

Conceptual

**Fire Protection Plan  
for**

**Hawano Industrial Development  
East Otay Mesa  
DPLU#: 3100 5566 (TM)**



*June 2010, March 2011  
by*

**HUNT RESEARCH CORPORATION**

*Post Office Box 291 • Solvang, California 93464*

*(805) 688-4625*

*[www.huntresearch.com](http://www.huntresearch.com)*

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Project common name: Hawano Industrial Development

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Principal Author:

Jim Hunt

Hunt Research Corporation

P.O Box 291

Solvang Cal 93464

Project Applicant:

Dan Berkus

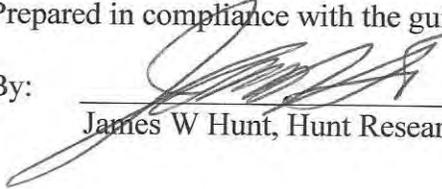
Paragon Management Company

4225 Executive Square, Suite 920

La Jolla Cal 92037

Prepared in compliance with the guidelines of the County of San Diego

By:

  
James W Hunt, Hunt Research Corporation; principal author

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**Executive Summary:**

This Conceptual Fire Protection Plan is for the Hawano Industrial development, which is located in East Otay, north of the border. The location is Thomas Guide Page and coordinates are 1352-C-3. The plan is to subdivide 80 acres of undeveloped land into 22 lots ranging in size from 1.30 acres to 6.04 acres. Building sizes will range from approximately 18,121 sq ft to 84,193 sq ft. In addition there will be roads and detention basins. The site is about 500-554' feet above sea level. The APN is 648-070-17-0.

The County DPLU Case number for this development is MPA# 3992-10-006.

The site slopes generally southward at approximately 5%. The site is disturbed agriculture (mostly tall non-native grass). Final graded slopes for pads and manufactured slopes will be 1.5% on north half of property, 1% on south half of property and all manufactured slopes are 2:1.

The development will consist of developing buildable lots for industrial buildings.

This plan, when approved by the Rural Fire Protection District (RFPD), and the San Diego County Fire Authority Fire Marshal, shall apply to all buildings in this development.

Access will be from Siempre Viva Road via Airway Place from Airway Road. In addition there will be access from Via De La Armistad and Alta Road In the future. Improvements to Alta Road and Via De La Armistad (other than along project frontage) are not proposed as part of this project.

The Rural Fire Protection District will serve the development from its new Station 22 in East Otay.

## **CHAPTER 1. INTRODUCTION:**

This Conceptual Fire Protection Plan (FPP) has been prepared for the Hawano Industrial development. The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and to identify and recommend measures necessary to pursue adequate mitigation of those impacts. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions and local fire history. The plan also addresses other on-site risks such as structure fires, vehicle fires and potential impacts from incidents on adjoining properties.

The plan addresses water supply, access (including access roads) structural ignitability and ignition resistant building features, fire protection systems and equipment, impacts to existing emergency services, defensible space and vegetation management. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that have the objective of protecting the buildings.

This plan will also serve as a Technical Report required by the Rural Fire Protection District insofar as it will address the various structural risks due to the occupancy types and sizes, and the proposed mitigations to reduce such risks.

### **1.1 Project Location, Description and Environmental Setting:**

#### **1.1.1. Project Location:**

The Hawano Development site is located in East Otay Mesa, east of Highway 905, south of Otay Mesa Road and west of the future extension of Alta in the unincorporated County of San Diego. The location is Thomas Guide Page 1352 C-3. The site is a 80 gross acre site adjacent to and north of the Mexican border. The site is about 500-554 feet above sea level. The Rural Fire Protection District will provide Fire Protection from its new Station 22 located at Bailey Prison. The estimated response distance is 3.4 miles. Response driving time is about 5 minutes.

The current site generally slopes southward at approximately 5%. At time of development final average gradient will be 1.5% on the building pads in north half of property, 1% on pads in south half of property and manufactured slopes will be 2:1. The site is old farmland with disturbed agriculture (tall non-native grass and ruderals).

A site plan and photos are provided in the Appendix of this plan.

#### **1.1.2 Project Description:**

No buildings have been designed as yet. Therefore, the scope of this conceptual plan is to provide a fire risk assessment, set forth some of the potential requirements, which would be imposed when each lot is developed, and to recommend standards that should be followed when detailed design is done on various lots. However, the estimated size of buildings ranges from 18,121 sq ft to 84,193 sq ft. Site Plan, project details and floor plans, etc., are required for any new development on any building lot at time of development of such lot. Actual requirements of the Fire District and San Diego County Fire Authority Fire Marshal may vary from the

requirements and recommendations in this conceptual plan at time of submittal of detailed plans for development on individual lots.

**Existing Land Use:** Vacant

**Type of Development:** This development is proposed to be for light industrial uses. The plan is to construct light industrial uses consisting of warehousing, distribution, light manufacturing, assembly, storage, science research and development. The manufacturing and storage of explosives, storage of toxic waste, and animal rendering plants are prohibited by the Specific Plan. Some of the potential uses may include, but are not limited to:

- R and D facilities
- High tech facilities including manufacturing of computer components, etc.
- Warehousing
- Distribution center
- High piled stock warehouses
- Custom manufacturing
- Fabrication
- Compounding
- Processing
- General industrial
- Mini warehouses
- Agricultural Packing and Processing
- Winery
- Specialty Retail sales
- Offices

Specific uses will be determined by market demand at the time the property is about to be developed. Because of the site's proximity to the border, high piled stock warehousing and truck transfer are other possible uses. Such facilities will commonly have the highest sprinkler demand due to Group A Plastics. However, in concept, the estimated worst-case sprinkler and hose stream demand may be 3530 GPM for a Hazardous Materials H room with in rack heads.

When they are designed, the site layout within each lot, onsite access roads, water supply, fire sprinklers, structures and operations therein shall comply with the Rural Fire Protection District Fire Code, the County Fire Code, the requirements of the San Diego County Fire Authority Fire Marshal, the County Building Code, California Building Code, and appropriate National Fire Protection Association Standards including, but not limited to:

- #10 (Extinguishers)
- #13 (Fire Sprinklers)
- #15 (Water Spray Systems)
- #20 (Fire Pump Systems)
- #22 (Private Fire Service Water Storage Tanks)
- #24 (Private Fire Water Systems)

- #72 (Fire Alarms) etc., as applicable to the proposed occupancies, at time of submittal of plans for development on any lot. Other codes that will apply are as follows:
  - District and County Fire Code including, but not limited to 2007 CFC Chapter 34; Flammable and Combustible Liquids, Chapter 27; Hazardous Materials, and Chapter 23; High Piled Stock.
  - County and California Building Codes, including all requirements for building size based on type of construction and occupancy type, and all requirements for H occupancies.

Site plans, project details, floor plans, etc., are required for new development on any building lot.

Such plans for any lot shall reference and include the recommendations and standards in this plan, as modified to address the actual proposed development, and shall address compliance with the RFPD Fire Code and the County DPLU Fire and Building Code. At this point it is not known what type of occupancies would be constructed, however, it is understood that the uses will all be light industrial (manufacturing or warehouses, etc.) and not residential or institutional.

**1.1.3 Environmental Setting:** The consultant visited the site. The site is old farmland with disturbed agricultural vegetation, which is non-native grassland about 2 feet tall. This is typical to most areas in East Otay. Property around the site is currently vacant. The terrain on and immediately around the site generally is mainly flat with a slight slope to the south. The site elevation ranges from 500-554 feet above mean sea level. At time of development final average gradient will be 1.5% on the building pads in north half of property, 1% on pads in south half of property, and manufactured slopes will be 2:1.

The approximate climate in the area is as follows: Average high temperature in summer is around 95 degrees f. In the fall the average high temperature is about 80 to 88 degrees f. Worst-case Santa Ana winds are 50 mph per the Fire Chief. The minimum temperature in winter is about 30 degrees f. The winds during the October 2007 Harris Fire were estimated at about 30 MPH by the local fire station crew and up to 40 MPH by RAWS data.

**CHAPTER 2. GUIDELINES FOR DETERMINATION OF SIGNIFICANCE:**

- a. The project should not expose people or structures to a significant risk of loss due to wildland fire. This is due to the type of vegetation, fuel modification around the site, the type of construction and fire sprinklers, the fact that there are no residential occupancies, and the ability to exit to Alta Road, Via De La Amistad, Siempre Viva Road or Airway Road. (Alta Road and Via De La Armistad will be constructed along the site's frontage only, as a part of this project). There are no secondary access issues.
- b. The project should not result in inadequate emergency access due to proximity to the future major roads accessing the property.
- c. No additional Fire Stations will be needed. The estimated response time is about 5 minutes (3.4 road miles) from the new RFPD Fire Station in East Otay, which complies with the General Plan.
- d. The project should have sufficient water supplies from the Otay Water District, which is an excellent water system.

**11.1 Analysis of Project Effects:**

**11.1.1 Adequate Emergency Services:**

Emergency response will be provided by the Rural Fire Protection District from its new interim Station 22 at Bailey Prison on the north end of Alta. A 10-year lease exists between the RFPD and the County. This station is staffed 24/7, year around with seven personnel. There is a structural Type 1 engine and a brush, type 111, engine. The estimated response driving time is 5 minutes. The road miles are about 3.4. In addition, the RFPD Engine Company at Donovan Prison can also respond. Response is also available, via an Automatic Aid agreement, from the Chula Vista Fire Department. CVFD Station 7's Engine Company and Truck Company are about 10 minutes/7 miles via SR 125 (if these units are available for response). An engine company from the San Diego City Fire Department station, located at Brown Field, can also respond via an automatic aid agreement. In addition there is a San Diego City Fire Department ladder truck about 6 miles away. A future, permanent, fire station is planned for the East Otay Mesa Specific Plan area.

The first alarm response to this facility would be 2 engine companies and a Chief Officer. For a vegetation fire, the initial response is 2 engine companies and a Chief Officer. For a hazardous materials event, the response would include the County Hazardous Materials response team and other Fire Agency resources as requested by the Incident Commander. In addition, numerous other resources are available upon request through the County Mutual Aid system and from CALFIRE statewide.

**11.1.2 Access:**

- Main access is via Siempre Viva Road, and Airway Place from Airway Road. In addition, future access is provided from Via De La Armistad and from Alta Road. However, improvements to Alta Road And Via De La Armistad (other than along project frontage) are not proposed as part of this project, but in the long term will provide access. Paved widths of public roads will range from 52 feet to 78 feet, curb to curb. Maximum cul-de-

sac length is approximately 300' feet. Bulb is approximately 75' diameter. Roads to be constructed to current County road standards and improved with AC. Onsite fire lane road widths and the road widths for any driveway from the public roads will be at least 26' unobstructed. Fire lane roads around any building over 28' high will be 28' wide, clear to the sky, to facilitate operation of Aerial Fire Trucks. Such roads shall be a minimum of 15' and a maximum of 30' from the building, and shall be positioned parallel to the sides of building. Refer to 2007 CFC Appendix D. Angle of departure and approach will comply with RFPD and San Diego County Fire Authority Fire Marshal requirements and will not exceed seven degrees (12%) per the Fire Code.

- Onsite roads will be AC paved and designed to support a 75,000-pound fire truck.
- Road grades will not exceed 6%. Fire Code maximum is 20% with mitigation.
- Vertical clearance will be at least 13'6" with no power lines or vegetative canopies over them. On site fire lanes to be clear to the sky, to allow aerial ladder fire truck operations.
- The roads must comply with the Fire Code for unobstructed width and grade.
- Turning radius required to be minimum of 28' as measured from inside edge of improvement width, per the County Fire Code.
- Any intersections with traffic lights are required to have preemptive traffic devices (Opticom) installed by developer, per the RFPD.
- Certain public roads, referenced later in this plan, will require an approved turnaround if the street is to be a dead end.

### **11.1.3 Water:**

The onsite fire water system will be a public system supplied by the Otay Water District. The available fire flow, as obtained from the Otay Water District is:

- Static pressure: 133 PSI (tanks half full)
- Residual pressure: 127 PSI (at system and fire flow demand of 2500 GPM).
- Pressure at maximum flow: 114 PSI (maximum flow of 4000 GPM).
- The prescribed two-hour fire flow duration is available per Water District.
- The immediate area around the flow node maintains a minimum of 20 PSI.

Data is for Airway and Alta Road. Refer to the Otay Water District letter in the Appendix of this plan.

This indicates there should be plenty of fire flow and pressure for the development. Actual updated flow availability at time of construction will be obtained from the Water District by the project engineer. Engineer, architect and sprinkler contractor will need to be sure there is enough GPM and pressure in the water system to supply the building sprinkler systems. A minimum of 2,500 GPM at 20 PSI is required in the mains for all WUI developments, per the Fire District. The sprinkler system in the building with the most intensive use may have a demand of 3,530 GPM or more. The required GPM for the sprinklers is not added to the required Fire Flow in Appendix B of the 2007 California Fire Code. The Fire District requires that the Fire Flow be that which is required for the Fire Sprinklers plus hose lines, or the flows in Appendix B of the 2007 Fire Code whichever is greater. However, absolute minimum is 2,500 GPM. In fact, some manner of pressure reduction might be needed to prevent excessive static pressure in the Fire Hydrants and Fire Engine suction hose. RFPD Fire engine suction hoses are tested to 200 PSI.

The development and onsite fire water mains may need to be a loop and may need to be a minimum of 10” or 12” diameter, or greater as needed, for proper required fire flows and pressures at acceptable velocities.

Public fire hydrants will be located at every intersection, and every 300’ per Fire District and County Fire Code requirement. On-site hydrants shall be located every 300’ on fire lanes. Hydrant locations shall also comply with Appendix C of the 2007 CFC. Minimum required fire flow in the mains is 2,500 GPM or more if required by the Sprinkler demand plus hose streams or the Fire Flow Appendix in the Fire Code. More may be required due to high piled stock sprinkler demand.

The water system will comply with the Fire Code and RFPD requirements. Any Fire Pump System must comply with NFPA 20.

More information regarding Fire Protection Systems will be included further in the technical, focused, Fire Protection Section of this plan.

#### **11.1.4 Ignition Resistant Construction and Fire Protection Systems:**

Buildings will comply with the applicable Ignition resistant construction requirements of the County Building Code, Section 92.1.704A, and with the new Chapter 7-A of the 2007 California Building Code and other applicable State and County Building Code requirements. The buildings will most likely be concrete or masonry, and probably will be tilt up construction. There could also be some metal siding. Buildings will meet the requirements of the Fire and Building Code WUI requirements for ignition resistant or approved non-combustible construction. All buildings will have internal Fire Sprinklers per RFPD Fire Code requirements. Buildings will have Class A roof assemblies. A Class B assembly can be proposed by architect as an “Alternative Method” if no Class A assemblies are available for flat roofs, if approved by RFPD and San Diego County Fire Authority Fire Marshal. This type of variance was approved by Ralph Steinhoff on 7-28-06, in a previous conversation with consultant regarding another project. There will be no deviations from the Fire or Building Codes, unless the Architect applies for an Alternative Method approval from the Fire District, San Diego County Fire Authority Fire Marshal, and the Building Official. Refer to the Technical, focused, Fire Protection Section of this plan for more details. There will also be some construction phase trailers, which would be discussed in a Construction Safety Plan.

#### **11.1.5 Defensible Space and Vegetation Management:**

The site is mostly flat. Engineer states finished grade will be about 1.5% on pads in north half of development, 1% on south half, and landscaped manufactured slopes will be 2:1. So, for fire modeling purposes the site is flat. The parcel is vacant. It is former farmland just north of the border, as is most of the vegetation in this general area. It is mostly dry grass (non native grassland) which is about 1-2’ high, approximately 1.1 tons per acre, and which would be most nearly a BEHAVE Model #GR-2. Refer to photos in the Appendix of this plan.

It must be noted that the developer of the private lots will have no control over the type of street tree, or other offsite vegetation, which may be required by the County. The developer has control over what is planted onsite, as long as it meets County requirements. The County should assure that any vegetation that it requires to be planted on streets and other offsite locations, including trees, are fire safe, properly spaced and properly maintained. No vegetation found on the prohibited plant list in Section 11.1.5.2 of this plan should be planted, or remain, in those areas.

The consultant has inspected the site.

The vegetation on and surrounding the parcels, was observed to be mainly tall dry grass. A 40,000 plus acre fire, the “Otay Fire”, occurred in the area on 10-26-03, one day after the Cedar Fire. The 10-07 Harris Fire did not burn in immediate vicinity of the site.

The vegetation fire threat to the site, from offsite vegetation, is relatively low. The only estimated threat, assuming proper perimeter 100’ fuel modification zones are provided from structures (zones can include roads), would be from spotting in a wind driven fire, such as a fire starting, most likely from offsite to the north or east, or in Mexico, which could result in airborne burning debris landing in onsite vegetation, on roofs, or entering vents or HVAC systems. Smoke could be entrained into buildings through open doors, smoke vents, or air conditioning system intakes.

Future development in this industrial park will result in all, or a significant amount, of the existing vegetation being removed and replaced by buildings, roads and landscaped areas. Roads in front and rear of buildings have right of ways that are approximately 72 feet to 98 feet wide. When the setback of a building is considered, the total distance may exceed the required 100-foot fuel modification zone. Therefore, upon development, there may in reality be no flammable vegetation on private lots due to buildings, paving, on-site roads and on-site parking. Therefore, a 100-foot Fuel Modification Zone may not be needed. Detailed site plans for each lot at time of development shall also describe in detail the actual needed size and configuration of any Fuel Modification Zones.

An estimate of the potential fire behavior from the offsite vegetation is as follows, based on BEHAVE fire spread models. Models provide estimates only. Actual fire behavior can be more or less intensive.

The following inputs can be used to replicate a summer fire, the Otay Fire (one day after Cedar Fire), the Harris fire of 10-07, and a fall fire in 1-2’ grass.

Temperatures are from the National Weather Service in Chula Vista, data from area RAWS sites, and as observed onsite. These models replicate the same conditions found on nearby sites for other Fire Protection plans prepared by the consultant based on inputs from Scott Franklin Consulting Co. On-site meetings and inspections in East Otay by consultant and Rural Fire Protection District Fire Chief in the past resulted in agreement that the fire risk is very similar for numerous properties in the area (for which Hunt Research Corporation is doing, or has done, Fire Protection Plans) due to similar vegetation and topography. The area is primarily former agriculture. A column has been included to include a model based on the estimated wind and fuel moisture data from the 10-07 Harris Fire.



**Inputs:**

<b>Summer Fire</b>	<b>Otay Fire</b>	<b>Fall Fire; High Wind</b>	<b>Harris Fire Estimates</b>
1 hour fuel moisture: 3%	1 hour fuel moisture: 2%	1 hour fuel moisture; 2%	1 hour Fuel moisture; 1%
20 ft wind speed; 20 mph	20' wind speed: 14 mph	20 ft wind: 50 mph	20 ft wind: 40 mph
Air temp. 95 degrees f	Air temp: 88 degrees F	Air temp: 88 degrees F	Air temp: 93 degrees f
Slope: 10%	Slope: 0	Slope: 0	Slope: 0

**Outputs of Model: GR-2; New BEHAVE Grass Model:**

<b>Summer Fire; 95 degrees/ 20 mph wind</b>	<b>Otay Fire</b>	<b>Fall Fire; High Wind</b>	<b>Harris Fire Estimates</b>
Rate of spread; 1.2 mph	Rate of spread: 1.11 mph	Rate of spread: 4.9 mph	Rate of spread: 6.02 mph
Flame length: 7.9'	Flame length: 7.7'	Flame length: 14.1'	Flame length: 17.8'
Spotting distance: 0.4 miles	Spotting distance: 0.3 miles	Spotting distance: 1.1 miles	Spotting Distance; 1.1 miles

The vegetation fire threat is not a severe or catastrophic threat. Worst-case fire is the Harris fire with high wind, which results in rapid rate of spread in flashy fuels and high flame lengths of 17.8'. The site, after development, should not present a catastrophic wildland fire threat.

**11.1.5.1: Vegetation Management (Fuel Modification) Zones:**

Based upon the Vegetation Fire Risk Assessment done for this plan, Fuel Modification Zones will be required around all structures, and on roadsides, in compliance with the District and County Fire Codes. State law and the Fire District require at least 100' fuel modification from buildings The 2008 County Fire Code requires 30' on each side of any newly constructed road or driveway, and 20' on each side of an existing roads Therefore, Fuel Modification should be provided for a distance of 100' around all structures (or up to an adjoining structure if less than 100'), and for 30' on either side of any newly constructed road or driveway and 20' each side of any existing road. Roadside vegetation management areas can be included in the 100' fuel modification zone. As stated earlier, there may be no flammable vegetation on site after development and, therefore, 100-foot Fuel Modification Zones may not be needed.

**Fuel Modification Zones:**

Any areas within the 100' from any portion of a structure, which have vegetation in them, should be as follows:

**Zone A; Defensible Space; Irrigated wet zone 50' on all sides of all structures:**

This defensible space is an irrigated, maintained, wet zone. No flammable or combustible growth. No dead or dying vegetation. No dry grass. Grasses and ground cover to be low profile, less than 4". There should be no vegetation within 10' of any chimney, exhaust vent or exhaust stack. No tree canopies within 10' of structures. Trees to be 20' between mature canopies. Examples of a tree allowed beyond 10' is a well spaced and maintained specimen of Coastal Live Oak, sycamore, maple, elm, cottonwood, willow or jacaranda, if determined to be suitable for the area by a landscape architect. The first 50' from the structure shall consist of well irrigated, well spaced, Fire District approved, low fuel volume, high leaf moisture, drought tolerant, low profile fire resistive groundcover or lawn. Fire resistive shrubs, bedding plants and flowers, may be planted, to a height of 18", if at least 12" from building. Spacing between mature shrubs, and between mature plants, should be 2 times height on slopes less than 20% (minimum 3' apart), 4 times height on slopes 21-40%, and 6 times height on slopes over 40%. Shrubs and plants shall be located away from tree drip lines.

Any mature specimen of approved trees or shrubs must be properly located, spaced, limbed and pruned to 1/3 the height, or 6' from the adjacent ground, whichever is less. No flammable under story allowed under trees. Where there is vegetation under tree, maintain adequate separation from the ground cover. There should be no flammable plants or shrubs under the tree. If such vegetation cannot be removed from under an existing tree, provide 6' separation between the vegetation and lowest limb of tree.

No dry grasses, acacia, eucalyptus, palm, juniper, cypress, conifer (pine, etc.), olive, pepper, camphor, cedar, bottlebrush, pampas grass, chaparral, sage including purple sage, coastal sage scrub, sagebrush, salvia spp, chamise, California buckwheat or manzanita. See additional prohibited vegetation in the "Prohibited Plant List" in Section 11.1.5.2 of this plan. The objective is to prevent spread of fire to or from a structure. It is extremely critical to keep flammable vegetation and ornamental vegetation away from the structure so as to prevent a path for fire to reach the structure. No chipped biomass or wood bark within 30' of structures. No vegetation allowed on any trellises.

No firewood or LPG tanks within 30' of a structure. No flammable vegetation allowed under or around LPG tanks for 30'. The Fire District requirement is 10'.

**Zone B (from 51' beyond structure to a minimum of 100' from all sides of structure):**

This Zone will be a fuel reduction zone. No dry grass. If vegetation or trees are planted, irrigation may be needed. Zone B to be limited to low fuel volume, high leaf moisture, fire resistive, low profile fuel (native grasses or groundcover less than 4") and fire resistive shrubs and trees. No dead or dying vegetation is allowed. Mature trees must be properly limbed up 1/3 height or 6' from adjacent ground whichever is less. Use same criteria as for Zone A. Specimens

of approved and properly maintained trees such as coastal live oak, sycamore, maple, elm, cottonwood, willow, jacaranda or other high leaf moisture/low oil content trees may be used if deemed suitable for this area by a landscape architect. Trees to be 20' between mature canopies. No acacia, eucalyptus, palm, juniper, pepper, olive, bottlebrush, cypress, conifer, cedar or pampas grass. No chaparral, sage, including purple sage, chamise, salvia spp, coastal sage scrub, sagebrush, California buckwheat, or manzanita. All exotics shall be removed. See additional list of prohibited vegetation in the "Prohibited Plant List" in Section 11.1.5.2 of this plan. Approved fire resistive shrubs and plants may be used if kept below 3', spaced the same as for Zone A, and kept free of all dead fuel.

Proper erosion control and soil stability provisions are needed in each zone. An adequate amount of vegetation is needed to prevent erosion and to protect slopes.

**Roadside Fuel Modification:**

There shall be Fuel Modification Zones on each side of any onsite driveways and public roadsides throughout the development, including on perimeter streets. Fuel Modification Zones are required by the 2008 County Fire Code to be 30' on each side of a newly constructed road or driveway and 20' on each side of an existing road. The zone may be a landscaped, irrigated wet zone, utilizing fire resistive vegetation. Groundcover to be 4" or less. Any shrubs to be 2' or less.

There shall be no flammable vegetation or flammable trees in the roadside, or center median, fuel modification zones, landscaped areas, slopes between pads or elsewhere on lots, or in borrow areas. Any trees shall be fire resistive and shall not be of a type prohibited in this plan. Single trees, or clusters of up to 3 trees, should be spaced at least 20', and preferably 30', between canopies. Mature trees to be limbed up 1/3 height or 6' from adjacent ground, whichever is less and have no flammable vegetation under them. Street trees to be limbed up using same criteria as for Zones A and B.

Any vegetation under trees to be limited and fire resistive. Maintain adequate clearance between ground cover and lowest limb of tree. Limit height to 1/3 height of lowest limb or branch or 18" whichever is less. There shall not be closed canopies over public roads. On-site roads to be clear to the sky. Any trees shall be planted 10' from edge of road to center of tree trunk. They will be maintained in compliance with this plan, by the Landscaping Maintenance District (LMD) or other County approved legal entity, or an owners association or maintained by the property managers. Responsibility for the maintenance shall be included in a legal document to approval of County DPLU such as a contract with tenant, CC&R's or deed encumbrances. The property owner shall assure that proper roadside vegetation is done on an ongoing basis. No vegetation prohibited in this plan shall be planted in this area. Erosion control and soil stability must be provided. Note: The owners of the parcels have no control over what the County plants or requires to be planted on public roads. The County should not require flammable trees such as palms to be planted, based on recent fire experiences with palms.

**Open space and sensitive Biological Preserve area under control of the Resource Agencies and the County:**

Fuel modification may not be allowed in any sensitive biological preserve, riparian areas, wetland buffers, retention basins, vernal pools, etc and permission is required from the County and resource agencies in order to do any fuel modification in those areas.

**Slopes:**

Trees, shrubs, plants and other vegetation on any natural or manufactured slopes in the development are to comply with the spacing, height, and other criteria, such as prohibited types of vegetation, for fuel modification as found in this plan for the Fuel Modification Zones.

**LPG Tanks:**

30' of clearance of native vegetation, weeds and brush shall be provided under and around LPG tanks. RFPD Fire Code requires 10'.

**Water Detention Basins:**

Any detention basins must be kept clear of any flammable vegetation on an annual and ongoing basis, if not prohibited by the County or Resource Agencies due to sensitive habitat, etc.

**General Comments:**

Fuel Modification may consist of mowing or otherwise cutting or removing flammable vegetation or may consist of properly spaced and installed, approved, irrigated, and maintained fire resistive landscaping. No vegetation from the Prohibited Plant List in Section 11.1.5.2 of this plan should be planted or remain. The detailed site plans for each new development on the lots shall set forth the size and configuration of the required fuel modification zones around buildings and roads. The plans shall also describe in detail the spacing and height of vegetation in the zones, including trees. The building owners shall be responsible to maintain the vegetation fire safe on an ongoing basis.

There may be street trees and vegetation planted, irrigated and maintained by the County.

The developer will have no control over the type of vegetation the County may require as planting in the offsite areas and streets. There are also some areas onsite, which would be landscaped, irrigated and maintained by the developer. This includes slopes on the pads and any interim borrow areas and slopes. It is important to not plant vegetation, which could catch fire from airborne burning debris coming from an offsite fire. This is called "spotting". Palm trees, Eucalyptus, and certain other trees are susceptible to this. If the County mandates such trees, (which consultant recommends against) they must be properly spaced, maintained and irrigated with no flammable understory. The following list of prohibited plants should be followed.

**11.1.5.2: Prohibited Plant List:**

Certain vegetation is considered to be undesirable in the landscape due to characteristics that make them highly flammable. These characteristics can be physical or chemical. Physical properties that contribute to high flammability include large amounts of dead material retained within the vegetation, rough or peeling bark, and the production of large amounts of litter. Chemical properties include presence of oils, resins, wax, and pitch. Any such existing vegetation should be removed and new ones should not be introduced.

**SOME EXAMPLES OF Prohibited Plant Material**

Botanical Name	Common Name	Comment*
<b>Trees</b>		
<i>Abies species</i>	Fir	F
<i>Acacia species (numerous)</i>	Acacia	F, I
<i>Agonis juniperina</i>	Juniper Myrtle	F
<i>Araucaria species (A. heterophylla, A. araucana, A. bidwillii)</i>	Araucaria (Norfolk Island Pine, Monkey Puzzle Tree, Bunya Bunya)	F
<i>Callistemon species (C. citrinus, C. rosea, C. viminalis)</i>	Bottlebrush (Lemon, Rose, Weeping)	F
<i>Calocedrus decurrens</i>	Incense Cedar	F
<i>Casuarina cunninghamiana</i>	River She-Oak	F
<i>Cedrus species (C. atlantica, C. deodara)</i>	Cedar (Atlas, Deodar)	F
<i>Chamaecyparis species (numerous)</i>	False Cypress	F
<i>Cinnamomum camphora</i>	Camphor	F
<i>Cryptomeria japonica</i>	Japanese Cryptomeria	F
<i>Cupressocyparis leylandii</i>	Leyland Cypress	F
<i>Cupressus species (C. fobesii, C. glabra, C. sempervirens,)</i>	Cypress (Tecate, Arizona, Italian, others)	F
<i>Eucalyptus species (numerous)</i>	Eucalyptus	F, I
<i>Juniperus species (numerous)</i>	Juniper	F
<i>Larix species (L. decidua, L. occidentalis, L. kaempferi)</i>	Larch (European, Japanese, Western)	F
<i>Leptospermum species (L. laevigatum, L. petersonii)</i>	Tea Tree (Australian, Tea)	F
<i>Lithocarpus densiflorus</i>	Tan Oak	F
<i>Melaleuca species (M. linariifolia, M. nesophila, M.</i>	Melaleuca (Flaxleaf, Pink,	F, I

Botanical Name	Common Name	Comment*
<i>quinquenervia</i> )	Cajeput Tree)	
<i>Olea europea</i>	Olive	I
<i>Picea (numerous)</i>	Spruce	F
<i>Palm species (numerous)</i>	Palm	F, I
<i>Pinus species (P. brutia, P. canariensis, P. b. eldarica, P. halepensis, P. pinea, P. radiata, numerous others)</i>	Pine (Calabrian, Canary Island, Mondell, Aleppo, Italian Stone, Monterey)	F
<i>Platyclusus orientalis</i>	Oriental arborvitae	F
<i>Podocarpus species (P. gracillior, P. macrophyllus, P. latifolius)</i>	Fern Pine (Fern, Yew, Podocarpus)	F
<i>Pseudotsuga menziesii</i>	Douglas Fir	F
<i>Schinus species (S. molle, S. terebenthifolius)</i>	Pepper (California and Brazilian)	F, I
<i>Tamarix species (T. africana, T. aphylla, T. chinensis, T. parviflora)</i>	Tamarix (Tamarisk, Athel Tree, Salt Cedar, Tamarisk)	F, I
<i>Taxodium species (T. ascendens, T. distichum, T. mucronatum)</i>	Cypress (Pond, Bald, Monarch, Montezuma)	F
<i>Taxus species (T. baccata, T. brevifolia, T. cuspidata)</i>	Yew (English, Western, Japanese)	F
<i>Thuja species (T. occidentalis, T. plicata)</i>	Arborvitae/Red Cedar	F
<i>Tsuga species (T. heterophylla, T. mertensiana)</i>	Hemlock (Western, Mountain)	F
<b>Groundcovers, Shrubs &amp; Vines</b>		
<i>Acacia species</i>	Acacia	F, I
<i>Adenostoma fasciculatum</i>	Chamise	F
<i>Adenostoma sparsifolium</i>	Red Shanks	F
<i>Agropyron repens</i>	Quackgrass	F, I
<i>Anthemis cotula</i>	Mayweed	F, I
<i>Arbutus menziesii</i>	Madrone	F
<i>Arctostaphylos species</i>	Manzanita	F
<i>Arundo donax</i>	Giant Reed	F, I
<i>Artemisia species (A. abrotanium, A. absinthium, A. californica, A. caucasica, A. dracunculus, A. tridentata, A. pynocephala)</i>	Sagebrush (Southernwood, Wormwood, California, Silver, True tarragon, Big, Sandhill)	F
<i>Atriplex species (numerous)</i>	Saltbush	F, I
<i>Avena fatua</i>	Wild Oat	F
<i>Baccharis pilularis</i>	Coyote Bush	F

Botanical Name	Common Name	Comment*
<i>Bambusa species</i>	Bamboo	F, I
<i>Bougainvillea species</i>	Bougainvillea	F, I
<i>Brassica species (B. campestris, B. nigra, B. rapa)</i>	Mustard (Field, Black, Yellow)	F, I
<i>Bromus rubens</i>	Foxtail, Red brome	F, I
<i>Castanopsis chrysophylla</i>	Giant Chinquapin	F
<i>Cardaria draba</i>	Hoary Cress	I
<i>Carpobrotus species</i>	Ice Plant, Hottentot Fig	I
<i>Cirsium vulgare</i>	Wild Artichoke	F,I
<i>Conyza bonariensis</i>	Horseweed	F
<i>Coprosma pumila</i>	Prostrate Coprosma	F
<i>Cortaderia selloana</i>	Pampas Grass	F, I
<i>Cytisus scoparius</i>	Scotch Broom	F, I
<i>Dodonaea viscosa</i>	Hopseed Bush	F
<i>Eriodictyon californicum</i>	Yerba Santa	F
<i>Eriogonum species (E. fasciculatum)</i>	Buckwheat (California)	F
<i>Fremontodendron species</i>	Flannel Bush	F
<i>Hedera species (H. canariensis, H. helix)</i>	Ivy (Algerian, English)	I
<i>Heterotheca grandiflora</i>	Telegraph Plant	F
<i>Hordeum leporinum</i>	Wild barley	F, I
<i>Juniperus species</i>	Juniper	F
<i>Lactuca serriola</i>	Prickly Lettuce	I
<i>Larix species (numerous)</i>	Larch	F
<i>Larrea tridentata</i>	Creosote bush	F
<i>Lolium multiflorum</i>	Ryegrass	F, I
<i>Lonicera japonica</i>	Japanese Honeysuckle	F
<i>Mahonia species</i>	Mahonia	F
<i>Mimulus aurantiacus</i>	Sticky Monkeyflower	F
<i>Miscanthus species</i>	Eulalie Grass	F
<i>Muhlenbergia species</i>	Deer Grass	F
<i>Nicotiana species (N. bigelovii, N. glauca)</i>	Tobacco (Indian, Tree)	F, I
<i>Pennisetum setaceum</i>	Fountain Grass	F, I
<i>Perovskia atroplicifolia</i>	Russian Sage	F
<i>Phoradendron species</i>	Mistletoe	F
<i>Pickeringia montana</i>	Chaparral Pea	F
<i>Rhus (R. diversiloba, R. laurina, R. lentii)</i>	Sumac (Poison oak, Laurel, Pink Flowering)	F

Botanical Name	Common Name	Comment*
<i>Ricinus communis</i>	Castor Bean	F, I
<i>Rhus Lentii</i>	Pink Flowering Sumac	F
<i>Rosmarinus species</i>	Rosemary	F
<i>Salvia species (numerous)</i>	Sage	F, I
<i>Salsola australis</i>	Russian Thistle	F, I
<i>Solanum Xantii</i>	Purple Nightshade (toxic)	I
<i>Silybum marianum</i>	Milk Thistle	F, I
<i>Thuja species</i>	Arborvitae	F
<i>Urtica urens</i>	Burning Nettle	F
<i>Vinca major</i>	Periwinkle	I

\*F = flammable, I = Invasive

**NOTES:**

1. Plants on this list that are considered invasive are a partial list of commonly found plants. There are many other plants considered invasive that should not be planted in a fuel modification zone and they can be found on The California Invasive Plant Council's Website [www.cal-ipc.org/ip/inventory/index.php](http://www.cal-ipc.org/ip/inventory/index.php). Other plants not considered invasive at this time may be determined to be invasive after further study.
2. For the purpose of using this list as a guide in selecting plant material, it is stipulated that all plant material will burn under various conditions.
3. The absence of a particular plant, shrub, groundcover, or tree, from this list does not necessarily mean it is fire resistant.
4. All vegetation used in Vegetation Management Zones and elsewhere shall be subject to approval of the Fire Marshal.
5. Landscape architects may submit proposals for use of certain vegetation on a project specific basis. They shall also submit justifications as to the fire resistivity of the proposed vegetation.
6. This list was prepared by Hunt Research Corporation and Dudek and Associates, 12-14-07, and reviewed by Scott Franklin, Scott Franklin Consulting.

**DO NOT PLANT, OR RETAIN, ANY OF THE ABOVE LISTED VEGETATION IN ANY VEGETATION MANAGEMENT (FUEL MODIFICATION) ZONE WITHIN 100' OF A STRUCTURE ON ANY PARCEL. NONE OF THE ABOVE VEGETATION SHOULD BE IN ANY HYDROSEED MIX. ANY OF THE ABOVE LISTED TREES OR SHRUBS SHOULD NOT BE USED AS STREET TREES OR SHRUBS.** Certain individual specimens may be allowed by Fire District if irrigated, properly spaced and maintained. This list is not all-inclusive as lessons are learned regarding fire resistance during every fire. Also, other plants and trees can become fire hazards under drought conditions or due to lack of maintenance and irrigation. Landscape architects may submit a report to the Fire Marshal with written justification and certification as to the fire resistiveness of certain plants, for review of the Fire Marshal.

**Trees:**

No trees, which found on the prohibited plant list or otherwise prohibited in this plan, are allowed.

Trees to have 20' (preferably 30') between mature canopies. Trees to be limbed up using same criteria as for Fuel Modification Zones A and B. There can be a cluster of up to 3 trees separated by the 20' (preferably 30') from mature canopies of the next cluster.

Trees may need to be irrigated. This would be determined by landscape architects.

**Shrubs:**

Salvia (sage). There should be no sage in Fuel Modification Zones.

There should be no other shrubs that are found on the prohibited plant list, or prohibited elsewhere, in this plan.

Shrubs should be irrigated (if necessary), spaced and height limited per criteria in this plan for fuel modification zones, and properly maintained.

**Maintenance:**

Ongoing maintenance and irrigation is necessary so that onsite vegetation, including all slopes and any interim borrow areas (including slopes in that area) will not be ignited. This includes weeding, pruning, limbing, and irrigation. Vegetation management must be done at least annually, before May 1, and more often as needed to maintain fire safety. It is anticipated that this development will have regular landscaping service. Mature trees should be limbed up 1/3 height or 6' from adjacent ground, whichever is less and spaced 20' to 30' between canopies. They should not have any flammable, non-fire resistive, vegetation under them. Maintain adequate separation above any fire resistive groundcover. There should not be any tree limbs or canopies within 10' of a building. Any grass should be kept to 4" and irrigated. There must be no flammable vegetation, dead grass or weeds.

There shall be no vegetation or trees that obstruct Fire Department operations, including access, raising of ladders, or use of fire hydrants and Fire Department connections. On-site access roads should be kept clear to the sky with no overhanging canopies.

Some general recommendations are provided in the following sections beginning on the following page.

**Planting, Spacing and Maintenance Guidelines:**

General Information Regarding Vegetation Management:

- A. Maintenance includes irrigation and regular, ongoing (annual and more often as needed) removal of weeds, dead materials, and other undesirable flammable vegetation required to keep the area fire safe.
- B. As new plantings mature, they must be thinned to maintain the recommended spacing and heights.
- C. The terms "fire wise", "fire resistant" or "fire retardant" are misleading. All vegetation and plants will burn if exposed to enough heat. Because something is considered fire retardant or fire resistant does not mean that unlimited quantities can be planted or that they will somehow slow down a fire.

- D. Limit or eliminate use of plants, which are known to be flammable.
- E. Limit use of plants, which develop large amounts of foliage, branches, or dead material.
- F. Limit use of plants, which develop deciduous or shaggy bark.
- G. Limit use of plants, which develop dry or dead undergrowth.
- H. Recommended spacing of trees is a minimum of 20' feet between mature canopies.
- I. Tree canopies shall not reach to within 10' of chimneys or structures.
- J. Limb up trees 1/3 height or 6' from adjacent ground whichever is less.
- K. No tree canopies overhanging any streets or onsite fire lanes around buildings as this can affect Fire Department ladder operations. Shrubs to be fire resistive. Shrubs shall be spaced to create a firebreak between groupings.
- L. Eliminate potential for vegetation on ground (ground fuels) to spread fire into trees (aerial fuels). This is known as eliminating the "fire laddering effect".
- M. Configure plantings so that they are spaced and maintained so as not to create a direct path from native growth to a structure.
- N. All plant species must be limited to those approved by the Fire District for this area.
- O. Prohibit massing of vegetation adjacent to structures, especially under eaves, overhangs, windows, vents, decks, within 10' of chimneys, etc.
- P. Vegetation management requirements and the provisions for continuous maintenance must be documented on landscape plans, any CC&R's, and deed encumbrances. It must be absolutely clear to building owners that they have a legal responsibility to maintain a fire safe defensible space on all sides of the structures in compliance with this plan and the Fire District requirements. The Fire District shall enforce all vegetation management requirements, and structural protection requirements on all private property, and assure vegetation management requirements are met. Yearly maintenance, before fire season (typically May 1, including during construction), and more often as needed, is required to reduce fuel volumes, eliminate weeds, remove dead vegetation, cut grass, limb up and prune, remove down and dead fuels, remove flammable under story, etc.
- Q. Maintenance is also required after any storms or high winds to remove down and dead vegetation and combustible debris from properties and zones.
- R. If new planting is desired in areas of retained native vegetation, then an irrigation system shall be designed to sustain new plantings as needed. Caution should be used so as to not

- over irrigate natives and thereby increase the dead to live fuel ratio; negating the high leaf moisture.
- S. Caution must be used so as to not cause erosion or ground (including slope) instability, or excessive water runoff, due to planting, landscaping, vegetation removal, vegetation management, or irrigation.
  - T. No combustible netting, matting, etc., in landscaped areas, on slopes, within 100' of a structure, other than when needed during construction.
  - U. Permission is required from off-site parcel owners if any fuel modification is needed off-site of any parcel in this project, and on someone else's property.
  - V. Permission must be obtained in advance from County DPLU, resource agencies, and any other applicable agencies, before doing vegetation management in any biologically sensitive areas or habitats or other regulated areas.
  - W. If irrigation is somehow prohibited, or curtailed due to a drought, etc, any plants and vegetation that require irrigation may need to be removed and replaced with fire resistive drought tolerant plants or an alternative, equivalent, procedure will need approval of the RFPD.

**Irrigation of Manufactured Slopes:**

Any manufactured or landscaped slopes within 100' of structures must be irrigated for fire safety.

**Vegetation Management Clearing Practices and Responsible Parties:**

See paragraph P on previous page.

**11.1.6: On Site Cumulative Impact Analysis:**

**Structural Fire Threat:**

The most likely threat of a significant on-site fire would be a structural fire. The most likely sources of the fire would be from one of the following:

- Electrical system malfunctions; particularly wiring and extension cords.
- Fire in high piled stock due to carelessly discarded smoking materials (from someone sneaking a smoke), electrical or heating source, chemical reaction, etc.
- Fire or explosion at an industrial plant.
- Spotting of airborne burning debris from an offsite, wind driven, vegetation fire onto a roof of into an HVAC inlet, open smoke vent, through other building vents, open door, or through a broken glass window (broken due to airborne debris).
- Heating equipment or system malfunction.

- Careless smoking.
- Truck fire spreading into building from loading dock.
- Arson to cover up a crime.
- Forklift fire.
- Ignition of hydrogen from charging batteries for fork lifts.
- Refueling LPG forklifts inside a building.
- Spontaneous heating or chemical reactions of stock.
- Welding or open flame during construction of racks, etc.
- Storage too close to ceiling light fixtures (hot surface).
- Fire in exterior storage due to chemical reaction, carelessly discarded smoking material, arson, etc.
- There is a potential for a plane crash due to proximity of the airport. The development is east of Brown Field, and the Tijuana airport is in the vicinity.

There could be large warehouses, and manufacturing facilities, constructed on the various lots. Estimated square footage of buildings range from 18,121 to 84,193 sq ft. Fire threats in warehouses are based upon large amounts of materials located in a single fire area or building. Commonly stored plastic materials have the potential to burn rapidly, have high rates of heat release, and generate large amounts of combustion products. Depending upon the type of materials stored, rapidly spreading fires can occur and overpower fire sprinkler systems. Industrial manufacturing risks vary based upon the type of industry. These occupancies may be “H” occupancies per the Building Code and will need to comply with the Building Code (including size and construction of buildings, location on property, distance from property line and other buildings, etc.) in addition to the Fire Code. Occupancies with materials containing a high explosive and/or detonation hazard (typically an H-1 occupancy per CBC) are not allowed by the Specific Plan. This should also include fireworks manufacturing or storage. Special attention is needed for H-2 occupancies; including those with combustible dusts involved, and which present a moderate explosion hazard or hazard from accelerated burning, per Section 307.4 of the 2007 California Building Code. This includes certain uses and storage of flammable liquids, oxidizers and class 3 water reactive materials. H-2 occupancies must be located at least 30’ from a property line if the building is over 1000 square feet, per 2007 California Building Code Section 415.3.1. Buildings where explosion venting is required, per 2007 California Fire Code Section 911 and 2007 California Building Code Section 415, require a clear vertical space above building, or a 50’ horizontal distance from the structure wall at the location where the explosion venting system is. Refer to the codes for details. It will be important for the owner of the development to have their architect analyze all specific requirements for a proposed occupancy on a lot before finalizing proposed lot sizes and before proceeding with design, to be sure the size and type of occupancy will be feasible based on lot size, distance to property lines and adjoining buildings, public ways, etc. In addition, the Fire Code has specific requirements for the amount and type of hazardous materials, flammable and combustible liquids and compressed or liquefied gases stored on the exterior of buildings on the lot.

H rooms designed in accordance with the Building Code may be allowed within buildings. The H occupancy classification can be avoided by staying within maximum allowable quantities (MAQ) and by the use of control areas as allowed in the Fire and Building Code.

Large quantities of exterior storage are discouraged due to the potential fire exposure hazard. Quantities of exterior storage should not exceed exempt quantities per tables in the Fire Code.

**Vegetation Fire:**

As all of the land will be built upon and landscaped, the current vegetation fire hazard will be reduced. Currently, the East Otay Mesa area is generating about 12-15 vegetation fire calls per year in the entire Specific Plan area. The Harris Fire, in October 2007, did not burn in the immediate vicinity of this development. However, the section on Fire Spread modeling in this plan provides an estimated fire behavior for the Harris Fire if it had reached this property. The main fuels are what are referred to as flashy fuels (grasses) which spread fire rapidly and serve as a fuse to spread fire into the chaparrals. After a heavy rainy season, the grass may be tall.

While the natural vegetation will be reduced, it will be important to control all landscaping in, and on perimeter of, the development, and on all slopes and lots, as the area now becomes a Wildland Urban Interface. This also includes controlling vegetation on roadways, and on slopes, on and around building pads, to assure that such ornamental vegetation and trees do not provide a means to transmit fire to a structure or to obstruct roads.

**Hazardous Materials:**

In addition to EMS calls and Fire calls, there is a potential for Hazardous Materials emergencies in the project. These can occur in transportation, storage, use and handling. Hazardous Materials include combustible and flammable liquids, flammable gases, toxic liquids and gases, explosives, reactive and unstable materials, oxidizers, etc. The incidents will most likely occur on the area freeways, highways, other roads during transportation, or in Mexico. This potential creates the risk of a flammable or toxic cloud or spill impacting a highway as well as exposing humans and buildings on either side of the border. Leaks or releases of Hazardous Materials from trucks can occur on area highways.

The proliferation of Hazardous Materials in industry, especially high tech industry, will result in the potential for a release. Such release, if a gas, can result in a flammable or toxic cloud, which can leave the property of origin and expose persons and property offsite.

With the large amount of square footage proposed for the development, there could be Hazardous Materials events during the life of the occupancies. Most will be small spills or releases.

A major fire in an industrial or storage facility may result in a major Hazardous Materials release, or toxic smoke spreading offsite.

Special safety precautions will be needed during construction to prevent any damage to the high-pressure gas lines. Such lines will also need to be identified by signage and markers during construction and after construction when work is completed and roads and pads are constructed.

**Aircraft Crashes:**

There is the potential for air crashes in the area, due to Brown Field and the Tijuana Airport. This would most likely be a cargo type aircraft. An increase in small aircraft traffic can result in mid air collisions over the development area. This project does not, however, increase the risk of air crashes.

### **Specialty Retail Stores:**

Specialty Retail stores, which could possibly be included in this development, pose the following general risks related to Fire:

- Exterior or interior trash dumpster, or compactor fire.
- Kitchen grease fire in restaurant.
- Smoking in store or warehouse even though prohibited.
- Electrical malfunction.
- Extension cords.
- Fire in storage due to careless smoking, poor housekeeping, combustibles too close to heating appliances, electrical equipment or lights.
- Overheated electrical appliances.
- Arson fire to cover up a burglary.
- Vandalism in outside storage.
- Truck fire at loading dock.
- Fire in an “M” occupancy due to spill and ignition of a flammable liquid, combustible liquid, hazardous material or aerosol.
- Spontaneous ignition of oily rags or other materials used with materials that can spontaneously heat and ignite, such as linseed oil, battery acid, spill clean up materials, etc.
- Fire in a forklift or other industrial truck.
- The most likely significant fire is in a storage area hours after a store or restaurant closes (late night or early morning).
- The most likely fire is a fire in a kitchen cooking area.
- The most likely exterior fire will be in a vehicle or a trash container.

In retail store fires, smoke obscuration can occur in 13 minutes. Exiting must allow occupants to evacuate within this timeframe. Heat activated and manually operated smoke vents (or smoke control systems) are necessary in high piled stock occupancies, to allow entry by firefighters. Remotely supervised sprinkler systems with supervised valves have proven to be the ideal solution to fire suppression in shopping centers. The system will send an alarm to a monitored location for notification of 911, sound local alarms and control the fire. Small hose utilized from fire engines may be needed for “mop up” operations. The systems must be properly designed and installed and commodity types, configurations, heights, and rack design must be such as to allow the sprinklers to control the fire.

Sprinkler systems should be able to limit the fire area in any proposed major stores to 1,800 square feet with water damage to 6,000 square feet. The system will probably need to operate for 30 minutes.

**Office Buildings:**

Office Buildings are typically light hazard occupancies with low fire loading. Most fires involve electrical equipment, heating equipment, computer equipment, trash and careless smoking.

**Life Hazard:**

The life loss in sprinklered occupancies is minimal based upon statistics. Additionally, there are no dwelling units in this development and no institutional occupancies with non-ambulatory patients or restrained persons.

Life safety can be adequately addressed by fire sprinklers, manual alarm systems, as required, control of finishes and flammability of contents, ample exits and exit lighting.

The primary structural life safety risk would occur during overcrowding of a restaurant or the overcrowding of a retail store during a major sale.

**Non Fire Related Incidents:**

Medical emergencies will be the most likely emergency to occur. They will most likely include sickness, heart attack, choking, slip and fall, vehicle accidents, or worker injuries. The Fire District should be able to handle these incidents in a timely manner due to the proximity of fire stations.

**Summary:**

1. Fire sprinklers offer the optimum fire protection and are almost 100% effective in extinguishing or controlling fire.
2. Most fires in sprinklered buildings are controlled with 2 heads or less, which flow a total of 60 GPM.
3. If the system is shut off, overwhelmed, or otherwise fails, the building of origin will probably be destroyed.
4. Fire should be confined to the building of origin due to properly designed and code compliant, non-pierced, fire walls, adequate distance to unattached buildings and water for exposure protection.
5. The buildings will be properly protected with supervised sprinkler systems. The system and valves are to be electronically supervised to an approved 24/7 monitoring station. Therefore, the fire will most likely be controlled or extinguished by the system within and area of 1,800 square feet, or less, and within the rack of origin. The Fire Department may need to support the system by use of 2 or 3 hand held hose lines to extinguish fires in deep seated material, or under obstructions. This could require up to 500 GPM. Water

damage should be confined to 6,000 square feet in the major buildings. Actual total GPM needed for this scenario may be approximately 1,700 GPM.

6. Fires occurring in the aftermath of a major earthquake or building collapse could result in the loss of any occupancy between fire walls, if the public water system, or the sprinkler system is inoperative. With the use of earthquake shutoff valves for gas lines, a major fire is unlikely and has usually not occurred in previous earthquakes.
7. Arson fires should be controlled by fire sprinklers as valves will be supervised.
8. Fires beginning on exterior (for example in flammable or combustible liquids, trash fires, or truck fires) and subsequently entering a building will likely be controlled by the fire sprinklers.
9. Response will be rapid, especially during night time hours, due to the new, nearby, RFPD fire station.
10. With the installation of approved and supervised fire sprinkler systems, properly designed vents, as well as compliance with the 2007 CBC and County Building Codes, the available fire flow appears adequate, subject to the engineer's concurrence, and any fire will likely be confined to the occupancy of origin.

This project should not contribute to any cumulative impact regarding wildland fires due to the nature of the development, lack of onsite natural vegetation after development, tilt up concrete buildings, fire rated roof assemblies and the built in fire protection.

#### **11.1.7: Mitigation Measures and Design Considerations:**

##### **Fire Protection Objectives:**

The Fire Protection objectives for this development are as defined in this section.

The primary objectives are:

1. Life safety for workers and other occupants.
2. Protection of structures from exposure fires.
3. Confinement of a fire to building of origin.
4. Provide built in fire protection so as to keep the fire risk commensurate with the capabilities of area fire stations.
5. Protect the environment.
6. Minimize damage from fire in building of origin.
7. Minimize smoke damage from intrusion of smoke into HVAC systems.
8. Provide adequate access and operating locations for firefighters and their apparatus.
9. The project will comply with all RFPD and San Diego County Fire Authority Fire Marshal requirements.
10. All buildings will have fire sprinklers.

11. Provide construction complying with ignition resistant construction requirements of the County Building Code and Chapter 7-A; 2007 Building Code, and other applicable sections of the CBC. Exterior walls will probably be tilt up concrete.
12. Development is to comply with all other applicable NFPA standards.
13. Development will have public on site water system with mains and hydrants supplied by the Otay Water District.
14. Due to type of construction and the lack of on-site natural vegetation, occupants can shelter in place or relocate, due to the several public access roads.
15. Fuel Modification must comply with the Fire Code and this plan.

**11.1.8. Conclusion:**

In the opinion of the author, the mitigation measures listed above should result in reducing the on-site wildland fire significance level to “less than significant” per the stated guidelines for wildland fires, based on the built in protection, fuel modification, response and compliance with Fire Code.

**CHAPTER 3. TECHNICAL FIRE PROTECTION REPORT:**

This Section of the Fire Protection Plan describes, in concept, the proposed Fire Protection for various components of the buildings, and also includes the roads, Fire Protection Systems, and Building construction. This Section of the plan is required by the RFPD.

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**111.1: Applicable Fire Protection and Building Construction Related Codes and Standards:**

- 2007 California Fire Code (CFC) including Chapter 23 in the 2007 CFC for High Piled Stock.
- 2007 California Building Code (CBC)
- County Building Code.
- Fire District and County Fire Codes.
- National Fire Protection Association (NFPA) standards as may be applicable:
  - a. NFPA 10; Fire extinguishers
  - b. NFPA 13; Fire sprinkler systems
  - c. NFPA 14; Standpipes
  - d. NFPA 20; Fire Pumps; if needed (doubtful if needed due to high water system pressures)
  - e. NFPA 70; National Electrical Code.
  - f. NFPA 72; Fire Alarms
  - g. NFPA 90A; Air Conditioning and Ventilation Systems
  - h. NFPA 110; Emergency and Standby Power Systems
  - i. NFPA 505 and 58; and 2007 CFC Sec 309; Powered Industrial trucks (forklifts)

The RFPD Fire Chief has stated that the 2007 CFC and CBC and the District Fire Code and County Fire and Building Codes shall be followed.

**111.2: Fire Protection Water System, Mains, Hydrants, Fire Sprinklers, Fire Extinguishers:**

The onsite Fire Protection Systems will comply with the Fire District requirements, Fire District Fire Code and County Fire Code. The following is proposed:

**111.2.1: Fire Flow:**

- The Fire Code requires a minimum of 2500 GPM for commercial developments and developments in the WUI areas. County Fire Code requires 2500 GPM in mains in a high wildland fire hazard area (Code states “for subdivisions”). The RFPD requires the Fire Flow needed for the worst case Fire Sprinkler flow plus hose lines, or that required by Appendix B in the 2007 CFC with a 50% credit for sprinklers, whichever is greater. 2500 GPM is the absolute minimum. Double back flow devices shall be UL listed or FM approved for fire service and shall be OS and Y indicating valves. All valves on such OS and Y’s shall be remotely supervised to a 24/7 approved alarm company.

**111.2.2: Fire Sprinklers:**

- All structures to have internal Fire Sprinkler systems. The estimated highest sprinkler demand may be about 3530 GPM or greater including hose allotment, depending on the use, occupancy, storage height, commodity, or manufacturing risk. Actual design and calculations are the responsibility of the sprinkler contractor. Systems may be ESFR or

non-ESFR systems with in rack heads if needed. The County standard for spec buildings is .45/3000. However, much higher flows may be needed. Refer to the generic table on Page 29. It is critical that any on site water system, the points of connection to public system in street, and the risers, be designed for the highest potential sprinkler demand plus hose stream/hydrant allocations per Fire District, based on the potential tenants. Note that certain occupancies could require other types of fire suppression systems such as foam, water mist, etc.

- Sprinkler risers which have any valves or devices which could be damaged by fire, or which require firefighter access during a fire, shall be on the exterior or in a 1-hour rated room directly accessible from exterior, with a KNOX key box adjacent to the door. Exterior of the door to have a sign stating “Sprinkler riser room”. All systems, and valves (which should be locked in operating position), shall be remotely supervised to an approved 24/7 alarm company. Per RFPD requirement, visible and audible flow alarms shall be on interior of buildings and on the exterior on the front of building and on the public roadsides. Signs to be under alarms “If alarm sounds; call 911”, in bilingual wording. In addition, per the RFPD, there shall be an indicating light that is activated upon flow of a riser. This light shall be on outside of building in the area where risers are, and on the risers, to indicate to the Firefighters which riser is flowing. The riser designation shall be on a durable, reflective sign under the light. A map of the building and location and designation of risers and zones, fire alarm panels, etc should be provided in a KNOX data box.
- The Fire department connections shall be on the front, address side of buildings at least 40’ from the building and at least 4 feet from curb (so they can’t be struck by a vehicle). There shall be a fire hydrant within 25 to 50’ of the FDC on same side of street. FDC’s must be labeled as to system served and have theft proof caps. There shall be an FDC with 2.5 inch inlets for each building. Systems that require 2,000 GPM fire flow or more shall have a four 2.5 inch inlet FDC. FDC’s shall be located on raised islands in a location where vehicles cannot back into it or park in front of it. Approved crash posts, complying with 2007 CFC Section 312, shall be installed. Red reflective markers shall be installed in pavement on fire lane in front of the FDC location. Any curbing in front of FDC to be painted red and have the words: “*No Parking- Fire Lane*” in bilingual wording. FDC’s shall not be obstructed by any vegetation and trees, and shall be have a clear area around FDC of 3 feet or more.
- The following table, provided by the consultant, lists generic fire sprinkler demands for various types of occupancies based upon occupancy and use. Actual sprinkler system design and determination of needed fire flows and pressures for sprinklers, hose streams and fire hydrants is the responsibility of the engineers, architects, and the sprinkler system designer and is out of the scope of this plan. Official fire flow requirements will be established by the Fire District and the San Diego County Fire Authority Fire Marshal.

**ESTIMATED FIRE SPRINKLER DEMANDS BASED ON OCCUPANCY/USE (GENERIC EXAMPLES)**

OCCUPANCY/USE	DENSITY (gpm/sf)	Area of Application (sf)	Sprinkler Demand (gpm) (with imbalance)	Hose Demand (gpm)	Total Demand (gpm)
Spec Warehouse (< 25' ht)	0.45	3000	1485	500	1985
Spec Warehouse (> 25' ht)	0.60	3000	1980	500	2480
Spec Warehouse (w/ EFSR)	ESFR	Special Application Sprinklers Flowing 12-13 heads	1750 <sup>1</sup>	250	2000
High Piled Group A Plastics	ESFR	Special Application Sprinklers Flowing 12-13 heads	1750 <sup>1</sup>	500	2250
High Piled Flammable Liquids (25' high)	0.60	3000+ in rack sprinklers	2530	1000	3530
Hazardous Materials (H room)	0.60	3000+ in rack sprinklers	2530	1000	3530
Flammable Liquids Spraying	0.40	2500 (ex.haz.gr.2)	1200	500	1700
Rubber Tire Storage (20' high <sup>2</sup> )	0.40	3000+ 1 level in-racks	1585	500	2085
Rubber Tire Storage (20' high <sup>3</sup> )	0.60	3000	1980	500	2480
Big Box (Home Depot, etc.)	ESFR	Special Application Sprinklers Flowing 12 - 13	1750 <sup>1</sup>	250	2000
Recycling facility (parts, etc.)	0.20 <sup>4</sup>	1500	360	250	610
Manufacturing (low hazard)	0.20	1500	360	250	610
Manufacturing (high hazard)	0.40	2500	1100	500	1600
Research and Development	0.20	1500	360	250	610
Indoor Storage and Hazardous Materials Storage	0.17 <sup>5</sup>	3000	610	250	860

1 Fire Pump typically required to meet flow and pressure demands  
 2 Fixed racks, on pallets, on-side or on-tread (10' Max. clearance between sprinkler deflector and max-storage ht.)  
 3 Fixed racks, w/o pallets, on-side or on-tread (10' Max. clearance between sprinkler deflector and max-storage ht.)  
 4 Higher densities required if high piled storage included  
 5 Minimum flow rate (Ordinary Group 2) over minimum 3000 sf operating area per CFC Article 80, Section 8003.1.6. Higher densities and hose demand may be required based on commodity and storage height.

**(Note that the Code reference in item 5 above is now 2007 CFC Chapter 27, Section 2704.5.)**

**ADDITIONAL COMMENTS AND RECOMMENDATIONS:**

- A. Any warehouse buildings should be designed for at least .45 gpm/sf over 3,000 s.f. or more if determined necessary by the sprinkler designer, plus hose stream allowances, to assure adequate protection for the tenant occupancies. Actual system design and calculations, and determination of fire flow requirements, and adequacy of the water supply GPM and PSI for all buildings are the responsibility of the sprinkler designer, engineer and architect and are out of the scope of this plan. The building owner/developer will be responsible to assure the design and installation of the sprinkler systems, risers, and water supply, to provide the required sprinkler system demand plus hose streams, and determine the total needed fireflow based on the contents, commodities, building size and type of construction per Fire District requirements. The developer and system designer need to also assure that the needed fireflow is available. Fire protection system plans relative to tenant improvements and change of occupancies, need to be submitted and approved by the Fire Agencies, prior to any future occupancy or tenant change.

- B. An FDC with an approved number and size of Fire Department connections should be required at each double backflow point of connection from public to private water system. (*Consultant note: The purpose for this connection is so that any private system can be charged by Fire Department from public water supply.*) Listed one-way check valves shall be installed in the proper locations. Consultant recommends that all double backflow prevention devices be UL listed or FM approved for fire service and have indicating O, S and Y valves supervised and locked in operating position, and that they be visible from the public street accessing the building.
- C. Buildings on any lot will need to have fire protection systems designed to operate within the available fireflow and pressure from the public water system, or will require a private water system with stored water and fire pumps. This can also result in a limitation of type or size of occupancy.
- D. A recorded CC&R document, or other approved legal document which outlines care and maintenance of any private water system, should be provided to the Fire District for approval prior to issuance of the first Building Permit. This document should include the maintenance and compliance of onsite Fire Lanes.
- E. The water system, whether public or private, must be designed to the standards of the Otay Water District, the Rural Fire Protection District, and AWWA Standard M-31; "Distribution Requirements for Fire Protection" latest edition (currently the third edition). NFPA 24 shall also be followed for a private system. On site water mains should have at least two connections to the water main in the public streets.
- F. Hydraulic fire protection water system calculations and sprinkler system drawings, calculations and drawings for any on site fire mains (which are to be looped), and a drawing showing locations of hydrants and FDC's, shall be submitted to the Fire District for approval prior to construction on the individual lot. Consultant recommends that the plans for any private water system, and any onsite sprinkler and hydrant system, also be submitted to the Fire District for review and approval prior to construction. This shall include locations of hydrants, FDC's, PIV's, isolation valves, lateral valves, and risers.
- G. Fire hydrant layout on public roads, and on private lots, shall be approved by the Fire District and shall also comply with 2007 CFC Appendix C. On-site hydrants are required when the distance from a hydrant in the street exceeds 150' driving distance onsite. New on-site hydrants on pads shall be spaced 300' apart on streets and on-site fire lanes. Fire District requires the fire hydrant system to flow at least 2,000 GPM at 20 PSI at a building. Fire hydrants and PIV's should be located at least 40' from buildings or have a 2 hour fire wall at location of hydrant or PIV.
- H. Hydrants to have two 4" outlet connections and one 2.5" outlet connection per the Fire District, and the Water District standard and as needed for industrial fire operations.
- I. Lateral valves should be 10-25' from (front of) hydrant.

- J. Hydrants, sprinkler connections, PIV's, FDC's, and any exterior sprinkler risers located closer than 4' to the face of any curb (consultant note: or close to any areas of truck traffic including backing) must have crash posts at least 6" in diameter, constructed of schedule 40 steel, concrete filled, spaced not more than 4' between posts on center, set not less than 3' deep in an adequate concrete footing of not less than 15" diameter, and set with posts not less than 3' aboveground. Posts to be 3 feet away from the protected object (refer to 2007 CFC Section 312). 6-inch diameter posts are recommended due to heavy truck traffic. Posts must not block operation of fire hydrants or Fire Department Connections.
- K. Hydrants should have a 3' x 3' concrete pad around base to prevent build up of weeds and vegetation. If hydrants are dry barrel, gravel shall be used instead.
- L. Blue dot hydrant markers must be installed at each hydrant. Red dot markers must be installed at each FDC.
- M. There should be a zoned graphic fire alarm annunciator at the main entrance to each building on the address side. Consultant note: Annunciator to monitor and annunciate all sprinkler risers and zones and any smoke detection zones.
- N. Any required fire pump system requires two redundant listed or approved fire pumps complying with NFPA 20. One of the pumps should be a diesel or approved emergency power shall be provided.

**111.2.3: Wet Standpipes:**

- Any building with high piled stock should have automatic wet standpipes with 1.5 inch thread attached to Fire Sprinkler system, in the high piled stock areas, to assist in firefighting operations. Flow to be at least 100 GPM, and with the ability to boost pressure from the FDC. Fire hose will be provided by the Firefighters.
- In addition, all major buildings to have automatic wet standpipes plumbed off sprinkler system to aid firefighters in firefighting, due to the potential size of the buildings, if the foot travel distance from an exterior entrance door exceeds 150 feet. These connections should be 2.5 inch FD male thread with a reducer to 1.5 inch FD male thread, and a cap with security provisions. Flow and pressure to be to Fire District approval. Actual locations to be shown on fire sprinkler drawings. In concept, they should be on perimeter of the interior, at each entrance door AND located so that all portions of the interior of the building can be reached with 100' of fire hose and a 30' stream. Standpipe installations to comply with NFPA 14, NFPA 13, and Section 905 of the 2007 CFC. Exterior doors leading to nearby locations of wet standpipe outlets should have a Blue reflective marker on the exterior wall next to door, to indicate to Firefighter that there is a wet standpipe located inside door.

#### **111.2.4: Fire Water Mains:**

Underground firewater mains should be a looped system and shall comply with Otay Water District requirements and shall be a part of their system. Minimum lateral size to hydrants to be 6" ID. Estimated loop size is 10" to 12" ID subject to detailed design and calcs. Loop shall provide needed fire flow around either direction to most remote location, if a valve is shut off and the most direct path of water flow to most remote location is out of service.

- Standard, RFPD approved, commercial wet barrel fire hydrants with two 4" outlets and one 2.5" outlet are required. They shall comply with the Otay Water District specifications for a commercial/industrial hydrant. Hydrants to be located at each intersection and spaced 300' apart on the public roads (except RFPD allows 600' spacing on a public, perimeter, Road where there is no Fire Truck access to a private lot). On site hydrants to be spaced 300' apart on the on site fire lane roads on lots. Number and distribution of hydrants to also comply with Table C105.1 in the 2007 CFC. Hydrants to be 40' from structures to be protected. Isolation valves on laterals to be 10 to 25 feet in front of hydrant.
- Hydrants shall flow 1,000 GPM at 20 PSI. During a single fire hydrant test. The hydrant main system shall flow at least 2500 GPM at 20 PSI per Fire District. However, the actual required fire flow for a particular building may be higher depending on size of building and type of construction. Post Indicating (PIV) valves, except valves on laterals to hydrants, need to be supervised.
- Hydrants shall be located in an island, behind a curb, or in a protected area not obstructed by parking and out of the way of truck traffic, including backing. 2007 CFC Compliant crash posts should be installed where needed. Blue reflective markers shall be installed in fire lane in front of hydrant. Curbing at fire hydrant to be painted red and marked "No Parking- Fire Lane" in bi-lingual wording.
- Hydrants and FDC's shall be clear for 3' around them and have a concrete base (gravel if dry barrel hydrant) to prevent weeds. There shall be no trees within 10 feet of fire hydrants or FDC's.
- Firewater system valves, any fire pumps and fire protection systems shall be supervised to an offsite approve 24/7 alarm monitoring station.

#### **111.3. Site Access and Onsite Fire Access Roads:**

There will be four access roads serving the development. They are Airway Road; 98 feet wide ROW, Siempre Viva Road, 98 feet wide ROW, and Airway Place; 72 feet wide ROW. In the future Alta Road and Via De La Armistad will also serve the parcel. However, improvements to Alta Road and Via De La Armistad (other than along the project frontage) are not proposed as part of the project. In the long term, they will provide access. The offsite portions of these two roads will be constructed in the future by others. Any future traffic lights are required by the RFPD to have traffic pre-emption devices (Opticom). All buildings shall have a fire lane, which leads from the public road to and around each building. Fire lane access roads are required by

Fire Code to reach to within 150' driving distance of any portion of the building. All roads are required to be improved with AC. Refer to detailed drawing in Appendix of this plan.

All streets to be named and have street signs at intersections to the approval of the RFPD and County DPW.

Roads to meet County Road standards.

Secondary access is provided and is not an issue with this development. Parking should be controlled so that a minimum 24' width unobstructed fire lane is always maintained.

The developments on each lot should comply with the following general standards, recommendations, and requirements for industrial/warehouse roads and driveways, and are required to be constructed to current County Industrial Road Standards and improved with approved paving:

- A. All on-site roads, including driveways on individual lots must be paved to support heavy trucks. The County Fire Code requires the roads and driveways to support a 50,000-pound fire apparatus. Roads and driveways must meet these criteria and must also be designed to support heavy semi-trucks and fire trucks. It is recommended that all roads and on-site driveways be designed to withstand the weight of a future aerial ladder fire truck, which would be about 75,000 pounds. Note that the roads are not under construction as yet. They will reportedly be designed for heavy truckloads. Design of future on-site roads shall meet RFPD requirements and County requirements and shall also be designed to support an Aerial Ladder truck.
- B. All roads providing access to the lots are required to be named with proper signage at all intersections to approval of the Fire District and DPW.
- C. At signalized intersections, the developer is required by the Fire District to install pre-emptive traffic devices (Opticom).
- D. On-site fire apparatus roads on individual lots should be at least 26' wide unobstructed width (unobstructed by parking). It needs to be clear to the sky of any overhangs. For buildings 28' high from accessible grade and for large buildings the road width needs to be 28' unobstructed width clear to the sky for ground and aerial ladder operations. Such roads shall be between 15' to a maximum of 30' from building and be parallel to exterior walls (ref: 2007 CFC, Appendix D). The purpose is to allow proper/safe use of ground or aerial ladders by firefighters, at proper climbing angles of the ladder. Typical climbing angles are about 60-70 degrees. Typical angles for use of an aerial water stream are 60-80 degrees. An aerial ladder truck ladder starts at about 6' above the ground. Roads shall be within 150' driving distance of any portion of an exterior wall. Where possible, on-site roads should encircle the building for fire truck access. On-site parking must be controlled to maintain the on-site access road widths at all times.
- E. Owner should record a "Yard Agreement" on each parcel to guarantee that the required on-site fire access roads are kept clear of vehicles, trailers, storage and structures. Note:

Consultant states that this is a very important issue for properties such as this with many trucks and trailers coming in and out, and perhaps needing to park overnight until unloaded or loaded. It is also important that no temporary modular or trailer offices, etc., are located in fire access roadways.

- F. There should be a recorded requirement on each lot to maintain all roads and driveways.
- G. Fire lanes need to be posted “*No Parking-Fire Lane*” and any curbs painted red. It is recommended by the consultant that the signage be bi-lingual.
- H. Dead end roads or driveways exceeding 150’ shall have Fire District approved turnarounds. Cul-de-sac bulbs should be at least 84’ in diameter for fire truck turning.
- I. All buildings should be separately addressed off the closest public entrance road. Addresses and unit numbers should show on each side of the buildings and be to Fire District approval. Numbers to be 6” high with ½” stroke.
- J. Geographical directories may be required at entrances to multiple building developments on a parcel.
- K. Firefighter foot access, 6’ wide, all weather, should be provided around all sides of buildings.
- L. Actual location and size of fire truck access and firefighter foot access to be to approval of Fire District at time of submittal of detailed plans on any parcel. Access doors on exterior, which are locked, shall have hardware that is openable from exterior by a Firefighter with a key.
- M. Public roads cannot be gated per Fire Code. Any gates on private roads or driveways shall comply with the requirements of the RFPD and the San Diego County Fire Authority Fire Marshal. Gates are required to have KNOX switches, which override all other command functions and open the gate. Switches to be double keyed or switched to also allow Law Enforcement use. They shall also have emergency traffic control-activating strobe light sensors (Opticom) or other devices approved by the Fire Chief, which shall activate gate on approach of fire apparatus, and have a battery backup or manual mechanical disconnect in case of power failure. All gates and their controls are to be to approval of Fire Chief. Gates should not be of vertical opening type.

**111.4. Structural Protection:**

In general, new warehouses are concrete tilt up construction. The actual CBC construction type will be determined later. They are one-story buildings generally ranging from approximately 26’ high to 38’6” high and 18,121 sq ft to 84,193 sq ft in size. It is recommended that buildings be separated by at least 50’. Any large Distribution Centers should have 100’ clear around all sides of building to allow for firefighting operations and exposure protection. Maximum height should be limited to 60’. Buildings should be set back at least 30’ from property lines. The buildings should have parapets to assist in controlling fire spread. It is recommended by the consultant that

the parapets be 6' or less, to a minimum of 30", and that the parapets or mansards have suitable, approved, roof access points through the parapet or mansard on each side of each building, at the corners and in the middle of the wall between each end on each side, for Fire Department ladder truck crew access, through the parapet wall, or mansard, after dismounting a ladder. Such access points should be marked with reflective signage on both sides, allow access directly onto or off of the roof itself, without climbing over the parapet or mansard, and shall not be locked. Details shall be submitted to the Fire District for approval.

Warehouse buildings generally have small (4,000 to 10,200 square foot) offices, which have HVAC systems. Warehouses may not have HVAC systems. All HVAC systems should have the capability to be easily shut down or put on recirculation, by occupants or firefighters, using readily accessible and labeled controls, so as to not allow smoke to enter the building in the event of a vegetation fire in the area, and be properly screened to prevent intrusion of sparks and burning debris.

Warehouse buildings may be classified, per Building Code, as B (office) S-1 (Moderate hazard storage not classified as S-2), S-2, or H. Industrial/manufacturing buildings are usually either F-1 or 2, or H occupancies.

Various potential requirements and recommendations (the Ignition Resistant construction requirements per the County Building Code, Section 92.1.704A, 92.1.706A.1 and 92.1.707A.1 for Wildland Urban Interface (WUI) areas, and the WUI requirements in 2007 CBC Chapter 7-A, will be followed as applicable):

- A. Buildings storing high piled stock will have smoke vents, or RFPD approved smoke removal systems or methods, for high piled stock. Smoke vents should have tempered glass, if feasible, and have the capability to be opened manually on roof or from warehouse floor area by firefighters' use of a latch, etc.
- B. All buildings should be provided with the means for firefighters to remove smoke, such as openable roof vents, or RFPD approved smoke control and removal or exhaust system, to approval of the Fire Chief, with emergency power, regardless of the type of sprinkler head. Section 909 of the CFC, regarding smoke control systems, shall be complied with if Smoke control systems are provided. Smoke and heat vents shall comply with Section 910 of the 2007 CFC. In addition, smoke vents may be required by Section 910 for F-1 and S-1 occupancy buildings over 50,000 square feet of undivided area. Refer to Section 910 of 2007 CFC for details and exceptions.
- C. The buildings will have the required number of parking spaces. This will help minimize the potential for parking in fire lanes.
- D. The buildings may have numerous truck wells/docks and overhead doors due to the use.
- E. Interior partitions between tenant units in buildings should be at least 1-hour fire rated, non-pierced, walls, or may be required to be a higher rating if required by the CBC.

- F. Note: Certain occupancies could require explosion control or venting per the Fire and Building Code. Refer to 2007 CFC Section 911 and 2007 CBC Section 414.5.1. This may require approved vertical explosion venting or a clear space of 50' in horizontal width on exterior of the building wall, and on the same lot.
- G. Due to lack of Fire Department staffing and Aerial Ladder Truck, RFPD approved, remotely supervised, zoned, smoke detection systems should be installed in all buildings over 40,000 square feet in order to detect a fire while it is still small, or such buildings should be divided by fire walls every 40,000 square feet. Such a system can be a beam type detection system rather than spot type smoke detection. The actual requirement for this system would be made by the RFPD based upon type of occupancy and the activities therein.
- H. Buildings to have KNOX data and key boxes at main entrance to buildings, and any entrance doors to sprinkler riser rooms, to Fire District approval. It is recommended by consultant that the data boxes also contain a suitable floor plan, showing location of sprinkler risers, alarm panels, HVAC controls, gas shutoffs, electrical panels, any roof access stairs, and an updated list of the types of commodities stored in the building.
- I. Buildings should have approved stairways to provide firefighter access to roof due to lack of ladders to reach the roof until a ladder truck is placed in service in East Otay Mesa.
- J. Any buildings intended for high piled stock shall comply with Chapter 23 of the 2007 California Fire Code, and include firefighter access doors every 100' lineal feet, smoke vents or smoke removal systems per the Fire Code or the RFPD, and shall have wet standpipes. The consultant recommends that smoke vents be openable manually from rooftop and from warehouse floor. High Piled stock buildings should assume storage of high hazard commodities and plastics.
- K. Any awnings on buildings, such as over the loading docks, should be non-combustible, sprinklered and designed so as to not collapse during a fire.
- L. Any storage or use of hazardous materials, combustible or flammable liquids, compressed gases, etc., shall comply with District Fire Code. Consultant also recommends that there be no storage of fireworks, explosives, or flammable or hazardous compressed gases. Hazardous materials and flammable or combustible liquids, various gases, etc., must be kept below Maximum Allowable Quantities (MAQ) if these occupancies are not designed as H occupancies. Hazardous materials or flammable liquid storage rooms (H rooms) may be allowed by the Fire District and the Building official, if MAQ quantities are exceeded, after use of control area provisions of the Code. Exterior storage of LPG, LOX, Ammonia, acids, flammable or combustible liquids or gases, and other hazardous materials, should be located away from buildings and property lines, in compliance with the Fire Code, and should have proper built in fire protection and proper labeling. Water spray systems may be required. Chapter 34 and Chapter 27 of the 2007 California Fire Code list the required distances from buildings, property lines and public ways for hazardous materials and flammable and combustible liquids. Chapter 27 and Chapter 30 of the 2007 CFC, regulate compressed gases. LPG is regulated by Chapters

- 30 and 35. Developers and Architects for specific lots must check the Fire Code exterior storage and spacing requirements when designing a building and lot.
- M. Any vehicle wrecking yards must comply with RFPD requirements.
- N. Any fueling of vehicles on lots must comply with 2007 California Fire Code Section 22.
- O. Any parking structures to comply with NFPA Standards and the Fire Code including fire sprinklers and wet standpipes.
- P. Any building storing Hazardous Materials or flammable or combustible liquids shall have the NFPA hazard (diamond) signal displayed on the street side of the building and over the entrance to the storage area. Occupancies with significant hazardous materials risks should provide additional funding, above the basic RFPD funding requirements, for Hazardous Materials equipment, firefighting foam, etc.
- Q. Roofs shall be Class A fire rated roof assemblies, (if available for flat roofs if they are used), installed per their listing and Manufacturer instructions, in compliance with 2007 CBC Chapter 7-A and County Building Code Section 92.1.704A1. and Section 1505. Roof coverings where a profile allows space between covering and roof decking shall have any space, including at ends, constructed and fire stopped to prevent intrusion of flame or burning embers. If Class A roof assemblies are not yet available for flat roofs, then Class B roofs will be acceptable to San Diego County Fire Authority Fire Marshal, upon submittal of a request for Alternative Methods to the Fire District and the San Diego County Fire Authority Fire Marshal (based on a telecon with Ralph Steinhoff, DPLU, on 7-28-06 regarding this issue).
- R. Roof Valleys: When provided, valley flashings shall be not less than 0.019 inch (#26 galvanized sheet gage) over a 36 inch wide underlayment of one layer of #72 ASTM cap sheet running entire length of valley.
- S. There should be no light wood on exterior of buildings. Heavy timber is okay. Exterior walls will most likely be tilt up concrete with perhaps some metal. Exterior walls will be of approved non-combustible or Ignition Resistant as required by the County and State Building Code based on size and type of occupancy. 2" nominal solid blocking will be installed between rafters at any roof overhang.
- T. Any eaves, fascias or soffits, shall be enclosed and protected per County Building Code WUI requirements; Section 92.1.704A.2.3
- U. Protection for vents on buildings shall comply with County Department of Planning and Land use requirements, and County Building Code, and CBC Chapter 7-A requirements, for Wildland Urban Interface areas. No vents in soffits, rakes, eaves, eave overhangs, cornices, between rafters at eaves, or other similar exterior overhangs. HVAC intakes should also have proper screens. Vents should be designed to prevent intrusion of airborne burning debris from a vegetation fire or other exposure fire. Vents should have louvers and 1/8" mesh screens per Building Code. The architect and building official

- should investigate use of baffled vents such as Brandguard ([www. Brandguardvents.com](http://www.Brandguardvents.com)) or equivalent.
- V. Any turbine vents shall be designed to rotate in one direction only so as to not suck smoke and burning debris into a building.
  - W. Forklift refueling stations to be outside.
  - X. Battery charging to have proper protection/ventilation/spill control.
  - Y. Exterior glazing should be tempered or double pane with one tempered pane, or a fire rating of not less than 20 minutes, to protect from any breakage and intrusion of burning debris during a wind driven off site vegetation fire.
  - Z. Trash areas/containers should be on exterior of buildings, and should not be connected to interior of a building. The locations shall be to approval of the Fire District. Trash dumpsters within 25' of a building should be at least 10' from the building and have exterior sprinkler protection or be in a 1 hour rated enclosure. Large exterior dumpsters should have 2.5" diameter Fire Department Connections on them.
  - AA. Fire extinguishers shall be provided throughout all buildings, including at each loading dock door (in the event of a truck fire).
  - BB. Wet standpipes will be installed where required.
  - CC. Paper faced insulation is prohibited in attics and ventilated spaces. (County Fire Code Section 92.1.706A.1)
  - DD. Roof gutters to be provided with an approved means to prevent accumulation of leaves and litter in gutter (2007 CBC Chapter 7-A and 2007 County Building Code Section 92.1.704A.1.5).
  - EE. Exterior doors shall comply with County Building Code Section 92.1.704A.3.2.3 and CBC Chapter 7-a. Doors shall be of approved non combustible construction, or solid core having stiles and rails not less than 1 3/8" thick with interior field panel thickness no less than 1 1/4" thick, or shall have a fire resistance rating of not less than 20 minutes. Exception; non-combustible or exterior fire retardant treated wood vehicle access doors.
  - FF. Skylights are required to be tempered glass per County Building Code Sec 92.1.704A.1.6.
  - GG. Any decks, exterior balconies, patios and patio covers, unenclosed roofs and floors and similar architectural projections and appendages, are required to be constructed of concrete, approved non-combustible material, approved fire resistant material, or heavy timber, maintain the ignition resistant integrity of the exterior walls, and comply with the County Building Code Wildland Urban Interface requirements, Section 92.1.704A.4 and the 2007 CBC; Chapter 7-A. This appears to include loading docks and canopies. Any

awnings, umbrellas, or covers should be fire retardant or non-combustible. Undersides of appendages and floor projections shall also comply with this section and maintain the ignition resistant integrity of exterior walls. This would appear to include loading docks.

- HH. Sprinkler head deflectors and lighting fixtures shall be so located to assure a 3' clearance from storage, or more if necessary.
- II. No wood fencing within 5' of a building. Wooden gates are allowed if there is 5' of approved, non-combustible fencing installed adjacent to gate as a fire break.
- JJ. Tenant Improvements/Fire Permits: Plans for tenant improvements shall be submitted to the Rural Fire Protection District and the County Department of Planning and Land Use for review and approval prior to occupancy of any original or subsequent tenant. Plans shall include Fire sprinkler plans and calcs, and shall also address all applicable Fire Code requirements and High Piled Stock permit submittal requirements as found in 2007 California Fire Code Chapter 23. Any Fire Permits required by Section 105 of the California Fire Code, shall also be applied for.
- KK. Redundant methods to call 911 should be provided, such as hard line phones and cellular phones.
- LL. Emergency plans: Each tenant should have a bi-lingual Emergency Plan which includes steps for employees to take in an emergency, and makes it clear who is assigned to call 911. Manual fire alarm systems will be provided as needed to alert employees. It is preferred that 911 calls are made by landline rather than cell phone so that the Public Safety Answering point (PSAP) can identify the location of the emergency. 911 calls via cell phone go to the Highway Patrol and the ability to identify the site of emergency is less specific.
- MM. On-site fire lanes shall be identified and posted in a manner acceptable to the Fire District to prevent parking therein. Any truck parking on the streets needs to be controlled so that a minimum 24' wide unobstructed fire lane is maintained.
- NN. All buildings are required to have approved addresses visible and readable from the street. Characters to be 12" high with 1" stroke.

**111.5. Protection for Forklifts and Battery Charging Areas:**

Forklifts and other powered industrial trucks for movement of stock in buildings, and large floor scrubbers, buffers, etc., shall comply with Section 309 of the 2007 CFC and NFPA 505 and 58, and be approved for the use. Forklifts, etc, shall be refueled outside of any building. Refueling areas shall comply with the CFC. Battery charging and storage areas shall have adequate ventilation to avoid any accumulation of Hydrogen gas and shall have spill control for the batteries. Battery systems with over 50 gallons capacity shall also comply with 2007 CFC, Section 608. Battery chargers shall be of an approved type and have 3' clearance from combustibles. The charging area shall have a 4-A, 20-BC Fire Extinguisher within 20'.

**111.6. Protection for Trash Chutes into Buildings:**

Any trash chutes that enter into the building through an opening in the exterior shall have a rated self-closing fire door on the opening and shall have a sprinkler head over the opening. Large trash dumpsters shall also have a 2.5" Fire Department connection on them.

**111.7 HVAC Systems:**

HVAC systems shall have the capability for Firefighters to shut them down in the event of smoke from an external offsite vegetation fire or a fire or hazardous materials event in the area. They shall also have the capacity to manually activate an exhaust feature to remove smoke from a building. The operations panel shall be accessible to Firefighters directly from an exterior door. Door to have sign on exterior; "*HVAC controls inside*". There should be a KNOX key box adjoining the door.

**111.8. High Piled Stock Requirements:**

The high piled stock requirements of the 2007 CFC will be followed. They are found in Chapter 23. Aerosols are covered in Chapter 28. This will include listed smoke vents or an approved smoke removal system if required. Actual requirements will be established by the RFPD and DPLU Fire Marshal. Wet standpipe hose outlets should be provided on the sprinkler system. Sprinkler systems shall be designed for proper protection of the specified commodity. Exterior Firefighter access doors will be provided every 100' around the high piled stock areas. All rack systems to be approved by Building Official and shall meet seismic requirements. Smoke vents shall be openable from roof and from floor of building. Aisle way requirements of Chapter 23 shall also be followed. Separate permits for High Piled Stock shall be obtained from the RFPD. Detailed plans shall be submitted for review and approval prior to occupancy.

**111.9: Hazardous Materials:**

Quantities of any hazardous materials or flammable or combustible liquids must stay below Maximum Allowable Quantities (MAQ) per applicable requirements of the Fire and Building Codes or the occupancy may need to be an H occupancy and will have to comply with intensified requirements in Chapters 27 and 34 of the 2007 CFC. Aerosol storage shall comply with CFC Chapter 28. Spill control and secondary containment will be provided if and where required. NFPA hazard signals will be provided on exterior of building and over the entrance to the storage area where the materials are, when required.

**111.10: Fire Detection and Alarms, Water Flow Alarms, and Monitoring:**

The building fire sprinkler systems, including all valves, and alarm systems will be supervised locally and remotely to an approved monitoring company.

Sprinklers shall have audible/visible alarms on exterior of buildings and interiors. There shall be a sign on exterior of building at the device which states, in bi-lingual language; “*when alarm is activated; call 911*”. The RFPD requires flow-indicating lights on exterior of building for each riser, as previously discussed in this plan.

Zoned graphic annunciators for alarm and sprinkler systems in the major buildings shall be located inside the main entrance to the buildings. KNOX key box shall be provided on exterior of main entrance.

Detailed plans and specifications for the monitoring and alarm systems will be submitted for review of the Fire agencies, when complete.

All detection and fire alarm systems, where required by Section 907 of the 2007 CFC, will comply with NFPA 72 and 2007 CFC Section 907. A Manual fire alarm pull station is to be located at the main fire sprinkler system annunciator panel per NFPA 72 Sec. 6.8.5.1.2.

Any major specialty retail stores need to have public address systems on emergency power and bull horns or other suitable means of making emergency announcements even if power is off. Employees making announcements will need a bi-lingual script to read. Specialty retail stores with an occupant load over 500 persons will need audible visible alarms throughout the building. These are to be activated by fire sprinkler water flow.

**111.11: Exits, Exit Lighting and Emergency/Standby Power:**

Means of egress, including aisles, shall comply with Chapter 10 of the 2007 CFC and the Building Code. Emergency lighting and emergency/standby power systems will be provided for the major buildings where required by the Building Code, and as required by Section 604 and Chapter 10 of the 2007 CFC, and in compliance with applicable portions of NFPA 110. However, any major retail stores, and any large buildings, must have an emergency generator for life safety purposes. The generator should be supplied by LPG, and the generator and LPG tank should be outside of the building and not on the roof. Any emergency generators and their fuel supply must be in a safe location, and not exposed to wildland fire hazards, or vehicular traffic or trash dumpsters. Generator to be powered by diesel or LPG, and meet the appropriate NFPA standard and CFC requirements, and shall not be on a roof. Generator systems must have regular load tests to assure readiness.

Exits and exit-ways shall have bi-lingual exit signage and emergency lighting as/where required by Chapter 10 the Building Code. Exit doors shall have signs on interior and exterior sides: “*Exit door; do not obstruct*” in bilingual words. There must be no delayed egress locks on doors. Paths to exits should be clearly delineated on the floor.

**111.12: Portable Fire Extinguishers:**

Portable Fire Extinguishers are required per 2007 CFC Section 906 and shall be sized and installed per NFPA 10.

Fire extinguishers will be provided in all occupancies, in compliance with the CFC and NFPA 10. Extinguishers will be in cabinets with glass fronts, to discourage theft.

In general, fire extinguishers will be placed and properly mounted 3.5' to 5' above floor, depending on weight, and should provide a maximum travel distance of 75' apart in building aisle ways and paths of travel, actual locations, coverage, and ratings to comply with Chapter 906 of the 2007 CFC.

Additional extinguishers will also be located in storage areas, employee lounges, mechanical equipment rooms, kitchens, and at battery charging areas for industrial trucks. Class "K" extinguishers will be provided in cooking areas where required by 2007 CFC Section 904.

Fire extinguishers will be multipurpose, a dry chemical type with an ABC rating; providing a minimum 2-A, 20 BC rating.

Extinguishers will be serviced and tagged annually by a State licensed service company. Carbon dioxide extinguishers may be utilized in lieu of dry chemical for electrical hazards.

Locations of extinguishers will be well marked with bi-lingual signage at an elevated location in sales areas for visibility.

**111.13: Combustible Decorations, Displays, and Combustible Storage:**

Combustible decorations and interior displays in any specialty retail occupancy shall comply with 2007 CFC Section 314 and Chapter 8. Any combustible decorations or displays must be approved fire retardant and must not intrude on exit ways or obstruct fire protection equipment, extinguishers, etc. Decorations or stock must not be hung from sprinkler heads.

Combustible storage not on displays in a store should be stored in a separate, room with 1 hour rated walls and self closing rated doors. Storage must be kept neatly piled and must not block aisles, exits, exterior cargo doors or fire protection equipment, extinguishers, etc. Any high piled storage must comply with the Fire Code High Piled stock requirements.

There must not be an accumulation of trash, boxes, etc. in aisles, back rooms or around buildings, including under overhangs.

Trash to be removed from buildings daily, at end of work day, and boxes, trash, etc., shall not be stored in any exit ways or aisles.

Interior finishes of buildings will comply with the requirements of the Building Code as to flame spread classes and ratings. In addition, 2007 CFC Section 314 and Chapter 8 will be complied with as to decorative materials.

Drapes, curtains, screens, and other combustible, decorative material, will be flame resistant and bear a label certificate from the State Fire Marshal. Refer to NFPA standard 701 "Standard Methods of Fire Tests for Flame Resistant Textiles and Films".

Fire loading will be controlled by the parameters and limits established in the Fire Code. Loading is inherently limited by size of building, rack design, rack height, storage height limitations, aisle widths, exit ways and type of commodity.

The amount of flammable and combustible liquids and hazardous materials are limited by the Fire Code for non-H occupancies. Aerosols are regulated by 2007 CFC Chapter 28. Relatively high amount of plastics can result in a commodity classification of Plastics Group “A” per 2007 CFC Chapter 23.

Retail stores are classified as “M” occupancies (mercantile) in the 2007 CBC. The Fire Code establishes limits for the flammable liquids, combustible liquids, Hazardous Materials, and aerosols in the M occupancies.

Sprinkler designers shall submit written justification to Fire District for the selected commodity class.

The objective in controlling fire loading should be to not receive an “H” occupancy classification, and to stay within the capabilities of the sprinkler system.

Trash and empty boxes, packing materials, etc., will be removed from buildings daily.

Stock will not be left in aisles of buildings. It will be kept in storage areas until ready for placement on racks or displays. Aisle widths in high piled stock areas shall be maintained per Chapter 23 of the 2007 CFC. Aisle ways throughout stores will not be blocked, and a minimum of 44” clearance will be maintained, including during stocking. Merchandise will be kept on one side of the aisle.

No storage shall exceed allowable limits based on the design of the sprinkler system. Any flammable and combustible liquid storage should be stored at levels of 5’ or less (as close to floor as possible). Any aerosols should be stored on fixed shelving no higher than 8’ and comply with the applicable requirements in 2007 CFC Chapter 28. They will be stored away from highly combustible materials, and will be at least 50’ from exits.

A floor plan showing aisle ways and exit paths to be maintained will be posted in all buildings.

Storage will not be placed within 36 inches of ceiling sprinklers and 36 inches of ceilings or roofs.

**111.14: Hood Systems:**

Any cooking areas where there are grease laden vapors shall have an approved fire extinguishing system as required in 2007 CFC Section 904.11. This shall be a UL 300 wet chemical system, Co2 system, fire sprinklers or other approved system. Class K portable extinguishers shall also be provided per Section 904.11.5.2.CFC.

**111.15: No Smoking Signs:**

As there will be customers, and perhaps workers, from Mexico or other states, bilingual “*No Smoking*” signs must be posted in all buildings.

**111.16: Signs on Exterior Doors:**

Signs stating purpose of room shall be mounted on exterior doors to electrical room, HVAC room, sprinkler riser room, Fire Command Center. For example: “Electrical Panels Inside”.

**111.17: Natural Gas Shutoffs:**

Natural gas meter and shutoff valves to be located outside and include an approved earthquake shut off valve. Meter and valves to be protected by approved crash posts.

**111.18: Solar Photovoltaic Panels:**

Any Photovoltaic/ solar panel arrays located on buildings shall comply with the CALFIRE/ State Fire Marshal Guidelines, and shall provide approved access around panels for firefighters if panels are on roof. They shall also be equipped with warning signs regarding electrical shock potentials, and shall also have protected conduits and approved electrical shutoffs properly designed and in compliance with the Guidelines.

**111.19: Emergency Plan and Equipment:**

There will be an all risk Emergency Plan prepared for each building by the occupant of the particular building in compliance with the CFC, and submitted to the RFPD and San Diego County Fire Authority Fire Marshal for review and approval prior to occupancy. There shall be a designated person in each building, to call 911, make appropriate bi-lingual announcements, and take charge of an emergency until arrival of emergency responders. Note that the preferred method for 911 calls is via landline so that the Public Safety Answering Point (PSAP) can identify location of the site. 911 calls made by cell phone are handled by the Highway Patrol and result in less specific identification of the site location. As a part of this program, there will also be suitable first aid equipment on site and an AED. Personnel will be trained in the use of the AED. There should be at least one employee on duty, or security person, trained to the level of EMT-D.

**111.20: Gates and KNOX Boxes:**

Any security gates shall be at least 24’ wide and comply with the RFPD requirements and the requirements of the San Diego County Fire Authority Fire Marshal for Level 2 industrial gates. Public roads shall not be gated.

Any gates on access roads shall have the following features:

- Battery backup for primary power failure.

- KNOX brand key switches that override all functions and open the gate.
- Minimum vertical clearance to be 13'6".
- Gates shall be of a sliding type and not open vertically.
- Gate to be non-combustible.
- Gates to be posted on each side with signs that state "No Parking- Fire Lane" and which cite California Vehicle Code Section 22500.1.
- Gate to have 50' long, flat, portion of road before the gate to facilitate stopping and parking of a fire truck.
- Traffic trip loop on development side of gate.
- A means to open gate from building side during power failure.
- Detailed plans to be submitted to RFPD Fire Chief and San Diego County Fire Authority Fire Marshal.

Each building shall have a KNOX key box at main entrance. Each major building to also have a Knox data box which includes a floor plan showing exits, sprinkler risers, alarm panels, HVAC control panels, electrical panels, emergency generator controls, gas shutoffs and any roof access ladders/stairs.

**111.21: Fire Prevention Program:**

Proper construction, as well as state of the art systems and safeguards will be utilized in all buildings, to assure reasonable fire safety. However, it will be extremely important to implement an ongoing fire prevention program at the facilities. This program will involve the following components, and would be the responsibility of the occupant.

- Regular inspections of the buildings.
- Assure exterior trash areas and other exterior hazards are controlled.
- Annual fire safety inspections commissioned by the management of the building to assure the following:
  - Ongoing maintenance of exits, exit ways, exit lighting, and aisle ways.
  - Proper separation, quantities and stacking of commodities.
  - Limit over-stocking of sales areas.
  - Clearance of stock below ceilings and sprinklers.
  - Elimination of extension cords, substandard wiring and overloaded circuits.
  - Removal of trash from buildings.
  - Proper and safe maintenance operations.
  - Removal of paint rags and oily rags and flammable or combustible cleaning fluid from buildings.
  - Eliminate flammable decorations, etc.
  - Proper position of sprinkler system valves.
  - Clearance around electrical panels.
  - Integrity of fire separations and doors.
  - Obstruction of fire doors.
  - Cleanliness of warehouse and storage areas.
  - Cleanliness of kitchen cooking equipment and filters.

- Annual inspection and maintenance of fire extinguishers, fire suppression systems, associated valves and connection, and alarm systems.
- Regular inspection and test of emergency generators.
- Prohibition of smoking in building, except in designated areas.

**111.22: Construction Fire Safety, Access, Water Supply, and Temporary Buildings:**

A Construction Fire Safety Plan will be prepared and submitted to the RFPD and the San Diego County Fire Authority Fire Marshal prior to the introduction of any combustible materials onsite. This plan shall address fire truck access to the site and location and access to the construction trailers, fire protection for any trailers, onsite water supply, fuel modification zones, location of hazardous materials and flammable or combustible liquids, dispensing of any fuels, welding, grinding, means to call 911, fire extinguishers, first aid and AED equipment, on duty safety person/EMT, safe smoking areas, and other applicable safety issues.

**111.23: Major Buildings, for example: Exceeding 40,000 square feet:**

- A. Due to size of this type of building, special focus will be needed regarding the fire sprinkler system design and flows, multiple connections to on site water main from street main, location of risers, fire alarm systems and wet standpipes.
- B. Wet standpipes should have a Fire flow to Fire District approval and be located at each firefighter entrance door and elsewhere where needed to keep hose lengths to a maximum of 150'. Flow should be 250 GPM at an approved PSI from each outlet with two outlets flowing.
- C. The lot should be sized to provide 100' clearance around all sides of building, for firefighting operations and exposure protection. The 100' can include roads.
- D. Special attention needs to be paid to the provision of smoke vents or an approved smoke removal or exhaust system, and firefighter controls for HVAC and smoke control or exhaust systems, including a smoke system control panel in the Fire Command Center. Refer to 2007 CFC, Sections 909 and 910.
- E. A Fire Command Center per CFC Section 509 will be needed. A sign will be required on exterior of access door, so that Firefighters know location of Command Center.
- F. Needed Fire flow for sprinklers may be 3530 GPM or more due to the commodities and high piled stock. Actual needed flow and pressure for sprinklers and hand lines to be determined by Fire Sprinkler designer and be to Fire District approval. A Fire pump system may be required in order to provide adequate pressure to sprinklers. This is to be determined by the Fire Sprinkler System designer.
- G. Firewater loop will probably need to be 12" diameter or larger.
- H. Sprinkler heads to have approved protection from damage caused by forklifts, etc.
- I. Emergency lighting and emergency generator needed.
- J. Path to exit doors to be painted on floor.
- K. Firefighter access doors from exterior, every 100 lineal foot around building in the warehouse and distribution center areas.
- L. Approved Firefighter roof access will be needed.

- M. Special focus will be needed regarding graphic, zoned, annunciators, and riser identification and flow indicator lights, to assist Firefighters. Main FACP to be in Firefighter Command Center. A graphic annunciator shall be located inside main, front, door.
- N. Manual pull station fire alarm system, and emergency public address system, is needed for building.
- O. Suitable, RFPD approved, smoke detection system needed such as beam detection, to provide early warning of a fire. The actual requirement will be determined by the RFPD based upon the type of occupancy and operations therein.
- P. Minimum unobstructed driveway and fire lane width of 28 feet needed for aerial ladder Fire Truck operations at times when trucks/trailers are parked at loading docks. Road to be 15' to a maximum of 30' from building and parallel to exterior walls. On site roads to provide needed turning radius at corners to allow operation of Aerial ladder Fire trucks. Actual site plan for on site roads shall be to approval of the Fire District, and shall comply with this plan.

**111.24: RFPD Warehouse Standard:**

Buildings shall also comply with the RFPD Standard for Large Warehouses and Distribution Centers when and where applicable. Requests for consideration of “Same Practical Effect” may be submitted to the Fire Chief at time of detailed building design, when the objective of that standard is met by the recommendations and requirements in this Fire Protection Plan.

**CHAPTER IV. SUMMARY/DISCLAIMER:**

This Conceptual Fire Protection Plan/Technical Report responds to the requirements of the Rural Fire Protection District and the San Diego County Fire Authority Fire Marshal. This plan also complies with the applicable requirements of Chapter 47 of the 2007 CFC, Chapter 7-A of the 2007 CBC, Section 92.1.704A of the County Building Code, Section 4703 and 4707 of the County Fire Code and the 2008 Rural Fire Protection District Fire Code It also serves as a Technical Report for the RFPD. It also includes the recommendations of the consultant based upon the potential risks and the necessary mitigations.

Engineering, architecture, landscape architecture, building design and construction, sprinkler and water system design are out of the scope of this plan and are the responsibility of others.

The author of this plan is not a regulator or approver. Any “shoulds” and recommendations in this plan will be considered to be “shalls” by the RFPD Fire Chief and the San Diego County Fire Authority Fire Marshal, and enforced as such after this plan is approved by the RFPD Fire Chief and the San Diego County Fire Authority Fire Marshal. Detailed access drawings, fire water system plans and calcs, fire sprinkler system and fire alarm system plans and calcs, construction plans, and drawings showing hydrant and FDC locations, shall be submitted to the RFPD Fire Chief for review and approval prior to construction, to demonstrate compliance with this conceptual plan and with all applicable Codes and ordinances.

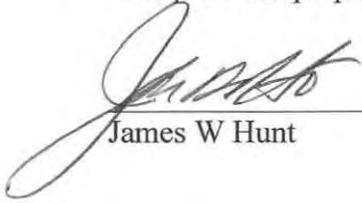
Detailed landscape plans shall be submitted to RFPD Fire Chief and the DPLU and shall demonstrate compliance with this plan.

As fire can be unpredictable and dynamic, this plan cannot guarantee that a fire or other emergency incident will not occur or will not cause damage to property or injury or death to occupants and workers. There are no guarantees made, expressed or implied, regarding the adequacy or effectiveness of any recommendations or requirements in this plan for all fire and emergency situations. However, the Fire Protection concepts proposed in this plan should result in a well-protected development and lessen the impact on the Fire District.

The owner, developer, engineer, architect, landscape architect, contractor, and sprinkler and water system designer, may submit requests to the RFPD and the County DPLU for review and approval of Alternative Materials and Methods which have the same practical effect and equivalency as the concepts, materials and methods required or recommended in this plan.

**CHAPTER 5. LIST OF PREPARERS:**

This plan was prepared by James W Hunt; Hunt Research Corporation.



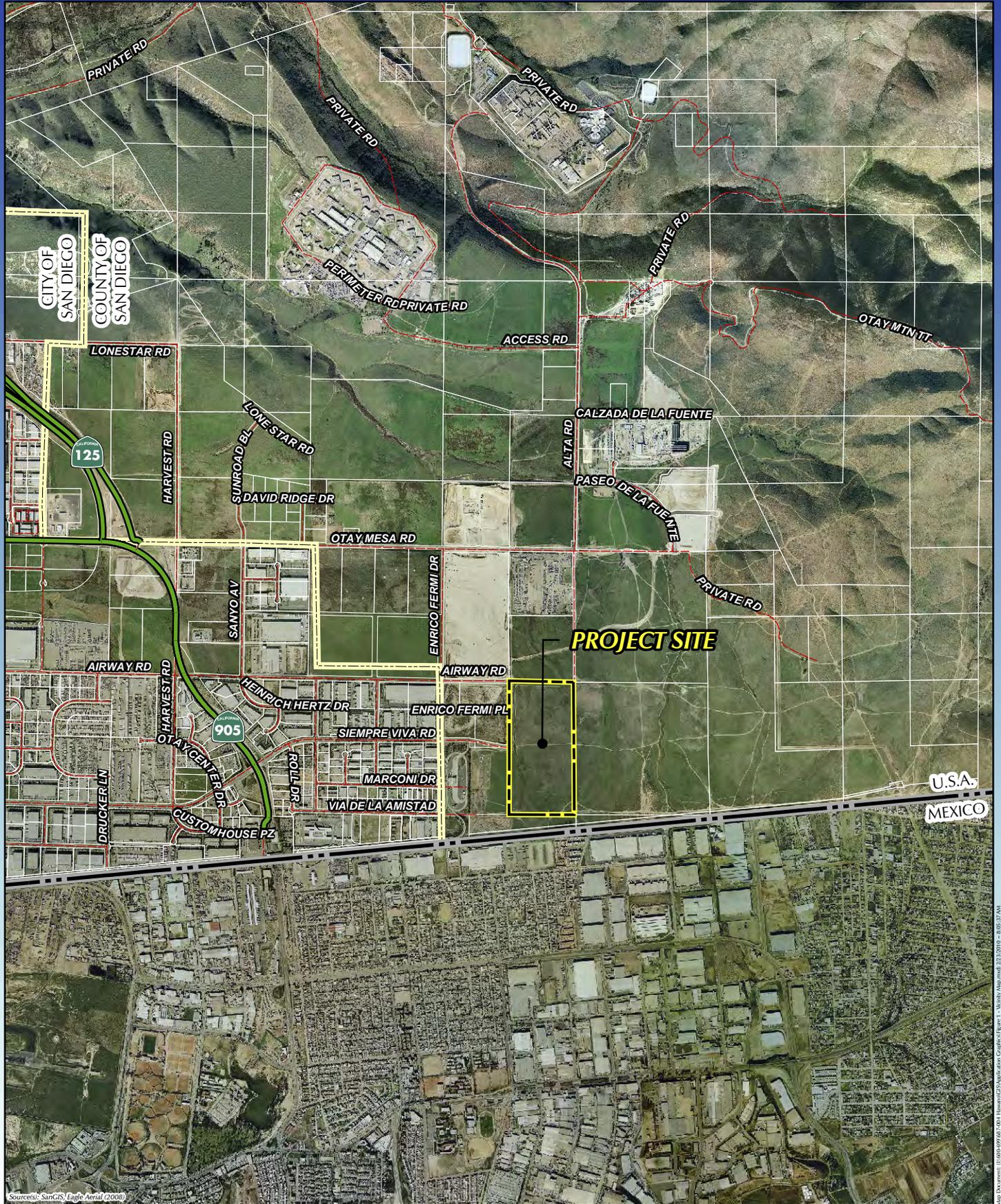
James W Hunt

**TECHNICAL APPENDICES**

- Site Plan/Location Plan
- Aerial Photo
- Biological Resources Map
- Ground Level Photos
- Fire Spread Models
- Form DPLU #399F; Project Facility Availability Form for Fire Protection
- Fire Flow letter from Otay Water District
- Fire Agency letters re: dead end road issue and emergency response.

Site Plan/Location Plan

Aerial Photo of Site, Showing Type of vegetation:



# HAWANO - EAST OTAY

FIGURE 1

DATE: 02/22/2010

**T&B PLANNING**  
 144 West 'D' Street, Suite 12 Encinitas, CA 92024  
 p. 760.456.2300 f. 760.452.2301  
 www.tbplanning.com



## VICINITY MAP

Map Document: 10469569-001-HawanoGIS-Application-Comp-Map-Figure 1\_Vicinity Map.mxd 2/22/2010 8:05:57 AM

Biological Resources Map



Sources: HELIX

FIGURE 3

# BIOLOGICAL RESOURCES MAP

DATE: 02/23/2010

**T&B PLANNING**  
144 West TD Street, Suite 12 Encinitas, CA 92024  
p. 760.458.2300 f. 760.452.2301  
www.tbplanning.com

NOT TO SCALE

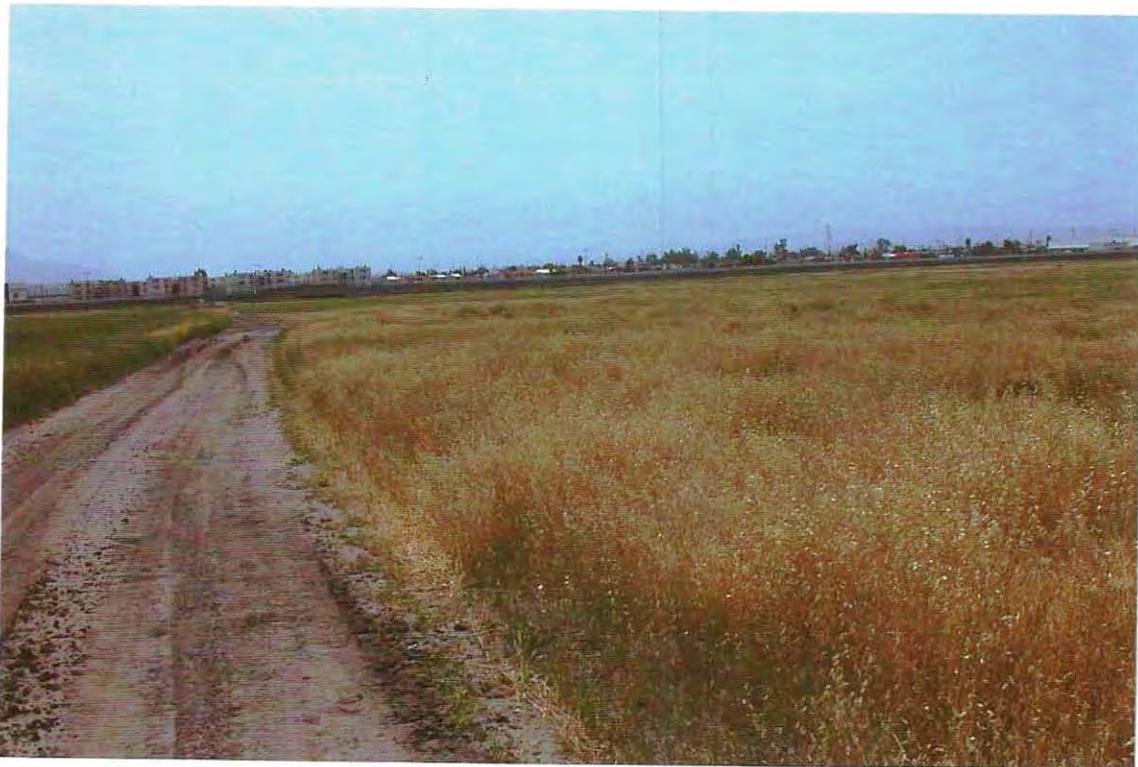


Ground Level Photos of Site

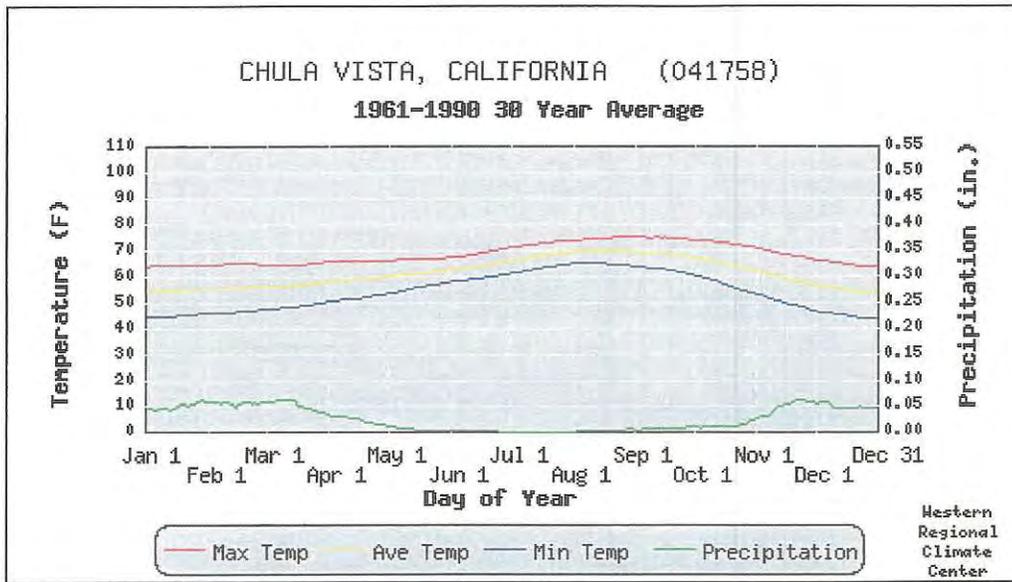
Various site photos



Various site photos:



BEHAVE Fire Spread Models





## Inputs: SURFACE, SPOT, IGNITE

Description	Hawano summer fire	
Fuel/Vegetation, Surface/Understory		
Fuel Model	gr2	
Fuel/Vegetation, Overstory		
Downwind Canopy Height	ft	2
Fuel Moisture		
1-h Moisture	%	3
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	50
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	20
Wind Adjustment Factor		0.4
Air Temperature	oF	95
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	
Spotting Source Location		

## Run Option Notes

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

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

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

Wind is blowing upslope [SURFACE].

## Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]  
(continued on next page)

### Hawano summer fire

Surface Rate of Spread (maximum)	99.6 ch/h
Flame Length	7.9 ft
Spot Dist from a Wind Driven Surface Fire	0.4 mi
Probability of Ignition from a Firebrand	91 %

*1.24 MPH*



Inputs: SURFACE, SPOT, IGNITE

Description		Hawano fall fire
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr2
Fuel/Vegetation, Overstory		
Downwind Canopy Height	ft	2
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	50
Wind Adjustment Factor		0.4
Air Temperature	oF	88
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	
Spotting Source Location		

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].  
 Calculations are only for the direction of maximum spread [SURFACE].  
 Fireline intensity, flame length, and spread distance are always  
 for the direction of the spread calculations [SURFACE].  
 Wind is blowing upslope [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]  
 Flame Length (ft) [SURFACE]  
 Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]  
 Probability of Ignition from a Firebrand (%) [IGNITE]  
 (continued on next page)



### Hawano fall fire

Surface Rate of Spread (maximum)	335.2 ch/h	<i>4.18 MPH</i>
Flame Length	14.1 ft	
Spot Dist from a Wind Driven Surface Fire	1.1 mi	
Probability of Ignition from a Firebrand	100 %	



## Inputs: SURFACE, SPOT, IGNITE

Description	Hawano fall otay fire	
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr2
Fuel/Vegetation, Overstory		
Downwind Canopy Height	ft	2
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	14
Wind Adjustment Factor		0.4
Air Temperature	oF	88
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	
Spotting Source Location		

## Run Option Notes

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

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

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

Wind is blowing upslope [SURFACE].

## Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]  
(continued on next page)

### Hawano fall otay fire

Surface Rate of Spread (maximum)	89.5 ch/h
Flame Length	7.7 ft
Spot Dist from a Wind Driven Surface Fire	0.3 mi
Probability of Ignition from a Firebrand	100 %

*1.11 mph*



Inputs: SURFACE, SPOT, IGNITE

Description	Hawano Harris fire estimates	
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr2
Fuel/Vegetation, Overstory		
Downwind Canopy Height	ft	2
Fuel Moisture		
1-h Moisture	%	1
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	40
Wind Adjustment Factor		0.4
Air Temperature	oF	93
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	
Spotting Source Location		

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].  
Calculations are only for the direction of maximum spread [SURFACE].  
Fireline intensity, flame length, and spread distance are always  
for the direction of the spread calculations [SURFACE].  
Wind is blowing upslope [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]  
Flame Length (ft) [SURFACE]  
Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]  
Probability of Ignition from a Firebrand (%) [IGNITE]  
(continued on next page)

### Hawano Harris fire estimates

Surface Rate of Spread (maximum)	481.9 ch/h
Flame Length	17.8 ft
Spot Dist from a Wind Driven Surface Fire	1.1 mi
Probability of Ignition from a Firebrand	100 %

*6.02 mph*

Form DPLU # 399-F; Project Facility Availability Form for Fire Protection



# PROJECT FACILITY AVAILABILITY FORM

FIRE

Please type or use pen

Inmobiliaria Hawano, S.A. de C.V. 5255-5269-8018 Owner's Name Phone	ORG _____ ACCT _____ ACT _____ TASK _____ DATE _____	<b>F</b>
Avenida Ejercito Nacional 769-A Owner's Mailing Address Street	AMT \$ _____	
Colonia Nueva Granada, D.F. Mexico 11520 City State Zip	DISTRICT CASHIER'S USE ONLY	

## SECTION 1. PROJECT DESCRIPTION

TO BE COMPLETED BY APPLICANT

- A.  Major Subdivision (TM)  Specific Plan or Specific Plan Amendment  
 Minor Subdivision (TPM)  Certificate of Compliance: \_\_\_\_\_  
 Boundary Adjustment  
 Rezone (Reclassification) from \_\_\_\_\_ to \_\_\_\_\_ zone.  
 Major Use Permit (MUP), purpose: \_\_\_\_\_  
 Time Extension... Case No. \_\_\_\_\_  
 Expired Map... Case No. \_\_\_\_\_  
 Other \_\_\_\_\_
- B.  Residential ..... Total number of dwelling units \_\_\_\_\_  
 Commercial ..... Gross floor area \_\_\_\_\_  
 Industrial ..... Gross floor area max. 1,402,196 square feet \_\_\_\_\_  
 Other ..... Gross floor area \_\_\_\_\_
- C. Total Project acreage 80 ac. Total lots 22 Smallest proposed lot 1.32 ac

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

6	4	8	0	7	0	1	7

Thomas Bros. Page 1332 Grid C-3  
 SW corner of Airway Road/Alta Road  
 Project address Street  
 Otay 92154  
 Community Planning Area/Subregion Zip

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

Applicant's Signature: [Signature] Date: 5/11/10  
 Address: 4225 Executive Square, Ste. 920 La Jolla, CA 92037 Phone: (858) 535-9000  
 (On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below.)

## SECTION 2: FACILITY AVAILABILITY

TO BE COMPLETED BY DISTRICT

District name San Diego Rural Fire Protection District

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

- A.  Project is in the District and eligible for service.  
 Project is not in the District but is within its Sphere of Influence boundary, owner must apply for annexation.  
 Project is not in the District and not within its Sphere of Influence boundary.  
 Project is not located entirely within the District and a potential boundary issue exists with the \_\_\_\_\_ District.
- B.  Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is 5 minutes.  
 Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.
- C.  District conditions are attached. Number of sheets attached: \_\_\_\_\_  
 District will submit conditions at a later date.

## SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by the Department of Planning and Land Use.

- Within the proposed project 100 feet of clearing will be required around all structures.  
 The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

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

Authorized signature: [Signature] Print name and title: David Nissen, D.C. Phone: 665-1188 Date: 6-14-10

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:  
 Zoning Counter, Department of Planning and Land Use, 5201 Ruffin Road, Suite B, San Diego, CA 92123

Fire Flow letter from Otay Water District.



2554 Sweetwater Springs Boulevard  
Spring Valley, CA 91978

June 3, 2010

Project No. P1438-030000  
Activity: 3104

Attention: Jim Hunt  
Hunt Research Corporation  
jhunt2@gte.net

SUBJECT: Fire flow calculations for APN: 648-070-17-00  
Alta Rd & Airway Rd *HAWALO*

Dear Mr. Hunt:

Fire flow calculations for the subject site were performed by District Consultant using InfoWATER Version 9.0, under the following assumptions:

- a. The water levels in storage facilities at the time of a fire are approximate to the operating levels that typically occur during a maximum day.
- b. The prescribed *two-hour* fire duration coincides with a maximum day demand condition.
- c. The immediate area around the fire flow node maintains a minimum pressure of 20 PSI.

The results are as follows:

STATIC PRESSURE:	133	PSI ( <i>Based on tanks half full</i> )
RESIDUAL PRESSURE:	127	PSI ( <i>System and fire flow demand of 2,500 gallons per minute</i> )
PRESSURE AT MAXIMUM FLOW	114	PSI ( <i>Maximum fire flow of 4,000 gpm does not exceed District criteria</i> )

Sincerely,

*THE OTAY WATER DISTRICT  
ENGINEERING PUBLIC SERVICES*

Fire Agency letters re: dead end road issue and emergency response



# SAN DIEGO RURAL FIRE PROTECTION DISTRICT

RECEIVED  
JUN 14 2010

June 14, 2010

County of San Diego  
Department of Planning and Land Use  
5201 Ruffin Road, Suite B  
San Diego, CA 92123-1666

Re: APN #648-070-17

Dear Planner,

The following are requirements for the above referenced project.

1. All roads associated with this proposed project shall be constructed to current County Road Standards and improved with AC.
2. Proposed roads within this project shall be named with the proper signage being installed at intersections to the satisfaction of the Fire District and DPW.
3. A 100' hazard reduction zone shall be implemented around all proposed structures. Further a 10' fuel reduction zone shall be developed on both sides of any road or driveway.
4. Hydrants shall be installed every 350' and be capable of delivering 2500 GPM with a 20 psi residual.
5. At signalized intersection the developer shall install pre-emptive traffic devices (Opticom)
6. The developer has produced a Fire Prevention Plan\Technical Report consistent with Chapter 47 of the California Fire Code.

Please call me directly with any questions that you may have.

Sincerely,

David Nissen  
Division Chief



# County of San Diego

**RAYMOND A. FERNANDEZ**  
DEPUTY CHIEF ADMINISTRATIVE OFFICER  
(619) 531-4535  
FAX (619) 232-2436

**PUBLIC SAFETY GROUP**  
734 W. BEECH STREET, SUITE 301, SAN DIEGO, CALIFORNIA 92101

October 1, 2010

County of San Diego  
Department of Planning and Land Use  
5201 Ruffin Road Suite B  
San Diego CA 92123

Attn: Beth Ehsan, project planner

Subj: TM 5566 Hawano Industrial Development  
Consultant Letter - Hunt Research Corporation  
Emergency Travel Time, Dead-End Road Length  
County Fire Marshal response

Please accept the following comments regarding TM 5566 General Plan Conformance – Emergency Travel Time, and Maximum Allowable Dead-end Distance (CCR Title 14 and County Consolidated Fire Code). Our comments are in response to Hunt Research Corporation letter dated September 15, 2010.

**SUMMARY**

In summary, we support the concept that General Plan Emergency Travel Time requirements can be met for the project, although not exactly in the manner described in the letter. The County Fire Authority has a responsibility for insuring consistency throughout the unincorporated County in the way emergency travel time is determined, whether in an urban or rural setting, and whether in a fire district or County Service Area. We will ask the consultant to revise his discussion of the factors involved in demonstrating emergency travel time compliance.

We cannot support the arguments offered in the letter regarding maximum allowable dead-end road length. The project is in State Responsibility Area (SRA) and thus California Code of Regulations Title 14 "SRA Fire Safe Regulations" apply, including specifically section 1273.09. Mr. Hunt, however, contends that the dead-end maximum requirements apply solely to wildland fire areas. The County Consolidated Fire Code adopted virtually identical restrictions on maximum allowable dead-end distance throughout the jurisdiction, and has officially clarified that the intent is to facilitate effective movement of civilians and necessary access for fire, EMS and law enforcement in disasters such as earthquake, flood or wildfire.

**GENERAL PLAN EMERGENCY TRAVEL TIME JUSTIFICATION REVISION**

We would be happy to work with the consultant in developing text supporting the General Plan emergency travel time conformance based on multiple points, including existing and future fire stations all within approximately five-six minutes travel time, the need for multiple fire companies early in a commercial or industrial fire, the availability of EMS services from those companies, the generally wide fire access roadways with limited friction points along the access route, high driver visibility along fire response routes, higher posted speeds, and related factors.

Computation of emergency vehicle travel time should be based on NFPA 1142 Table C.11.b with its additional factor for heavy fire apparatus acceleration and braking, and not based solely on posted speed limits. However given the factors listed above, a higher average speed could be supported. We will work with the consultant in making those travel time determinations in a manner consistent with other projects County jurisdiction-wide.

**MAXIMUM DEAD-END DISTANCE RESOLUTION**

Maximum allowable dead-end distance for projects zoned less than one acre is 800 feet. Estimated dead-end distance to the most remote project site is roughly 2000 feet. Dead-end distance restrictions are established for a number of public safety reasons as outlined above. We have been advised that project engineers have determined that extension of the internal road northward to east-west Airway Drive is not feasible. If that is the case, the only solution seen by County Fire Authority staff and Department of Planning and Land Use staff is to extend Via de la Amistad eastward from its current termination approximately 700 feet to connect with project roads.

The off-site connecting road (Via de la Amistad) would be required to meet fire code minimum requirements of 24 foot improved, paved width on 28 foot graded, and not be gated or otherwise obstructed.

Please let me know if you would like to have me contact the consultant and assist in revision of comments as discussed above.



Paul Dawson, Fire Marshal  
County Fire Authority - Public Safety Group  
County of San Diego

- c: Fire Chief Dave Nissen, San Diego Rural Fire Protection District  
Fire Marshal Cal Hendrie, San Diego Rural Fire Protection District



# SAN DIEGO RURAL FIRE PROTECTION DISTRICT

RECEIVED  
NOV 16 2010  
DPLU - PPCC

November 9, 2010

Ms. Beth Ehsan  
County of San Diego Department of Planning and Land Use  
5201 Ruffin Road, Suite B  
San Diego, CA 92123-1666

Re: Hawano Project Findings

Dear Ms. Ehsan:

The purpose of this letter is to clearly define the Fire District's position with regard to over dead end road length for the Hawano Tentative Map (TM5566) located within the East Otay Mesa Specific Plan Area. Please accept the following findings which meet County Consolidated Fire Code Appendix Chapter 1 section 104.8 "Modifications".

1. The special individual reason that makes strict application of the maximum dead-end distance impracticable is that the connecting road (Via de la Amistad) which would make project roads code-compliant traverses government-owned property.
2. The proposed road widths associated with this project are at 64 foot improved. This is more than three times the minimum requirement outlined in the state Code Title 14 (18 foot improved width) and twice the County Consolidated Fire Code minimum. By implementing this proposed wider width, civilian egress and fire apparatus ingress are both accommodated without any life safety issues or response time delays.
3. The vegetation present, which is consistent throughout most of the EOMSPA, is non- native grass and approximately 3' in height. Further, there is very little slope associated with the proposed development. This type of vegetation in a coastal atmosphere only has the ability to produce flame lengths of 13 feet in a "Santa Ana" type fire situation. Therefore, the project does not pose itself as a risk to the effects of Wildland fire. Further, we find that the modification does not lessen health, life and fire safety for the project area.

Please call me directly with any questions that you may have.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Nissen', is written over a horizontal line.

David Nissen  
Division Chief



# County of San Diego

PUBLIC SAFETY GROUP

RAYMOND A. FERNANDEZ  
DEPUTY CHIEF ADMINISTRATIVE OFFICER  
(619) 531-4535  
FAX (619) 232-2436

734 W. BEECH STREET, SUITE 301, SAN DIEGO, CALIFORNIA 92101

November 16, 2010

County of San Diego  
Department of Planning and Land Use  
5201 Ruffin Road Suite B  
San Diego CA 92123

Attn: Beth Ehsan, Project Planner

RE: TM 5566 Hawano  
San Diego Rural Fire Protection District  
Code modification "findings" by FAHJ  
**Acceptance of "findings"**

Please accept the following comments regarding the referenced project.

We have reviewed a letter dated November 9, 2010 from Dave Nissen, Fire Division Chief for San Diego Rural Fire Protection District documenting his "findings" regarding modification of County Consolidated Fire Code (CCFC) section 503.1.2 "Dead-end Roads".

Consistent with CCFC Appendix Chapter 1 section 104.8, Chief Nissen identifies a special individual reason that makes strict application of the identified section impracticable, several mitigating factors, and a statement that the modification does not lessen health, life and fire safety for the project area.

We concur with his "findings".

Paul Dawson, Fire Marshal  
San Diego County Fire Authority  
Public Safety Group

c: Cal Hendrie, Fire Marshal, San Diego Rural Fire Protection District  
Dave Nissen, Fire Division Chief, San Diego Rural Fire Protection District