation of the project features and prescribed mitigation measures would reduce potentially significant impacts regarding wildland fires to a less than significant level.

Mitigation Measures

Mitigation Measure 4.7-7 Areas within Planning Area 1 (including, but not limited to areas located adjacent to lots 40, 41, 49, 50, 85, 86, and 87) not capable of providing a typical 170-foot fuel modification zone, shall increase the irrigated zone(s) to 100 feet and shall provide six-foot high block walls/radiant heat walls constructed of block/tempered glass over block at the bottom of the fuel modification zone. The block walls/radiant heat walls shall be placed where the fuels below the structure are not of continuous nature and not in alignment with the slope and Santa Ana winds and/or the predominant winds. The block walls/radiant heat walls shall be perpendicular to the wind, but parallel with the slope. In most cases, the block walls/radiant heat walls shall be located at the property line/base of the irrigated zone and down slope from the native vegetation. Increased irrigated zones and block walls/radiant heat walls design and location shall be subject to the review and approval of the OCFA, prior to issuance of certificates of use and occupancy.

¹⁴ *Fire Behavior Analysis Report, Cielo Vista, prepared by Firesafe Planning Solutions, August 27, 2013.*

Mitigation Measure 4.7-8 Structures with deficient fuel modification lots 39-42, 49-52, 69, 70, and 85-88 shall be protected with NFPA 13-D Automatic Fire Sprinklers including the attics and small spaces. Lots 96-112 shall be protected with NFPA 13-D Automatic Fire Sprinklers including attics and small spaces to mitigate for roadway access longer than 800-feet. Such features shall be indicated on construction drawings prior to issuance of a building permit.

Mitigation Measure 4.7-9 Fuel modification easements for maintaining the fuel modification areas must list the OCFA as an authorized user. These easements are recorded as part of the mapping process. Prior to recordation of the CC&R's, OCFA must approve language allowing OCFA access to HOA owned property for the purpose of inspecting the fuel modification, plant palette, and added improvements to ensure maintenance of the fire safe zones. In addition, CC&R's shall provide landscaping and maintenance guidelines to ensure that each residential lot is fire-safe and list allowable improvements such as patio structure, play equipment construction, and fencing materials. The CC&R's shall be recorded prior to issuance of certificate of use and occupancy.

Mitigation Measure 4.7-10 For the safety of construction personnel, neighboring homes, and firefighting safety in the wildland areas, the Project Applicant, under the supervision of the Fire Chief, and prior to issuance of building permits shall have completed the Project roadways in accordance with applicable OCFA and/or County design standards in the area prior to building permit issuance.

Mitigation Measure 4.7-11 Prior to issuance of building permits, a service letter from the water agency serving the project area shall be submitted and approved by the OCFA water liaison describing the water supply system, pump system, and fire flow and lists the design features to ensure fire flow during a major wildfire incident.

CONSISTENCY WITH COUNTY OF ORANGE AND CITY OF YORBA LINDA PLANS AND POLICIES

(1) County of Orange General Plan

The County's General Plan contains a goals and policies that are relevant to hazards and hazardous materials, which are presented in the General Plan Public Services and Facilities Element and Safety Element. As discussed below in **Table 4.7-3, Project Consistency with Orange County General Plan**, the Project would be consistent with the applicable goals and policies of the County of Orange General Plan pertaining to hazards and hazardous materials.

Table 4.7-3

Project Consistency with Orange County General Plan

Goals, Objectives and Policies	Project Consistency
Public Services and Facilities Element	
Orange County Fire Authority	
Goal 1 Provide a safe living environment ensuring adequate fire protection facilities and resources to prevent and minimize the loss of life and property from structural and wildland fire damages.	Consistent. As discussed within this Section, with implementation of the prescribed mitigation measures and the project design features, the Project would minimize the potential for loss of life and property from structural and wildland fire damages. In addition, under

Table 4.7-3 (Continued)

Project Consistency with Orange County General Plan

Goals, Objectives and Policies	Project Consistency
	<p>existing conditions, no fuel modification exists on the project site, which exposes the existing single-family residential uses to the west and south of the site to substantial risks of wildland fires. Accordingly, with the Project’s fuel modification features, the risk of wildland fires to the existing single-family residential uses to the west and south of the site would be substantially reduced when compared to existing conditions.</p>
<p>Policy 3 Site Design Criteria. Require all land use proposals to implement adequate site design so as to maximize fire protection and prevention in order to minimize potential damages. The site design criteria shall be established to reflect the levels of protection needed for projects in various fire hazard areas. Such criteria shall include consideration as to: structure type and density, emergency fire flow and fire hydrant distribution, street pattern and emergency fire access, fuel modification programs, automatic fire sprinkler systems, and other requirements as determined by the Fire Chief. In accordance with the Insurance Services Office (ISO) suggested standards, ultimate fire protection rating shall be maintained by General Plan land use categories as follows: (1) ISO 3 for all urban developments including Residential (1C and 1B), Commercial (2A and 2B), Employment (3.0) and Public Facilities (4.0) which are within 5 miles from a fire station and less than 1000 feet from a hydrant; and (2) ISO 4 for Rural Residential (1A) which are within 5 miles from a fire station and less than 100 feet from a hydrant. For areas greater than 5 miles or 1000 feet, the ISO suggested standard is 9.</p>	<p>Consistent. The following features of the Project would ensure the Project is consistent with this policy.</p> <ul style="list-style-type: none"> ▪ The Project would be designed to provide fire-resistant construction for all structures adjoining natural open space, including utilizing fire-resistant building materials and sprinklers. ▪ Development of the Project would provide additional fire protection to existing residential areas located along Via del Agua Drive, Stone Haven, and San Antonio Drive which have historically been exposed to fire hazards in the adjacent open space areas. ▪ Five fuel management zones planned for the Project would provide fire protection for development within Cielo Vista from the potential of fire hazard within the open space areas surrounding proposed development areas. ▪ A Fire Master Plan has been approved by the OCFA for the Project, which provides appropriate fire safety protective measures as required by OCFA.
<p>Safety Element</p>	
<p>Goal 2 Minimize the effects of natural safety hazards through implementation of appropriate regulations and standards which maximize protection of life and property.</p>	<p>Consistent. As discussed within this Section, there is the potential for methane hazards to occur on the project site. However, Mitigation Measure 4.7-6 requires methane mitigation measures to be implemented during construction and/or operation of the Project, as necessary, to ensure that people and property are not exposed to significant methane hazards.</p>
<p>Objective 2.1 To create and maintain plans and programs which mitigate the effects of public hazards.</p>	<p>Consistent. As discussed within this Section, there is the potential for significant hazardous materials impacts primarily related to past and current oil activities within the project site. However, implementation of Mitigation Measures 4.7-1 to 4.7-6 would ensure that potentially significant hazardous materials impacts are reduced to a less than significant level. In addition, the site has also been designed with a fuel modification plan to address the potential wildland fire hazard.</p>

Table 4.7-3 (Continued)

Project Consistency with Orange County General Plan

Goals, Objectives and Policies	Project Consistency
Goal 3 Raise the awareness of Orange County residents, workers, and visitors of the potential threat of public safety hazards.	Consistent. As discussed within this Section, implementation of Mitigation Measures 4.7-1 to 4.7-6 would ensure that construction workers, residents and visitors are made aware of potential hazardous materials threats.
Policy 3 Mineral Resources. To ensure the efficient use of all mineral lands consistent with sound resource management practices.	Consistent. Project implementation would permit continued oil production operations in a designated area of the project site in accordance with the standards of DOGGR, the state agency governing the operation of oil production facilities.
Policy 4 Mineral Extraction. To ensure opportunities for the extraction of minerals in the County and to protect the environment during and after these minerals are being extracted.	Consistent. As stated above, provisions would be made for existing oil operations to continue production. An approximately 1.8 acre parcel located in Planning Area 1 is proposed to be zoned R-1(O) and can be used for continued oil operations including consolidation of wells relocated from the rest of the project site and drilling of new wells. Oil operations within the Residential land use portions of the project site would be abandoned or re-abandoned prior to development, as necessary, in accordance with DOGGR standards. Soil testing does not indicate that there are soils on the property that have been significantly contaminated. However, should contaminated soils be discovered, Mitigation Measure 4.7-1 has been prescribed to ensure they would be remediated to meet the cleanup standards of DOGGR, the Regional Water Quality Control Board, and all other agencies with jurisdiction over the cleanup. Future homeowners would be provided with notification as to the previous use of the site as an oilfield and the extent of continued oil production activities in the area.

Source PCR Services Corporation, 2013.

(2) City of Yorba Linda General Plan

The City’s General Plan contains goals and policies that are relevant to hazards and hazardous materials in the General Plan Land Use Element and Safety Element. As discussed below in **Table 4.7-4, Project Consistency with Yorba Linda General Plan**, the Project would be potentially consistent with the applicable goals and policies of the City of Yorba Linda General Plan pertaining to hazards and hazardous materials. The notation of “Potentially Consistent” is in deference to the City’s authority for making such determinations for projects located within the city limits.

Table 4.7-4

Project Consistency with Yorba Linda General Plan

Goals, Objectives and Policies	Project Consistency
Land Use Element	
<p>Policy 3.3 As new development occurs in oil production areas, mitigate oil operations for compatibility with other types of land uses during phasing out of operations.</p>	<p>Potentially Consistent. The Project Applicant completed a Phase II subsurface investigation for determining the impact of petroleum hydrocarbons and/or metals on soil as a consequence of a release or releases from oil production activities. None of the analyzed soil samples had detectable concentrations of TPH-cc. All detected concentrations of metals were within background levels and/or below available health risk screening levels. Further, no evidence of a significant release of petroleum hydrocarbons and/or heavy metals was observed during the Phase II Subsurface Investigation Report. Nevertheless, a Soil Management Plan has been prepared to ensure the proper handling and/or disposal of impacted soils that may be encountered during grading and oil well closure and relocation activities to be conducted pursuant to requirements promulgated by DOGGR. In addition, other measures have been prescribed to ensure that impacts associated with the oil operations have been adequately addressed and no potential public health hazard exists to existing or future residents of the area.</p>
Safety Element	
<p>Goal 4 Protect people and property from brush fire hazards.</p>	<p>Potentially Consistent. Both the City and unincorporated Orange County (including the project site) are served by the OCFA. OCFA has approved a Fuel Modification Plan for the Project’s tentative tract map. The Plan includes removing undesirable plant species which can promote the spread of brush fires, and the prohibition of certain landscape species which could otherwise be planted by a homeowners association or by individual homeowners. Additionally, as described in this EIR section, the Plan includes fuel modification zones on the project site and along the perimeter of the two planning areas as well as certain construction requirements. The OCFA has also approved a Fire Management Plan for the property.</p> <p>Fuel Modification Zone A would be a setback zone for all interior and some exterior slopes to allow for only non-combustible construction. Zone B includes complete removal of undesirable shrubs to be landscaped by drought tolerant plants which must be fully and continuously irrigated. This zone would generally be along the eastern periphery of Planning Area 1 and surrounding Planning Area 2. Zone C would be at the southeastern corner of Planning Area 1 and along the entire open space perimeter of Planning Area 2. This zone requires 50% thinning of native shrubs and removal of dead or diseased plant material. The zone would not be irrigated. In addition to the fuel modification zones, there is a special maintenance area/wet-dry zone with the plant</p>
<p>Policy 4.3 Enforce fire inspection, code compliance, fuel modification, and weed abatement programs.</p>	

Table 4.7-4 (Continued)

Project Consistency with Yorba Linda General Plan

Goals, Objectives and Policies	Project Consistency
	<p>palette, irrigation, and design to be approved by the OCFA prior to installation.</p> <p>All dwelling units would be designed with interior fire sprinklers. Units closer to natural open space, with east facing lots, would also have attic sprinklers in Planning Area 1. Also, as discussed in the impact analysis above, in Planning Area 1, two lots at the eastern edge would not be buildable without off site fuel modification.</p>
<p>Policy 4.4: Educate the public as to the risk associated with wildfire hazards and encourage wildfire reduction activities by residents.</p>	<p>Potentially Consistent. The CC&Rs to be prepared by the homeowners association (refer to MM 4.7-9) would provide landscaping and maintenance guidelines to ensure that each residential lot is fire-safe.</p>

Source PCR Services Corporation, 2013.

3. CUMULATIVE IMPACTS

4.7-6 *The Project combined with the related projects would not result in substantial adverse effects related to hazards and hazardous materials in the project area. Thus, cumulative hazards and hazardous materials impacts would be less than significant.*

Section 3.0 of this EIR provides the list of related projects identified within the cumulative impacts study area. Any related projects listed in a government hazardous materials database would require site-specific investigations and remediation (if necessary) to adequately address existing hazardous materials impacts to the satisfaction of the regulatory agencies with jurisdiction over the site, thereby precluding the potential for adverse physical effects related to hazardous materials health risks. For instance, soil and groundwater contamination at any of the related project sites would be subject to oversight by the RWQCB, OCFA, DTSC, and/or OCHCA, as appropriate, while conditions related to oil wells would be subject to oversight by DOGGR. As discussed in the impacts analysis above, all potentially site-specific impacts related to hazardous materials would be addressed through implementation of the Project’s PDFs and the prescribed mitigation measures such that there would be no potential for the Project to substantially contribute to cumulative hazardous materials impacts. Given that the Project would result in less than significant impacts with implementation of the PDFs and prescribed mitigation measures and would comply with all applicable regulatory requirements, and related projects would be subject to the same local, regional, State, and Federal regulations pertaining to hazardous materials, the Project would not contribute impacts that are cumulatively considerable regarding hazardous materials.

With regards to cumulative impacts associated with adopted emergency response and evacuation plans, all related projects would be evaluated on a project-by-project basis to determine consistency with applicable

plans. For example, all related projects would be required to provide the minimum number of required emergency access roads per applicable regulatory requirements and any related traffic improvements would be reviewed by the OCFA, the Orange County Department of Public Works Road Division, and the City of Yorba Linda (as necessary) for approval of emergency access, which is a required process for all new development projects in the County. The Project would not conflict with any adopted emergency response and evacuation plans and as such, would not contribute impacts that are cumulatively considerable regarding impairing implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

The project site and vicinity is located in an area highly prone to wildfires. Similar to the Project, any related project adjacent to an area susceptible to wildland fire hazards would be required to implement a fire protection plan consistent with the requirements of the OCFA. Mitigation of potential wildland fire hazards is regulated by federal, state, and local requirements, and would be addressed on an individual basis as is through implementation of this Project's Conceptual Fuel Modification Plan and Fire Master Plan. With regards to the adjacent Esperanza Hills Project, that Project would be required to implement a fire protection plan similar to the Project. As the current Esperanza Hills site consists of vacant, undeveloped land with no fuel modification zones or measures in place, development of that site with a fire protection plan consistent with the requirements of the OCFA would provide additional fire protection for the Cielo Vista project site and existing residential uses to the south of that site which are not currently in place. Similarly, there would be a beneficial cumulative impact with the Project and the adjacent Esperanza Hills project in reducing the potential for exposure to wildland fires on existing residential uses in the local project vicinity. Therefore, with implementation of requirements provided in the above plans, the Project would not result in cumulatively considerable impacts relative to wildfire hazards.

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