

**COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT**

DATE: July 12, 2017

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration of a Coastal Development Permit, Use Permit, Variance, Design Review Permit, Grading Permit, and a Minor Subdivision to subdivide an undeveloped 2.7-acre parcel into two lots of 0.31 acres (Parcel A) and 2.38 acres (Parcel B) and construct a new 12,425 sq. ft. fire station on Parcel B to replace existing Fire Station 41, located at the corner of Obispo Road and Coronado Street in the unincorporated area of El Granada. The project is appealable to the California Coastal Commission.

County File Number: PLN 2016-00346 (Coastside Fire Protection District)

PROPOSAL

The Coastside Fire Protection District (CFPD) is proposing to subdivide a legal, undeveloped 2.7-acre, split-zoned parcel located at the corner of Obispo Road and Coronado Street in El Granada into two lots of 0.31 acres (Parcel A) and 2.38 acres (Parcel B) and construct a new 12,425 sq. ft. single-story, three-apparatus bay fire station on the newly created Parcel B; no development is planned on proposed Parcel A. The subdivision would result in proposed Parcel A maintaining the zoning designation of C-1/S-3/DR/CD (Neighborhood Business/5,000 sq. ft. lot minimum/Design Review/Coastal Development) and proposed Parcel B maintaining the zoning designation of EG/DR/CD (El Granada Gateway/Design Review/Coastal Development).

The project includes 10,310 cubic yards (c.y.) of grading (including 10,150 c.y. of cut and 160 c.y. of fill) and the removal of ten (10) trees, of which 4 (Monterey pine) require a permit to remove. The proposed development requires the construction of a 17-foot tall retaining wall along the cut side of the sloped project site. Other proposed site improvements include the installation of an emergency generator, above ground diesel fuel tank, garbage receptacles, a flag pole, and roof-mounted communications antenna, along with drought-tolerant landscaping and permanent onsite stormwater treatment measures.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit, Minor Subdivision, Use Permit, Variance, Design Review, and Grading Permit, PLN 2016-00346, by making the required findings and adopting the conditions of approval in Attachment A.

SUMMARY

The proposed fire station will replace the existing 50-year-old fire station located approximately 600 feet northwest of the subject parcel, at 531 Obispo Road, with new facilities that are safe, modern, and adequately sized to allow the Coastside Fire Protection District (CFPD) to meet current and future service demands from the community for the next 50 years.

Pursuant to the Zoning Regulations, the applicant is seeking a Use Permit to allow the location of a public service use in the EG (El Granada Gateway) Zoning District based on the conclusion that the project, as proposed and conditioned, will not result in a significant adverse impact to coastal resources, or be detrimental to the public welfare or injurious to property or improvements in the neighborhood.

The applicant is seeking a Variance from the minimum parcel size, minimum front and rear setbacks, maximum building and wall heights, maximum lot coverage, and maximum sign regulations as set forth in the applicable Zoning Regulations. The parcel's unique size (i.e., substandard sized parcel with split-zoning), shape (i.e., narrow, elongated parcel abutting four public roads), and topography (i.e., 15-19% slope with drainage channel and riparian corridor running through center) make it infeasible to develop the fire station in compliance with all applicable Zoning Standards.

Additionally, an exception from the subdivision regulations is being requested to allow the parcel size for proposed Parcel B to be less than required by the Zoning District as the acquisition of contiguous parcels is not reasonably feasible due to existing adjacent Zoning (C-1) and development (residential), the subdivision will eliminate the inadvertent creation of a split-zoned parcel, and provide an opportunity for better utilization of the commercially zoned portion of the parcel for future development while resulting in no change to the application of Zoning Development Standards.

The CFPD prepared, circulated, and certified an Initial Study (IS) and Environmental Impact Report (EIR) for the project, acting as lead agency pursuant to the California Environmental Quality Act (CEQA). The IS and EIR concluded that the project, as proposed and mitigated, will not have a significant adverse impact on the environment. Upon analysis of potential project impacts through the IS and EIR, it was determined that the project would have the potential to generate temporary increases in air pollutants from construction activities and vehicle exhaust and inadvertent impacts to wildlife species. Adopted mitigation measures from the EIR to reduce these potentially significant impacts to a less than significant level are included as conditions of project approval in Attachment A.

**COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT**

DATE: July 12, 2017

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SUBJECT: Consideration of a Coastal Development Permit, Use Permit, Variance, and Design Review Permit, pursuant to Sections 6328.4, 6500, 6530, and 6565.3, respectively, of the San Mateo County Zoning Regulations, a Grading Permit, pursuant to Section 9283 of the County Ordinance Code, and a Minor Subdivision, pursuant to Section 7010 of the County Subdivision Regulations, to subdivide an undeveloped 2.7-acre parcel into two lots of 0.31 acres (Parcel A) and 2.38 acres (Parcel B) and construct a new 12,425 sq. ft. fire station on Parcel B to replace existing Fire Station 41, located at the corner of Obispo Road and Coronado Street in the unincorporated area of El Granada. The project is appealable to the California Coastal Commission.

County File Number: PLN 2016-00346 (Coastside Fire Protection District)

PROPOSAL

The Coastside Fire Protection District (CFPD) is proposing to subdivide a legal, undeveloped 2.7-acre, split-zoned parcel located at the corner of Obispo Road and Coronado Street in El Granada into two lots of 0.31 acres (Parcel A) and 2.38 acres (Parcel B) and construct a new 12,425 sq. ft. single-story, three-apparatus bay fire station on the newly created Parcel B; no development is planned on proposed Parcel A. The newly created dividing property line for the minor subdivision is proposed to follow the zoning boundary line that splits the zoning of the existing legal parcel; thus, the land area of Parcel A (0.31 acres) will maintain the Zoning Designation of C-1/S-3/DR/CD (Neighborhood Business / 5,000 sq. ft. lot minimum / Design Review / Coastal Development) and the land area of Parcel B (2.38 acres) will maintain the Zoning Designation of EG/DR/CD (El Granada Gateway / Design Review / Coastal Development).

The new Fire Station 41 will replace the existing 4,000 sq. ft. Fire Station 41 that is located at 531 Obispo Road in El Granada, approximately 600 feet northwest of the project site. The new fire station will include three drive-through apparatus bays, staff living quarters (14 beds), and training rooms. Two new driveways will be installed along Obispo Road to provide drive-through access for the fire apparatus bays and to provide access to 16 onsite parking spaces for staff and public use. The northwest driveway would provide exclusive use as an exit for firefighting and emergency vehicles. A new

pedestrian sidewalk extending the length of the project improvements along Obispo Road, along with a paved walkway, stairs, and an ADA-Compliant ramp leading to the entrance of the fire station building will be provided.

The project includes 10,310 cubic yards (c.y.) of grading (including 10,150 c.y. of cut and 160 c.y. of fill) and the removal of ten (10) trees consisting of 6 Monterey pine (*pinus radiata*), 1 blue gum (*eucalyptus globulus*), 1 acacia (*acacia longifolia*), and 2 black acacia (*acacia melanoxylon*), of which 4 (Monterey pines) are considered “Significant Trees” (measuring 38 inches or greater in circumference) and regulated under the County’s Significant Tree Ordinance. One of the 4 significant trees was reported to be dead by Kielty Arborist Services, LLC. The proposed development requires the construction of a 17-foot tall retaining wall along the cut side of the sloped project site that will abut the east side wall of the proposed building and taper down with the natural sloped grade towards Obispo Road.

Other proposed site improvements include the installation of an emergency generator, above ground diesel fuel tank, garbage receptacles, a flag pole, and roof-mounted communications antenna, along with drought-tolerant landscaping, retaining walls, and permanent onsite stormwater treatment measures.

Construction of the new fire station is expected to last a total duration of 15 months, with site preparation (i.e., grading, utility trenches, retaining walls) lasting two-months. Grading and site preparation work hours will be limited to the hours of 7:00 a.m. to 4:00 p.m. Monday through Friday. The existing Fire Station 41 located at 531 Obispo Road will remain operational at all times during proposed construction. Upon completion of the new fire station, operation of the existing station would cease and transfer to the new station. The new station would continue to operate with existing staff at levels equivalent to the existing station.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit, Minor Subdivision, Use Permit, Variance, Design Review, and Grading Permit, PLN 2016-00346, by making the required findings and adopting the conditions of approval in Attachment A.

BACKGROUND

Report Prepared By: Summer Burlison, Project Planner; 650/363-1815

Owner/Applicant: Coastside Fire Protection District

Location: Obispo Road at Coronado Street, El Granada

APN: 047-261-030

Size: 2.7 acres

Existing Zoning: EG/DR/CD (El Granada Gateway/Design Review/Coastal Development) and C-1/S-3/DR/CD (Neighborhood Business/5,000 sq. ft. lot minimum/Design Review/Coastal Development)

General Plan Designation/Local Coastal Program Designation: Open Space with Park Overlay and Neighborhood Commercial, respectively

Sphere-of-Influence: City of Half Moon Bay

Existing Land Use: Undeveloped

Water Supply: The project will require water service from the Coastside County Water District (CCWD). According to letters issued by the CCWD, dated August 31, 2016, the proposed project may require a water main line extension as the nearest available water main is in Avenue Portola. Additionally, the CFPD will need to acquire sufficient water capacity (via purchase or transfer) for the project as there are no installed or uninstalled water service connections to the subject parcel.

Sewage Disposal: The project will require sewer service from the Granada Community Services District (GCSD). According to a letter issued by the GCSD, dated October 21, 2016, the proposed project may require a Sewer Service Variance, a Rural Zone Sewer Connection Determination, and a Sewer Connection Permit from the GCSD.

Flood Zone: Zone X (area of minimal flood), FEMA Community Panel 06081C0140E and 06081C0138E, effective October 16, 2012

Environmental Evaluation: An Initial Study and Draft Environmental Impact Report (EIR) were prepared and circulated for a 30-day public review period by the CFPD, acting as the lead agency pursuant to Section 15051 of the California Environmental Quality Act (CEQA). San Mateo County participated as a responsible agency during the environmental review process. The CFPD Board of Directors certified the Final EIR on April 26, 2017. A Notice of Determination was filed with the San Mateo County Clerk on May 1, 2017. A copy of the Initial Study, Draft, and Final EIR is available online at <http://planning.smcgov.org/fire-station-41-el-granada-replacement-project>. All adopted mitigation measures from the certified EIR have been incorporated as condition of approval in Attachment A.

Setting: The project parcel is a narrow, oblong-shaped undeveloped 2.7-acre parcel located east of Cabrillo Highway (State Route 1) in the unincorporated community of El Granada. The parcel is bounded by Avenue Alhambra to the southeast, Coronado Street to the south, Obispo Road to the west, and Avenue Portola to the north. The project site area has an average downward slope of 15% toward the Pacific Ocean with an approximate 25-foot drop in elevation from east (Avenue Alhambra) to west (Obispo Road). Just northwest of the center of the parcel is a natural drainage channel surrounded by dense riparian vegetation approximately 200 feet in width, according to a Riparian Setback Analysis completed by TRA Environmental Sciences, Inc., dated August 7, 2014. The proposed project will occur on the southeast portion of the project

parcel which consists of ruderal uplands dominated by weedy vegetation, pursuant to a Preliminary Environmentally Sensitive Habitat Areas Assessment completed by WRA Environmental Consultants dated April 16, 2015. A total of 10 non-native trees including Monterey pine, blue gum eucalyptus, and acacia trees are in the project area and are proposed for removal to accommodate the project. The northwest portion of the project parcel, on the north side of the drainage channel, is relatively flat.

Surrounding land uses include single- and multi-family residential uses to the north and east; the Wilkinson School (private K-8) to the southeast (across Coronado Street); commercial uses to the northwest (across Avenue Portola); and undeveloped land to the west (across Obispo Road), of which a portion is used for informal beach parking.

History/Operation: The CFPD provides emergency services to the City of Half Moon Bay and the unincorporated communities of Montara, Moss Beach, Princeton, El Granada, and Miramar from three fire stations in the mid-coast area of San Mateo County (Half Moon Bay, El Granada, and Moss Beach).

In February 2014, a Fire Station Relocation Study was prepared for the CFPD to evaluate its response time coverage options for replacing two of its mid-coast fire stations, including the subject Fire Station 41 (El Granada) which is approximately 50 years old. Based on the Relocation Study, the existing Station 41 was found to be too small to meet near-term needs of the CFPD. A facility assessment found that it would not be cost-effective to substantially remodel the existing station given that the existing corner-lot station is on a small (12,455 sq. ft.) parcel that could not support the modifications necessary to sufficiently accommodate modern firefighting apparatus. The existing station requires trucks to back into the station which presents logistic and safety challenges on a corner lot. Additionally, the existing station, being over 50 years old, was not designed as an Essential Service Facility pursuant to the Essential Services Buildings Seismic Safety Act of 1986 and therefore is not capable of withstanding a significant seismic event. Thus, the CFPD is seeking to construct a new fire station that is in compliance with current building and seismic safety codes, can meet the response times necessary for the service area, and can accommodate modern equipment and apparatus. Furthermore, an evaluation of response time coverage options for replacing Fire Station 41 determined that the response times in the central District service area currently served by the existing Fire Station 41 could be maintained, or slightly improved, if the station was relocated to a new site in the same general vicinity as the existing site.

Existing operations and staffing of Fire Station 41 are not expected to increase or change in the near future. After project completion, the new Fire Station 41 would continue to be staffed by three companies (or full staffed shifts) of firefighters with each company consisting of 3 firefighters; however, long-term increases in residential and visitor populations over the next 50 years would result in increased demand for additional fire protection and public safety services. The new fire station would allow CFPD to adequately serve future populations by providing space for new fire apparatus and sufficient accommodations to house an additional company (consisting of three firefighters) if and when required. Furthermore, the new Fire Station 41 would be able

to accommodate necessary apparatus and equipment, including a 34-foot fire engine, a 42-foot truck, and a 39-foot heavy rescue vehicle.

Chronology:

<u>Date</u>	<u>Action</u>
June 30, 2015	- Initial Study and Notice of Preparation of an Environmental Impact Report (EIR) issued by the Coastside Fire Protection District (CFPD) for a 30-day public review period.
July 16, 2015	- Combined County Pre-Application Public Workshop, PRE 2015-00029, and CFPD EIR Scoping Meeting held at the El Granada Elementary School.
August 19, 2015	- Recordation of a Certificate of Compliance, Type A, PLN 2015-00019, legalizing the project parcel (APN 047-261-030).
August 16, 2016	- Coastal Development Permit (CDP), Minor Subdivision, Use Permit, Design Review, Variance, and Grading Permit applications filed with the County, PLN2016-00346.
December 2, 2016	- Draft EIR issued by CFPD commencing a 45-day public review period starting December 2, 2016 and ending at 5:00 p.m. on January 19, 2017.
January 11, 2017	- Planning Commission hearing to introduce CFPD's Draft EIR during the 45-day public review period; informational item only.
January 18, 2017	- CFPD Board of Directors' hearing to receive public comments on the Draft EIR.
April 26, 2017	- Certification of the Final EIR by the CFPD Board of Directors' at a public meeting.
May 1, 2017	- Notice of Determination filed with the San Mateo County Clerk.
July 12, 2017	- Planning Commission hearing.

DISCUSSION

A. KEY ISSUES

1. Conformance with the General Plan and Montara-Moss Beach-El Granada Area Plan

Staff has reviewed and determined that the project complies with all of the applicable General Plan Policies and Area Plan Policies, including the following:

a. Vegetative, Water, Fish and Wildlife Resources Policies

Policy 1.23 (*Regulate Development to Protect Vegetative, Water, Fish, and Wildlife Resources*), Policy 1.24 (*Regulate Location, Density and Design of Development to Protect Vegetative, Water, Fish and Wildlife Resources*), Policy 1.26 (*Protect Water Resources*), Policy 1.27 (*Protect Fish and Wildlife Resources*); and the applicable *Sensitive Habitat Policies*, including Policy 1.28 (*Regulate Development to Protect Sensitive Habitats*) and Policy 1.29 (*Establish Buffer Zones*) seek to regulate land uses and development to prevent, or mitigate to the extent possible, significant adverse impacts on vegetative, water, fish and wildlife resources.

The undeveloped project site is described in a habitat assessment prepared by WRA Environmental Consultants (see Attachment F) as consisting of ruderal uplands dominated by weedy vegetation. A drainage channel that supports culverted uphill water daylights on the project parcel, running through the approximate center of the parcel before culverting under Obispo Road and Cabrillo Highway (State Route 1) and out-falling to the Pacific Ocean. The drainage channel supports riparian vegetation consisting predominantly of arroyo willow with dense understory vegetation comprised of silk tree mimosa, English ivy, garden nasturtium, and cape ivy. In compliance with the Sensitive Habitats Component of the County's Local Coastal Program (LCP), the project site area of disturbance will be located beyond the required 50-foot buffer zone from the delineated edge of riparian habitat.

The habitat assessment (WRA, 2015) shows riparian habitat along a second drainage channel on the west side of Obispo Road, across from the project parcel and more specifically across from the proposed Parcel A (which is not being proposed for development); however, the required 50-foot buffer zone from the delineated edge of riparian habitat along both the on-site drainage channel near the center of the existing parcel and this secondary drainage channel across the

roadway would not adversely impact the potential for future development of the proposed Parcel A.

A review of the California Natural Diversity Database (CNDDDB) discovered documented locations of two special-status wildlife species, California red-legged frog (CRLF) and San Francisco garter snake (SFGS), as close as 0.6 miles from the project site; however, their locations are disconnected with the project area. The Habitat Assessment (WRA, 2015) concluded that there was no suitable habitat or corridors to support CRLF or SFGS on the project site due to the surrounding built-out environment of El Granada, including surrounding high density residential development and roadways boarding the project site. Nonetheless, standard avoidance and minimization measures for CRLF and SFGS, including appropriate exclusion fencing and pre-construction surveys, were imposed as mitigation under the project EIR and have been included as recommended conditions of approval in Attachment A.

The project will require the removal of ten (10) trees scattered throughout the project area in order to accommodate the proposed fire station. Four (4) Monterey pines proposed for removal are regulated under the County's Significant Tree Ordinance due to their size (i.e., circumference of 38 inches or greater) and therefore require a permit for removal, which CFPD seeks under the subject project application. One (1) of the four (4) Monterey pines was reportedly dead according to Kieilty Arborist Services, LLC.

Tree #	Species	Trunk DBH*	Condition
1	Monterey pine (<i>Pinus radiata</i>)	9.2	Poor vigor, poor form, eastward lean, bark beetle on trunk, pine pitch canker
2	Monterey pine (<i>Pinus radiata</i>)	30^	Poor vigor, poor form, large failed leader and limbs, bark beetle at base
3	Blue gum (<i>Eucalyptus globulus</i>)	6.5	Fair vigor, fair form, volunteer
4	Monterey pine (<i>Pinus radiata</i>)	30.6^	Dead
5	Monterey pine (<i>Pinus radiata</i>)	20.9^	Poor vigor, poor form, in decline, large failed limbs, bark beetle
6	Monterey pine (<i>Pinus radiata</i>)	9.2	Good vigor, fair form, shares root zone with #7
7	Monterey pine (<i>Pinus radiata</i>)	26.9^	Poor-fair vigor, poor form, codominant at 3 ft., bark beetle

8	Acacia (<i>Acacia longifolia</i>)	4.2	Fair vigor, poor form, largest trunk of several
9	Black acacia (<i>Acacia melanoxylon</i>)	11.3	Poor-fair vigor, poor form, trunk bends south
10	Black acacia (<i>Acacia melanoxylon</i>)	8.1	Fair vigor, poor form, trunk bends south, one of several
* DBH (Diameter at Breast Height) refers to the trunks' diameter measured at 4.5 ft. above ground.			
^ Significant Tree pursuant to the County's Significant Tree Ordinance.			

The trees proposed for removal are not considered to be a significant loss as they are determined to be in declining health with poor form, poor vigor, failed leaders and limbs, bark beetle, and pine pitch canker (Kielty, 2015). Nonetheless, proposed tree and vegetation removal could result in the inadvertent loss of bird nests in active use on the project site, which would be considered a significant impact as nesting birds are protected under the Migratory Bird Treaty Act and California Department of Fish and Wildlife Code. The certified project EIR includes mitigation requiring appropriate scheduling of demolition, grading, and construction activities and/or pre-construction surveys to mitigate any potential impacts to bird nests in active use. These adopted mitigation measures are included as recommended conditions of approval in Attachment A.

Furthermore, the applicant proposes to install new landscaping that includes native and/or drought-tolerant plants in all remaining areas of disturbance and replacement trees at a minimum 1:1 replacement ratio for the regulated significant trees proposed for removal.

b. Soil Resources Policies

Policy 2.17 (*Regulate Development to Minimize Soil Erosion and Sedimentation*) and Policy 2.23 (*Regulate Excavation, Grading, Filling, and Land Clearing Activities Against Accelerated Soil Erosion*) seek to minimize grading, soil erosion, and sedimentation including by ensuring disturbed areas are stabilized and protecting and enhancing natural plant communities and nesting and feeding areas of fish and wildlife.

The elevation difference between the lower (Obispo Road) side of the property and upper (Avenue Alhambra) side of the property is approximately 25 feet. Due to the natural sloped topography of the project site and proposed design to build the fire station into the slope to minimize visual impacts of the building from public views uphill from the project site, 10,310 cubic yards (c.y.) of grading is proposed, including 10,150 c.y. of cut to be exported offsite and approximately

160 c.y. of fill from onsite excavation work. Onsite retaining walls will be constructed to support the excavated building site. A geotechnical report for the project has been reviewed and approved by the County's Geotechnical Section for the proposed grading work. Additionally, the applicant has provided a Stormwater Management Plan and Erosion Control Plan, prepared by BKF Engineers, that includes measures such as inlet protection, fiber rolls, a stabilized construction entrance off of Obispo Road, and revegetation for final site stabilization; along with onsite bio-retention areas for permanent stormwater treatment. Furthermore, the applicant will implement dust control measures such as covering haul trucks transporting soil or other loose material, watering exposed surface areas daily, and ensuring roadways are kept clean from mud and dirt tracks.

c. Visual Quality Policies

Policy 4.15 (*Appearance of New Development*), Policy 4.21 (*Utility Structures*), and Policy 4.36 (*Urban Area Design Concept*) of the General Plan; and Policy 7.2 (*Preserving Community Character*) of the Montara-Moss Beach-El Granada Area Plan seek to promote and enhance good design, site relationships and other aesthetic considerations to maintain community character and ensure that new development is compatible with the residential community in terms of scale, size and design; minimize the adverse visual quality of utility structures; and ensure that new development is designed and constructed to contribute to the orderly and harmonious development of the locality.

The project parcel is a narrow, elongated, undeveloped 2.7-acre parcel bounded by Obispo Road to the west, Coronado Street to the south, Avenue Alhambra to the east, and Avenue Portola and single and multi-family residential developments to the north. One, two and three-story single and multi-family residential development is located along the northeastern property line with the closest residential development to the project site being a three-story multi-family residential building located approximately 8 feet higher in elevation than the proposed finished floor for the fire station will be (see Attachment D for photo-simulations). Additionally, single-story single-family residences are located uphill, across Avenue Alhambra, from the project site. Residential development in the area consists of a mix of older one, two, and three-story wood and stucco-sided buildings with low-pitched gable, hip, and flat roofs.

The proposed fire station will be a single-story, gable-roof building with three (3) drive-through bays (inner side of property) to accommodate fire apparatus. The building will be 30 feet from finished grade at its highest point at the center of the bays in order to accommodate the

height of fire trucks and equipment with the remaining building being no more than 18 feet in height. The site and building have been designed so that the drive-through bay roof will only extend approximately 14 feet above Avenue Alhambra, the adjacent upland public roadway to the project site, in order to minimize view obstructions from this public roadway towards the lower Pacific Ocean. The building's height, as viewable from Avenue Alhambra, is well below the adjacent and nearby two and three-story single and multi-family residential buildings located along Avenue Alhambra.

The new fire station building will employ exterior materials that include stone veneer, cement-treated siding, and cement tile roof shingles all of earth-toned colors. Enclosures for the on-site generator, fuel tank, and trash receptacle areas will be consistent in appearance to the main fire station building.

The proposed fire station building has been designed to reflect a "human" scale and pedestrian-oriented appearance; its low profile, existing intervening riparian vegetation on the downhill parcel across Obispo Road, and the building's location on the project parcel being set back from the corner intersection of Coronado Street and Obispo Road, and cut into the slope, make it minimally visible from the surrounding roadways, including Cabrillo Highway (State Route 1).

Due to the excavation necessary to place the building at a lower elevation to minimize view impacts from uphill public views towards the ocean, a 17-foot tall retaining wall is proposed along the (east) cut side of the sloped project site. The wall will abut the east side wall of the proposed building and taper down with the natural sloped grade towards Obispo Road. Exposed portions of the wall, which would be visible from Obispo Road will have a natural rock/stone finish. The top of the wall will be at or below the street elevation of Avenue Alhambra.

A 6-foot tall fence would be installed in the parking lot area to create a secured staff and emergency vehicle parking area onsite. Additionally, a 30-foot tall flag pole would be installed onsite and roof mounted emergency communication antennas, similar in height and appearance as on the existing fire station building. Lighting for paths, entranceways, and outdoor areas would be shielded and directed downward to prevent glare and reflection onto neighboring areas and all exterior fixtures will be rated "Dark Sky" compliant.

Furthermore, the commercially-zoned portion of the project parcel proposed to be subdivided into Parcel A abuts the local post office to the east and the existing single-story fire station and other commercial buildings directly across Avenue Portola. Any future commercial

development on this parcel would be subject to separate review and no development is currently proposed in this area.

d. Historical and Archaeological Resources Policies

Policy 5.20 (*Site Survey*) and Policy 5.21 (*Site Treatment*) require that appropriate precautions be taken to avoid damage to historical or archaeological resources.

A records search for historical resources on the undeveloped project parcel was conducted at the Northwest Information Center and revealed no buildings or structures on or adjacent to the project parcel of historical significance. Furthermore, the records search concluded that there is no indication of historic-period activity on the project parcel, thus resulting in a low potential for archaeological resources to be found on the project site during grading and construction activities. Nonetheless, staff has added conditions of approval to Attachment A in the unlikely event that archaeological resources are discovered during grading and construction.

e. Urban Land Use Policies

The *General Development Standards*, including Policies 8.35 to 8.40, seek to use the Zoning Regulations to ensure development is consistent with land use designations.

The project parcel has a Local Coastal Program land use designation of Open Space with Park Overlay and Neighborhood Commercial, with respective zoning designations of EG (El Granada Gateway) and C-1 (Neighborhood Business). See Section A.4. for an analysis of the project's conformance with the applicable zoning development standards.

f. Water Supply Policies

Policy 10.10 (*Water Suppliers in Urban Areas*) and Policy 10.25 (*Efficient Water Use*) consider water systems as the preferred method of water supply over the use of water wells, and encourage water conservation through the use of water conservation devices in new development, including through efficient irrigation practices.

The new fire station (proposed Parcel B) and proposed Parcel A would require water service from Coastside County Water District (CCWD). CCWD has reviewed the proposed project and their comments have been included as Conditions of Approval in Attachment A. Furthermore, the proposed fire station will be required to comply with California Green Building Standards Code (CALGreen) and the

County's Water Efficient Landscape Ordinance, which requires the use of high-efficiency water fixtures for indoor plumbing and water efficient irrigation. CCWD also requires the project to comply with the District's Indoor Waste Use Efficiency Ordinance, which regulates water metering and water use efficiency specifications for plumbing fixtures and appliances. The new fire station, as an essential public service/emergency facility, would qualify for priority water service connection from the applicable municipal service providers.

g. Wastewater Policies

Policy 11.5 (*Wastewater Management in Urban Areas*) considers sewerage systems as the appropriate method of wastewater management in urban areas.

The new fire station (proposed Parcel B) and proposed Parcel A would require wastewater service by Granada Community Services District (GCSD). GCSD has reviewed the proposed project and their comments have been provided as conditions of approval in Attachment A. The new fire station, as an essential public service/emergency facility, would qualify for priority sewer service connection from the applicable municipal service providers.

h. Transportation Policies

Policy 12.21 (*Local Circulation Policies*) seeks to minimize through traffic in residential areas; provide access for emergency vehicles, and access for handicapped persons to public buildings.

The project proposes access to the new fire station via two new driveways on Obispo Road; thereby avoiding conflicts with existing residential driveways taking access to/from Avenue Alhambra. The driveway closest to Obispo Road and Coronado Street would provide entry for emergency vehicles to the drive-through bays and entry and exit to onsite vehicle parking for staff and the public, including one (1) parking space in compliance with the American Disabilities Act (ADA). The second driveway will be limited to an exit for emergency vehicles leaving the drive-through bays. A preliminary site distance evaluation for the proposed access driveways, based on the Caltrans State Highway Design Manual, concluded that the minimum site distance from the access driveways on Obispo Road would be 250 feet. Obispo Road is a relatively straight roadway and maintains a constant grade for at least 400 feet in each direction; therefore, adequate site distance at the project access driveways on Obispo Road would be achieved.

No increase in fire vehicle traffic patterns is proposed. The new Fire Station 41 will continue to serve the same geographic area and, given it's close proximity to the existing Fire Station 41 facility operating approximately 600 feet north of the project site and also fronting Obispo Road, the same streets, including Obispo Road, Coronado Street, Avenue Alhambra, and Santiago Avenue. Additionally, according to a Fire Station Replacement Analysis for the project, conducted by Citygate Associates, LLC, the proposed location for the new fire station would maintain emergency response times to surrounding service communities. The project will also include the construction of a new sidewalk in front of the project site, along Obispo Road, to provide safe access for pedestrians in an area that currently does not have formal sidewalks. ADA access will be provided from the new sidewalk to the fire station building as well.

Furthermore, proposed Parcel A (0.31 acres) would continue to front Avenue Portola and Obispo Road, thereby maximizing the ability to provide access to this newly created, relatively flat, parcel at the time of future development.

Temporary increases in truck traffic are expected during grading work for the removal of excavated soil. Grading activities will be limited to weekdays and the applicant will be required to obtain an encroachment permit from the County Department of Public Works for the hauling of heavy loads on public roadways, which requires review and approval of a construction traffic control plan.

i. Natural Hazards Policies

Policy 15.15 (*Critical Facilities*) and Policy 15.21 (*Requirement for Detailed Geotechnical Investigations*) seeks to avoid locating new critical facilities in areas which contain significant natural hazards and require adequate geotechnical investigation for public development proposals where an investigation is deemed necessary.

According to the County's adopted General Plan Natural Hazards Map and Local Coastal Program (LCP) Hazards Map, the existing 2.7-acre project parcel is not located in any geotechnical (i.e., landslide, alquist-priolo special study zone, tsunami inundation), fire, or flood hazard area. Furthermore, according to the County's Draft Sea Level Rise Vulnerability Assessment (Sea Change San Mateo County), the project parcel would not be impacted by sea level rise under a 100-year storm surge with 6.6 feet of sea level rise. The National Oceanic and Atmospheric Administration's (NOAA) sea level rise map also shows that the project site would not be impacted by a projected sea level rise of 6 feet by the year 2100.

In contrast, however, there are published sources on tsunami and sea level rise hazards that place the project parcel within such hazard zones. According to the Pacific Institute's 2009 mapping of the extent of potential flooding associated with a 100-year coastal flood event combined with a projected sea level rise scenario of 55 inches (as projected for the end of the 21st century by the National Research Council, 2012), the project parcel is within the mapped sea level rise inundation area. Additionally, the project site (of the new fire station development) is located just inside the upland limit of the tsunami inundation zone shown on the California Emergency Management Agency's (Cal-EMA, currently known as California Office of Emergency Services, or Cal-OES) 2009 Tsunami Inundation Map for Emergency Planning, although this map has a disclosure that states the map was developed for coastal evacuation planning and not for land use planning purposes.

Due to conflicting, yet credible, sources, the applicant had a site specific tsunami assessment completed by Moffatt & Nichol for the project site. The Tsunami Assessment relies on the 2013 Science Application for Risk Reduction (SAFRR) map which was developed by the United States Geological Services (USGS) in collaboration with NOAA, the California Geological Services (CGS), and Cal-OES as part of the SAFRR tsunami study. The SAFRR map evaluates a single, hypothetical event generated by a 9.1 magnitude earthquake off the Pacific Coast of the Alaska Peninsula, which is the region of Alaska that poses the greatest threat to the California coastline. Based on the SAFRR map, the project site is well outside of the tsunami inundation zone. Furthermore, Moffatt & Nichols' site specific study included evaluation of the potential for tsunami inundation with a conservative end of century (2100) sea level rise of 5.5 feet and concluded that such a scenario would not result in inundation of the proposed fire station.

Furthermore, the CFPD has standard operating procedures (for the proposed fire station site) for vacating and relocating emergency response vehicles upon receipt of a pending Tsunami Warning (see Attachment E).

j. Man-Made Hazards Policies

Policy 16.13 (*Site Planning Noise Control*) and Policy 16.14 (*Noise Barriers Noise Control*) seeks the use of natural topography and barriers (such as earth berms, walls, or landscaping) to shield noise sensitive land uses.

The project parcel is located within a mapped Community Noise Impact Area, pursuant to the County's General Plan Community Noise

Map; these are areas that experience noise levels of 60 CNEL or greater. The project parcel is located near Cabrillo Highway (State Route 1) and therefore is subject to noise from traffic along the highway. The operation of the fire station, including fire alarms and emergency vehicle sirens, may result in increased noise levels to the area; however, such increases would be intermittent and limited to emergency calls for service and/or equipment testing. The new fire station development includes an onsite emergency back-up generator but the generator will be located within an enclosed area and farthest away from adjacent residential uphill development.

As previously described, existing surrounding residential development is built uphill and at a higher elevation than the project site. The new fire station will be built into the slope of the parcel which will help to buffer noise from nearby residential development. The drive-through bay's side roof will extend approximately 14 feet above the Avenue Alhambra roadway. Furthermore, the driveway access, parking lot, and drive-through bays for emergency vehicles will be located below, and oriented away from, the uphill residences and buffered by the fact that the development will be built into the slope of the parcel.

2. Conformance with the Local Coastal Program

Staff has reviewed and determined that the project complies with all of the applicable Local Coastal Program (LCP) Policies, including the following:

a. Locating and Planning New Development Component

Policy 1.2 (*Definition of Development*), Policy 1.4 (*Designation of Urban Areas*), Policy 1.5 (*Land Uses and Development Densities in Urban Areas*), Policy 1.19 (*Ensure Adequate Public Services and Infrastructure for New Development in Urban Areas*), and Policy 1.35 (*All New Land Use Development and Activities Shall Protect Coastal Water Quality*) defines development to include, among other activities, the placement of any solid material on land, grading, and divisions of land; designate those lands as urban shown inside the urban/rural boundary on the LCP Land Use Plan Map; incorporate the adopted Montara-Moss Beach-El Granada Community Plan into the land use plan for the mid-coast; ensure that development will be served by municipal water and sewer supplies; and require the implementation of appropriate stormwater site design and source control best management practices and treatment measures for new development.

The project includes the construction of a new fire station and associated site improvements, including grading, and a minor subdivision which are all considered development pursuant to the LCP. The project parcel is located completely within the urban area of

the urban/rural boundary as delineated on the LCP Land Use Plan Map. The project will obtain municipal sewer and water service for both newly created parcels. Additionally, stormwater site design and source control measures, including permanent onsite treatment facilities, as required by, and in compliance with, the County's Drainage Policy and Provisions C.3 and C.3.i. of the County's Municipal Regional Stormwater Permit will be installed to ensure stormwater from newly created impervious surfaces is captured and treated onsite. Furthermore, as previously described, the applicant has submitted an erosion control plan demonstrating methods for preventing the off-site transport of polluted stormwater from the project site during grading and construction activities.

b. Public Works Component

Policy 2.2 (*Definition of Public Works*) and Policy 2.8 (*Reservation of Capacity for Priority Land Uses*) define public works to include any development by a special district and require the reservation of sewer and water capacity for priority land uses as listed on Table 2.7 and 2.17 of the LCP.

The project is being carried out by the Coastside Fire Protection District which is a special district; therefore, the subject project is considered a public works project. Table 2.7 and 2.17 of the LCP list sewage treatment capacity and water capacity, respectively, to be reserved for priority land uses by the Granada Community Services District and Coastside County Water District, respectively. Such priority land uses included Essential Public Services, including Emergency Facilities. Therefore, the new fire station does qualify for priority sewer and water service connections from the applicable municipal service providers.

c. Sensitive Habitats Component

Policy 7.1 (*Definition of Sensitive Habitats*), Policy 7.3 (*Protection of Sensitive Habitats*), Policy 7.7 (*Definition of Riparian Corridors*), and Policy 7.11 (*Establishment of Buffer Zones*) define sensitive habitats to include riparian corridors; seek to prohibit development that would have significant adverse impacts on sensitive habitat areas; define riparian corridors as consisting of at least 50% cover of some combination of listed plant species (including arroyo willow); and require a 50 foot buffer zone from the limit of riparian vegetation.

See staff's discussion in Section A.1.a. (*Vegetative, Water, Fish and Wildlife Resources Policies*) above for project compliance.

d. Visual Resources Component

Policy 8.5 (*Location of Development*), Policy 8.6 (*Streams, Wetlands, Estuaries*), Policy 8.9 (*Trees*), Policy 8.10 (*Vegetative Cover*), Policy 8.12 (*General Regulations*), and Policy 8.13 (*Special Design Guidelines for Coastal Communities*) requires new development to be located on a portion of a parcel where the development is least visible from State and County Scenic Roads, is least likely to significantly impact views from public viewpoints, and is consistent with all other LCP requirements; best preserves the visual and open space qualities of the parcel, except where conflicts exist, resolve them in a manner which most protects significant coastal resources on the parcel; set back development from natural waterways a sufficient distance to preserve the visual character of the waterway and prohibit structural development that will adversely impact the visual quality of streams and riparian habitat; minimize tree removal; replace vegetation removed during construction with plant materials compatible with surrounding vegetation and suitable to the area; apply the design criteria set forth in the Community Design Manual and Special Design Guidelines for Coastal Communities, including location, use of natural materials and colors, use of pitched roofs, and appropriate scale to the surrounding setting; and ensure new development and landscaping do not block public viewing points to ocean views, including from public roads.

In order to minimize the visual impacts of the proposed fire station building from uphill public views, a significant amount of grading is proposed in order locate the building and associated improvements into the slope of the project site. Given the project area consists of an approximate 15% downslope towards the Pacific Ocean, the development has been designed to be built into the hill and therefore requires a substantial amount of excavation. A retaining wall up to 17 feet in height will be constructed into the cut slope side of the project site. The wall is designed such that it tapers down with the natural topography of the site towards Obispo Road and exposed sections (viewable from Obispo Road) will have a rock/stone finish to give it a more natural looking appearance. In addition to minimizing visual impacts to adjacent and uphill public views, the proposed site design allows fire station emergency vehicle access to remain on Obispo Road and provides a noise buffer to the surrounding residential neighborhood.

Furthermore, see staff's discussion in Section A.1.a. (*Vegetative, Water, Fish and Wildlife Resources Policies*) and Section A.1.c. (*Visual Quality Policies*) above for additional discussion of the project's compliance.

e. Hazards Component

Policy 9.1 (*Definition of Hazard Areas*), Policy 9.2 (*Designation of Hazard Areas*), and Policy 9.10 (*Geological Investigation of Building Sites*) define hazardous areas as including fault zones, areas subject to liquefaction or other severe seismic impacts, unstable slopes, landslides, flooding, and tsunamis; designate hazardous areas in the Coastal Zone as those delineated on the Geotechnical Hazards Synthesis Map, Federal Emergency Management Agency (FEMA) Flood Maps, Natural Hazards Map of the County's General Plan, and LCP Hazards Maps; and require site specific geotechnical investigations to evaluate the potential for geotechnical problems and determine mitigation measures when necessary.

The project parcel is not located in a mapped active fault zone, area of unstable slope or landslide, or area at risk of flood or tsunami pursuant to the Geotechnical Hazards Synthesis Map, Natural Hazards Map of the County General Plan, and LCP Hazards Map. Furthermore, the project parcel is located in Flood Zone X (area of minimal flood), according to the current applicable FEMA Flood Insurance Rate Maps. A geotechnical report for the project was reviewed and conditionally approved by the County's Geotechnical Section. The geotechnical report concludes that the project parcel is not within an area susceptible to liquefaction or surface fault rupture hazards. See staff's discussion in Section A.1.i. (Natural Hazards Policies) above for further discussion of the project's compliance.

3. Conformance with the County's Energy Efficiency Climate Action Plan

The County's Energy Efficiency Climate Action Plan (EECAP) sets forth strategies for achieving an overall Greenhouse Gas (GHG) reduction goal of 17% reduction below baseline emissions by 2020, including in the following applicable areas: Green Building Ordinance, Zero Waste, Use of Recycled Materials, and Construction Idling.

The project will be constructed to comply with the current Building and Energy Efficiency Standards and California Green Building Standards Code. Additionally, the project proposes to provide onsite trash and recycling enclosures; comply with the County's Recycling and Diversion of Debris from Construction and Demolition standards; and in compliance with the adopted mitigations of the project EIR, which have been incorporated as conditions of approval in Attachment A, comply with the Bay Area Air Quality Management District's Best Management Practices for construction equipment idling.

4. Conformance with the Zoning Regulations

The undeveloped legal 2.7-acre project parcel consists of split-zoning with the southeast 2.38-acre portion of the parcel zoned EG/DR/CD (El Granada Gateway/Design Review/Coastal Development) and the northwest 0.31-acre portion of the parcel zoned C-1/S-3/DR/CD (Neighborhood Business/5,000 sq. ft. lot minimum/Design Review/Coastal Development). Typically, the County applies the zoning of each designation to its respective portion of the property for development purposes. Therefore, whether subdivided, as proposed in this project, or not, the following development standards apply to each respective portion of the parcel.

a. Neighborhood Business (C-1) Zoning District

No development is currently planned for proposed Parcel A under this project. Any future development on this area of land would be required to comply with the below development standards.

(1) Development Standards

Standards	Proposed Parcel A: Undeveloped Site (no development proposed at this time)	
	Required*	Proposed
Min. Parcel Size	5,000 sq. ft.	13,575 sq. ft. (no change)
Min. Front Setback	None – 20 ft.	None proposed
Min. Rear Setback	None – 20 ft.	None proposed
Min. Right Side Setback	None – 5 ft.	None proposed
Min. Left Side Setback	None – 5 ft.	None proposed
Max. Building Height	28 ft. – 36 ft.	None proposed
Max. Lot Coverage	None – 50%	None proposed
Max. Stories	2 – 3 stories	None proposed
Max. Impervious Areas (less than 18 inches above grade)	10%	None proposed
* The C-1 Zoning District allows for mixed use development (i.e., commercial and residential); therefore, the required standards listed provide a range between commercial – residential.		

b. El Granada Gateway (EG) Zoning District

The new Fire Station 41 (El Granada) will be constructed on proposed Parcel B. While the EG Zoning District allows uses such as community centers, libraries, outdoor athletic fields and parks, Section 6500(b) of the Zoning Regulations also allows public service uses and buildings in any zoning district subject to the issuance of a use permit,

which the applicant is seeking as part of this application (see Section A.4.c. below).

(1) Development Standards

Standards	Proposed Parcel B: Fire Station Site	
	Required	Proposed
Min. Parcel Size	3.5 acres	*2.38 acres (no change)
Min. Front Setback	50 ft.	*5'-9" (Obispo Road)
Min. Rear Setback	20 ft.	*1'-5" (Avenue Alhambra)
Min. Right Side Setback	20 ft.	> 50 ft.
Min. Left Side Setback	20 ft.	> 100 ft.
Max. Building Height	16 ft.	*30 ft. (max. peak)
Max. Parcel Coverage (over 18" from grade)	10%	*12%
Max. Impervious Area (less than 18 inches above grade)	10%	*19.5%
* Indicates an exception is being requested from the required standard.		

The applicant is seeking a Variance to develop a parcel that does not satisfy minimum parcel size and to deviate from the minimum front and rear yard building setbacks, maximum building and retaining wall heights, parcel coverage, and signage allowance. See Section A.4.d. for discussion on the request for a Variance.

Pursuant to Section 6229.4.5. (Impervious Surface Area) of the Zoning Regulations, the amount of impervious surface area less than 18 inches above grade is limited to 10% of the parcel size. As proposed, an exception to the limit can be granted by the Community Development Director upon finding that stormwater run-off from the project site will not exceed that amount equivalent to 10% of the parcel size. Impervious surface (less than 18 inches from grade) created with the proposed fire station development is 19.5% of the parcel size. The applicant has submitted professionally prepared drainage plans and calculations that have been reviewed and conditionally approved by the County Department of Public Works demonstrating all stormwater run-off generated from the newly created impervious surface area will be captured on-site through a system of on-site bio-retention areas and a self-retaining area. Therefore, despite the increased impervious surface created by the proposed development, the project has been designed such that post-construction stormwater

run-off will not exceed pre-construction stormwater run-off and therefore, the exception can be granted.

(2) Landscaping

All landscaping is required to be drought-tolerant, and either native or non-invasive plant species.

The proposed landscaping includes a mix of native and non-invasive plant species, per the California Native Plant Society and California Invasive Plant Council databases. Proposed species considered non-native are acclimated to the local climate region per the Sunset Western Garden Book. Furthermore, the project will be required to comply with the County's Water Efficient Landscape Ordinance which promotes efficient water use in landscape designs.

(3) Signage

Signage is limited to one sign with a maximum display area of 20 sq. ft. on each face of the sign (this assumes a double-sided sign).

The project includes minimal identification signage ("Coastside Fire Station 41") on the front and rear facades of the drive-through bay structure that total 121 sq. ft. in size (on each façade). Staff considers these two building wall signs to be equivalent to one double-faced sign. The identification sign consists of individual simple letters and numbers and is proportionate in size to the existing building facades. Pursuant to Section 6531, the applicant is seeking a Variance to exceed the maximum sign allowance as stipulated in the EG Zoning District Regulations. See Section A.4.d. below for discussion on the request for a Variance.

c. Use Permit

The applicant is seeking a Use Permit, in accordance with Section 6500(b) of the County Zoning Regulations to allow the location of a public service use in the EG Zoning District.

In order to grant a Use Permit, the following finding must be made:

- (1) *The establishment, maintenance and/or conducting of the use will not, under the circumstances of the particular case, result in a significant adverse impact to coastal resources, or be*

detrimental to the public welfare or injurious to property or improvements in said neighborhood.

The proposed fire station will replace the existing 50-year-old fire station located approximately 600 feet northwest of the subject parcel, at 531 Obispo Road, with new facilities that are safe, modern, and adequately sized to allow the CFPD to meet current and future service demands from the community for the next 50 years; the existing fire station was determined to be too small to meet near-term needs of the CFPD based on a Fire Station Relocation Study conducted in 2014. Operation and staffing for the newly constructed fire station is not proposed to change from current operation and staffing. The new fire station will be built in compliance with the Essential Services Buildings Seismic Safety Act of 1986 so that the building can resist earthquakes, gravity, and winds. The new station will be able to support a 34-foot fire engine, a 42-foot truck, and a 39-foot heavy rescue vehicle; all necessary to carry out the District's responsibilities as first responders.

The project does not introduce a use that is not already existing in the community and allows the fire station to maintain necessary response times within the area. The proposed fire station has been designed to fit into the sloped parcel in order to minimize public view impacts to the Pacific Ocean and is set back from the corner of Coronado Street and Obispo Road to minimize view impacts from Cabrillo Highway (State Route 1). The building's design and orientation will also aid in buffering noise impacts to the surrounding community as it will be built into the lower cut slope of the project parcel. The building will be single-story and include features such as a gable roof system, materials complimentary to the surrounding built-environment, and earth-toned colors to blend into the neighborhood character and natural environment and be proportionate to the parcel and surrounding residential developments. Additionally, the project is not expected to result in a significant increase in traffic as the operations of the fire station are intended to remain the same for the foreseeable future and the development will include a new public sidewalk along the frontage of the proposed development along Obispo Road.

CFPD prepared, circulated, and certified an Initial Study (IS) and Environmental Impact Report (EIR) for the project. The IS and EIR concluded that the project, as proposed and mitigated, will not have a significant adverse impact on the environment, including applicable coastal resources consistent with the County's Local Coastal Program (LCP) which ensures

compliance with the California Coastal Act, such as sensitive habitat resources and visual resources. Upon analysis of potential project impacts through the IS and EIR, it was determined that the project would have the potential to generate temporary increases in air pollutants from construction activities and vehicle exhaust and inadvertent impacts to wildlife species. Adopted mitigation measures from the EIR to reduce these potentially significant impacts to a less than significant level are included in Attachment A.

While the project proposes development of a non-conforming sized parcel which would typically require approval of a Non-Conforming Use Permit, Section 6531 of the Zoning Regulations permits a Variance when the proposed development varies from any specific requirements of the Zoning Regulations. The project proposes to deviate from the applicable Zoning Regulations for parcel size, setbacks, height, lot coverage, and signage. Therefore, the applicant is seeking a Variance from these zoning standards. See Section A.4.d. for discussion on the request for a Variance.

d. Variance

The purpose of a variance is to allow, under special circumstances, development to vary from the requirements of the Zoning Regulations when strict enforcement would make it difficult to develop a parcel, cause unnecessary hardship to the landowner, or result in inconsistencies with the general purpose of the Zoning Regulations.

The applicant is seeking a variance from the minimum parcel size, minimum required front and rear setbacks, maximum building height and retaining wall height, maximum lot coverage allowance, and maximum signage allowance as set forth in the EG Zoning District in order to develop the 2.38-acre area of EG-Zoned land (proposed Parcel B) into a new fire station site. The proposed subdivision would not change the amount of land area zoned EG and used for purposes of calculating setbacks or lot coverage. In order to approve a variance, the following findings must be made:

- (1) *The parcel's location, size, shape, topography, and/or other physical conditions vary substantially from those of other parcels in the same zoning district or vicinity.*

The minimum required setbacks (i.e., 50-foot front yard and 20-foot rear yard), maximum building height (16 feet), maximum wall height (6 feet), and maximum parcel coverage (10%) of the

EG Zoning District are irrespective of location, size, shape, topography, or other physical site conditions.

However, the project parcel is a unique, narrow, elongated parcel of land that abuts four (4) public roads in the El Granada area. The existing project parcel is substandard in size and maintains a split-zoning of EG (El Granada Gateway) and C-1 (Neighborhood Business) with a riparian corridor running through the approximate center of the parcel, which requires an additional (minimum) 50 feet buffer for development. A majority of the project parcel consists of approximately 15-19% slope. These characteristics make the project parcel unique from other EG-zoned parcels in the area.

The EG Zoning District is limited to 11 parcels (including the subject project parcel) in the El Granada area, located between Cabrillo Highway and Avenue Alhambra and Obispo Road. Of the 11 EG Zoned parcels, 10 are substandard in size as the EG Zoning District requires a minimum parcel size of 3.5 acres; however, all of the other EG Zoned parcels are located on the opposite (west) side of Obispo Road from the project site and are relatively flat rectangular shaped parcels. The one EG Zoned parcel that meets the minimum parcel size is directly west (on the opposite side of Obispo Road) of the project parcel and is owned by Granada Community Services District (GCSD). The GCSD-owned parcel is approximately 6.2 acres in size and for the most part, configured in a similarly narrow elongated shaped parcel, but unlike the project parcel widens out on the north side to provide approximately 2 acres of relatively flat land that is approximately double the width of the project parcel's development site. Therefore, the project parcel is unique in shape and topography from other parcels in the same zoning district.

- (2) *Without the variance, the landowner would be denied the rights and privileges that are enjoyed by other landowners in the same zoning district or vicinity.*

The Zoning Regulations allow public service uses and buildings to be located in any zoning district subject to the issuance of a use permit, including any other EG Zoned parcel. Furthermore, the proposed fire station development was designed to minimize the footprint of development while providing an adequately sized facility to accommodate modern emergency apparatus and equipment to serve the current and future needs of the service area. The parcel's unique size and shape make it infeasible to

develop the fire station in compliance with all EG Zoning standards.

Minimum Parcel Size Variance

The existing 2.7-acre project parcel proposed for subdivision is a split-zoned parcel that consists of 0.31 acres of C-1 (Neighborhood Business) zoning and 2.38 acres of EG (El Granada Gateway) zoning. The project parcel is unique in shape and topography from other EG zoned parcels in the area as it is a narrow, elongated parcel of land that abuts four (4) public roads, is substandard in size, and maintains split-zoning. The proposed project does not change the amount of land area zoned EG or C-1, or the amount of land area used for purposes of calculating setbacks or parcel coverage of each respective zoning district. Furthermore, the acquisition of contiguous parcels to make a conforming EG-zoned size parcel of 3.5 acres is not reasonably feasible as all contiguous lots are zoned C-1 and developed with single to multi-family residences.

Setback Variance

The uniquely narrow and irregular shape of the project parcel make it difficult to comply with the required front and rear yard setbacks as the length of the parcel (being the distance between Obispo Road and Avenue Alhambra) is approximately 120 feet. The minimum required front setback (along Obispo Road) is 50 feet and the minimum required rear setback (along Avenue Alhambra) is 20 feet, which leaves 50 feet in length for development where the minimum needed for the drive-through apparatus bays alone is 52 feet. The building's long, narrow design follows the narrow shape of the parcel while meeting the minimum radius and driveway slope standards necessary to operate the apparatus.

Height Variance

The maximum building height allowed in the EG Zoning District is 16 feet where the proposed fire station building will have a maximum height of 30 feet at the center of the drive-through apparatus bays in order to accommodate the height of apparatus that will be stored in the bays and to clear the heights required above the apparatus for related equipment such as vehicle exhaust extraction systems. The building has been designed into the hillside to help minimize the appeared height of the apparatus bay area and a gable roof will be used to blend the building in to the surrounding residential area. As proposed,

the height of the building as viewed from residential development along the upper elevation of Avenue Alhambra is 14 feet, well below the height of the abutting residential developments, and limited primarily to the roof of the apparatus bays.

The project proposes a 17-foot tall retaining wall, where 6 feet is the maximum allowed height. The retaining wall is necessary to support the vertical cut into the hillside to fit the building on the project site in a manner that will minimize visual impacts and provide a functional site design given the uniquely configured parcel. The retaining wall would only be visible from Obispo Road. The east wall of the new fire station would abut the retaining wall such that a majority of the 17-foot wall high sections would be hidden by the building. As the retaining wall extends beyond the building (in both directions) its height will decrease with the adjacent natural declining topography. Exposed portions of the retaining wall will be finished with rock/stone for a natural appearance.

Parcel Coverage Variance

The maximum allowed parcel coverage in the EG Zoning District is 10%. The EG-Zoned project parcel area is 2.38 acres, which is the area that would be used to calculate the parcel coverage allowance in the EG Zoning District. The proposed fire station building results in a parcel coverage of just under 12%, or 12,425 sq. ft., which the applicant indicates is the smallest footprint feasible to adequately accommodate the fire district's operations, including housing for fire-fighting crews, storage of emergency apparatus and equipment. The building has been designed to maintain a low-profile, single-story gable roof system to blend in to the surrounding residential character of the area and to reduce bulk and mass.

Signage Variance

As required under the Design Review Standards, the identification signs consist of simple individual letter and numbers, are proportional to the building and do not detract from the architectural style of the building or developed character of the area.

Therefore, without the requested variances, CFPD would not be able to develop the property with a fire station that meets the current and future needs of the area. While most of the parcels in the EG Zoning District are substandard in size, they follow a

- more typical rectangular shape and are relatively flat, unlike the subject project parcel which is a narrow irregularly shaped lot.
- (3) *The variance does not grant the landowner a special privilege which is inconsistent with the restrictions placed on other parcels in the same zoning district or vicinity.*

The applicant is seeking a variance from the minimum 50-foot front yard setback, 20-foot rear yard setback; maximum 16-foot height limit; maximum 6-foot wall height limit; and maximum 10% parcel coverage standards of the EG Zoning District. While a majority of the other EG-zoned parcels in the area maintain a more traditional, rectangular shape, they are substandard in size and vary in length (front to rear) from 60 feet to 250 feet. Therefore, it is possible that other parcels in the EG Zoning District may need to seek variances when development is proposed, in which case, a variance could be sought if physical site constraints are demonstrated.

- (4) *The variance authorizes only uses or activities which are permitted by the Zoning District.*

Chapter 24 of the County Zoning Regulations allows public service uses to be located in any zoning district subject to the issuance of a Use Permit, for which the CFPD is seeking as part of the subject project application.

- (5) *The variance is consistent with the objectives of the General Plan, the Local Coastal Program (LCP) and the Zoning Regulations.*

See staff's discussion in Sections A.1. through A.4. for project compliance with the applicable policies and standards of the General Plan, LCP, and Zoning Regulations.

e. Design Review

The project site is located in a Design Review District; therefore, staff has reviewed and determined that the proposed fire station development complies with the applicable design standards contained in Section 6565.17 of the Zoning Regulations.

- (1) Proposed structures are designed and situated so as to retain and blend with the natural vegetation and landforms of the site; a smooth transition is maintained between development and adjacent open areas through the use of natural landscaping and plant materials which are native or appropriate to the area; paved areas should be integrated into the site, relate to their

structure, and be landscaped to reduce visual impacts from residential areas and roadways.

While the project proposes significant excavation of the hillside to fit the new fire station building into the slope, the building has been designed with a low-profile gable roof system that steps down from Avenue Alhambra (upper elevation) as the natural hillside otherwise would follow. A retaining wall will be built at the cut side of the hill but will also taper down as it extends beyond the building wall to the existing natural grade. Paved areas are limited to vehicle driveway and parking areas and over 16,000 sq. ft. of new landscaping will be installed to help soften the development from public views.

- (2) Grading should blend with adjacent landforms and not create drainage or erosion problems; trees and vegetative land cover are removed only where necessary.

A significant amount of excavation is proposed in order to locate the building into the hillside property; however, the project incorporates on-site drainage facilities (i.e., bioretention areas) to capture and treat post-construction runoff onsite. An erosion control plan has also been developed for the project and measures will be implemented throughout the duration of project grading and construction to minimize construction-related erosion and sediment from the project site. A total of 10 trees will be removed from the project site in order to accommodate the proposed development, all of which were determined to be in poor health based on an arborist assessment. All regulated trees proposed for removal will be replaced at a 1:1 ratio and all remaining denuded vegetated areas will be replaced with drought-tolerant landscaping that consists of plant species that are native and/or acclimated to the local area.

- (3) Natural drainage systems should not be altered so as to affect their character and cause problems of drainage, erosion or flooding; structures should be located outside of flood zones, drainage channels, and other areas subject to inundation.

A natural drainage channel runs through the center of the parcel transporting drainage from uphill development in El Granada through the project parcel and ultimately to the Pacific Ocean. The proposed development will maintain over a 50-foot buffer zone from the limit of delineated riparian vegetation around the drainage channel so as to not alter or impact the sensitive area. Furthermore, the project site is not located in a hazard area for flooding or other inundation and erosion control best

management practices and the natural change in elevation between the project site and the drainage channel will prevent any erosion or construction impacts to the drainage area and buffer zone.

- (4) Views are protected by the height and location of structures; public views to and along the shoreline from public roads and other public lands are protected; overhead utility lines are placed underground where appropriate to reduce the visual impact on open and scenic areas.

The new fire station building has been designed and oriented to minimize public view impacts to the Pacific Ocean. The building has been designed to be a single-story gable roof building that will be set into an excavated elevation below Avenue Alhambra. To ensure landscaping and tree plantings do not interfere with public view impacts from Avenue Alhambra or other uphill viewing locations, staff has included a condition of approval to require all proposed trees and plants located in potential open public viewing areas to be no greater in height at maturity than 3 ft. above the adjacent Avenue Alhambra street elevation. Furthermore, onsite utilities will be undergrounded.

- (5) Varying architectural styles are made compatible through the use of similar materials and colors which blend with the natural setting and surrounding neighborhood; the design of the structure is appropriate to the use of the property and is in harmony with the shape, size and scale of adjacent building in the community.

The proposed fire station is designed to blend into the surrounding residential development and uses gable roofing, stone and cement board siding, and earth-toned colors. The building will be set into the excavated project site so as to minimize visual impacts from uphill views towards the ocean. While the maximum building height is 30 feet at the apparatus bays, the building roof will only project 14 feet above the Avenue Alhambra roadway, which is less than the maximum allowed height limit in the EG Zoning District and significantly less than the nearest adjacent three-story multi-residential building.

- (6) Signs should be compatible with the architectural style of the structure they identify and harmonize with their surroundings.

The proposed development includes two building mounted identification signs over the apparatus bay doors (one on each façade) that consist of simple individual letters and numbers.

The identification signs are proportional to the building and do not detract from the architectural style of the building or developed character of the area.

5. Conformance with the Subdivision Regulations

Notwithstanding the subdivision exception request discussed in Section A.6. below, the proposed minor subdivision is in compliance with the County's Subdivision Regulations, Section 7013.3.b.:

- a. That the proposed map, together with the provisions for its design and improvement, is consistent with applicable general and specific plans.

The proposed map is consistent with the County General Plan and Montara-Moss Beach-El Granada Area Plan, as discussed in Section A.1. of this report.

The subdivision will result in the creation of separate parcels for each of the adopted land use and zoning designations that currently reside over the 2.7-acre, split-zoned parcel. The subdivision will allow the commercially zoned portion of the parcel to be better utilized in the future as a separate parcel for development while resulting in no change to the application of zoning standards.

The parcels are consistent with the design and improvement requirements for subdivision, as proposed Parcel A (0.31 acres) meets the minimum size, dimensions, frontage and access requirements; however, no development is currently proposed for Parcel A. Proposed Parcel B (2.38 acres) does not meet the minimum parcel size (3.5 acres) of the respective EG Zoning District, however, it does meet the provision of being no less than 5,000 sq. ft. pursuant to the subdivision regulations for minimum size. Furthermore, the subdivision will not change the application of the respective zoning standards; however, will allow the commercially zoned portion of the parcel to be better utilized in the future as the Coastside Fire Protection District, as a public service/emergency response agency would have no intention of developing a commercial use on the commercially zoned portion of the existing 2.7 acre parcel. See Section A.6 for discussion on the parcel size exception for this subdivision.

- b. That the site is physically suitable for the type and proposed density of development.

The proposed plans for the new fire station, which have been reviewed and conditionally approved by all applicable review agencies, demonstrate that proposed Parcel B is physically suitable

for development, subject to the variance request for setbacks, height, and lot coverage necessary to meet the minimum needs for the development to serve the functions of the fire district. Furthermore, proposed Parcel A, being a relatively flat, corner parcel, will be more than double the minimum parcel size required for a C-1/S-3 zoned parcel. While no development is currently proposed for Parcel A, it would be physically suitable for future development consistent with the types of allowable uses in a C-1 Zoning District.

- c. That the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

The CFPD prepared, circulated, and certified an Initial Study and Environmental Impact Report (EIR) for the project in accordance with the California Environmental Quality Act (CEQA). The EIR concluded that the project, as proposed and mitigated, will not result in significant environmental impacts, including to biological resources. See Section A.1. of this staff report for discussion of biological resources.

- d. That the design of the subdivision or type of improvements is not likely to cause serious public health problems.

The project is not likely to cause serious public health problems as the project has been reviewed and conditionally approved by the County Building Department, Department of Public Works, Geotechnical Section, and Coastside Fire Protection District to ensure that public health and safety are preserved and protected.

- e. That the design of the subdivision and the proposed improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision.

The project parcel contains no public easements per review of the title report and grant deed. Furthermore, the project does not require or propose any public easements through or over the project parcel(s).

- f. That the discharge of waste from the proposed subdivision into an existing community sewer system would not result in violation of existing requirements prescribed by a State Regional Water Control Board pursuant to Division 7 (commencing with Section 13000) of the State Water Code.

Granada Community Services District (GCSD) has municipal authority over the sewer system for the project area. There is no indication that proposed sewer connections to the GCSD will result in any violations of the State Regional Water Control Board.

- g. That the land is not subject to a contract entered into pursuant to the California Land Conservation Act of 1965 (“the Williamson Act”) and that the resulting parcels following a subdivision of that lands would not be too small to sustain their agricultural use.

The land proposed for subdivision is not under a Williamson Act Contract and the resulting parcels will not be used for agriculture.

6. Subdivision Regulations Exception

As previously mentioned, the resulting subdivision would create a substandard sized parcel (Parcel B) of 2.38 acres where 3.5 acres is the minimum parcel size required in the respective EG Zoning District. Due to split-zoning of the project parcel, the proposed subdivision would not change the amount of land area zoned EG and used for purposes of calculating setbacks or lot coverage. An exception to this design requirement for a subdivision can be granted provided the findings from Section 7096 of the Subdivision Regulations are made:

- a. That there are special circumstances or conditions affecting the property, or the exception is necessary for the preservation and enjoyment of substantial property rights of the owner/subdivider.

The existing 2.7-acre project parcel proposed for subdivision is a split-zoned parcel that consists of 0.31 acres of C-1 (Neighborhood Business) zoning and 2.38 acres of EG (El Granada Gateway) zoning. The project parcel is unique in shape and topography from other EG zoned parcels in the area as it is a narrow, elongated parcel of land that abuts four (4) public roads, is substandard in size, and maintains split-zoning. A majority of the EG-zoned portion of land consists of a 15 – 19% slope on the southeastern portion with a drainage channel and riparian corridor running through the approximate center of the EG-zoned area. The C-1-Zoned portion of the land at the northwestern side of the project parcel is a relatively flat, rectangular shape area that borders Avenue Portola and Obispo Road. The proposed subdivision would not change the amount of land area zoned EG or C-1, or amount of land area used for purposes of calculating setbacks or parcel coverage of each respective zoning district. The acquisition of contiguous parcels to make a conforming EG-zoned size parcel of 3.5 acres is not reasonably feasible as all contiguous lots are zoned C-1 and developed with single to multi-family residences.

- b. That the exception is appropriate for the proper design and/or function of the subdivision.

A Certificate of Compliance (Type A) was recorded for the 2.7-acre project parcel in 2015 confirming the legal configuration of the parcel. Based on review of historical zoning maps, the parcel has maintained a split zoning with the northwest portion of the parcel that abuts Obispo Road and Avenue Portola being zoned C-1 (Neighborhood Business) since as early as 1957. In 2012, the County completed land use plan and policy amendments for the midcoast area which included changing the zoning for the southeast 2.38 acre portion of the project parcel to EG (El Granada Gateway), from COSC (Community Open Space Conservation). Most likely it was not recognized at the time that these two adjacent zoning designations actually split one legal parcel as split-zoning is not typically encouraged or supported by the County. Although zoning along eastern portions of Avenue Portola have changed over the years, it appears that the intent of the land use map in 1957 was for Avenue Portola, being the three blocks from Obispo Road to The Alameda, to be a commercial corridor as parcels fronting both sides of Avenue Portola along these three blocks were zoned C-1. Given the change in land use patterns over the years, just the one block between Obispo Road and Avenue Alhambra, which includes the northwest corner portion of the project parcel, currently make up the extent of the Avenue Portola commercial corridor.

The creation of the proposed 2.38-acre parcel would allow the creation of separate parcels for each of the adopted land use and zoning designations that currently exist over the 2.7-acre, split-zoned parcel. The application of EG development standards on the newly created 2.38-acre parcel would not change as only that portion of land within the respective zoning district is used to establish setbacks, lot coverage, etc. However, the subdivision would allow the commercially zoned portion of the existing 2.7-acre parcel (along Avenue Portola) to be better utilized in the future as a separate parcel for commercial development in line with the historical and future land use plan for this block of Avenue Portola to be a commercial corridor since the CFPD, being a public service/emergency response agency, has no intention of developing a commercial use on this commercially zoned portion of land.

- c. That the granting of the exception will not be detrimental to the public health, safety, or welfare or injurious to other property or uses in the area in which the property is situated.

The subdivision will result in the creation of separate parcels for each of the adopted land use and zoning designations that currently reside over the 2.7-acre, split-zoned parcel. The subdivision will allow the commercially zoned portion of the parcel to be better utilized in the future as a separate parcel for development while resulting in no

change to the application of zoning standards for either newly created parcel.

7. Park In-Lieu Fees

Section 7054 of the Subdivision Regulations exempts subdivisions containing less than five (5) parcels and not used for residential purposes from the park and recreation dedication and fee requirements. The proposed subdivision will result in a total of two (2) parcels and neither parcel is zoned for or intended to be used for residential purposes; therefore, the proposed subdivision is exempt from park and recreation dedication and fee requirements.

8. Conformance with the Grading Ordinance

The project proposes 10,310 cubic yards (c.y.) of grading, including 10,150 c.y. of cut and 160 c.y. of fill, to construct the new fire station and associated site improvements. Staff has reviewed and determined that the following findings necessary to approve the project, pursuant to Section 9290 of the San Mateo County Ordinance Code, should be made:

- a. The granting of the permit will not have a significant adverse effect on the environment.

The proposed grading is necessary to implement the project. An Initial Study and Environmental Impact Report have been prepared, circulated for public review, and adopted by the CFPD, acting as lead agency for purposes of complying with the California Environmental Quality Act (CEQA). County Planning staff has concluded that the project, with the adopted mitigation measures from the project EIR, will not have a significant adverse impact on the environment. All mitigation measures from the adopted EIR have been included as recommended conditions of approval in Attachment A. In addition, the County's Geotechnical Section and Department of Public Works have reviewed and approved the project with conditions. Therefore, staff has determined that the project, as proposed and conditioned, will not have a significant adverse impact on the environment.

- b. The project conforms to the criteria of Chapter 8, Division VII, of the San Mateo County Ordinance Code, including the standards referenced in Section 9296.

The project, as proposed and conditioned, conforms to standards in the Grading Ordinance, including those relative to erosion and sediment control plan, dust control plan, fire safety, and the timing of grading activity. The project plans have been reviewed and recommended for approval by both the Geotechnical Section and the

Department of Public Works. Conditions of approval have been included in Attachment A to ensure compliance with the County's Grading Ordinance.

- c. The project is consistent with the General Plan.

The project has been reviewed against the applicable policies of the San Mateo County General Plan and found to be consistent with its goals and objectives. See Section A.1 of this report for a detailed discussion regarding the project's compliance with applicable General Plan Policies.

B. ENVIRONMENTAL REVIEW

The Coastside Fire Protection District (CFPD), as lead agency pursuant to Section 15051 of the California Environmental Quality Act (CEQA), prepared and circulated an Initial Study and Notice of Preparation of an Environmental Impact Report (EIR) for the proposed project on June 30, 2015. During the 30-day public review period for the Initial Study, the CFPD held a scoping meeting and public workshop on July 16, 2015 to solicit comments on the scope and content of the EIR. The County combined its required Pre-Application Public Workshop with the CFPD's scoping meeting and public workshop.

CFPD prepared and circulated a Draft EIR and Notice of Availability for a 45-day public review period which commenced on December 2, 2016 and ended at 5:00 p.m. on January 19, 2017. The CFPD Board of Directors held a hearing on the Draft EIR on January 18, 2017 to receive public comments. A Final EIR was issued on April 10, 2017 and the CFPD Board of Directors subsequently certified the Final EIR at their public meeting held on April 26, 2017. A Notice of Determination was filed with the San Mateo County Clerk on May 1, 2017. A copy of the Initial Study, Draft, and Final EIR is available online at <http://planning.smcgov.org/fire-station-41-el-granada-replacement-project>.

The County of San Mateo acted as a responsible agency for purposes of CEQA. All adopted mitigation measures from the certified EIR have been incorporated as condition of approval in Attachment A.

C. REVIEWING AGENCIES

San Mateo County Building Inspection Section
San Mateo County Department of Public Works
San Mateo County Geotechnical Section
Coastside Fire Protection District
Granada Community Services District
Coastside County Water District
California Coastal Commission
City of Half Moon Bay Planning Department
Midcoast Community Council

ATTACHMENTS

- A. Recommended Findings and Conditions of Approval
- B. Vicinity/Location map
- C. Project Plans
 - C.1. Existing Conditions Plan (C2.0)
 - C.2. Tentative Parcel Map (SU-1)
 - C.3. Site Plan (A-1)
 - C.4. Floor Plan (A-2)
 - C.5. Roof Plan (A-3)
 - C.6. Exterior Elevations (A-4, A-5)
 - C.7. Building Section (A-6)
 - C.8. Renderings (A-7, A-8)
 - C.9. Landscape Plan (L-1)
 - C.10. Grading Plan (C3.0)
 - C.11. Utility Plan (C4.0)
 - C.12. Stormwater Management Plan (C5.0)
 - C.13. Erosion Control Plan (C6.0)
- D. Photo Simulations
- E. Standard Operating Procedures for Tsunami Warning, dated January 1, 2017
- F. Sensitive Habitat Assessment, prepared by WRA Environmental Consultants, dated April 16, 2015
- G. Riparian Setback Analysis, prepared by TRA Environmental Sciences, Inc., dated August 7, 2014
- H. Tree Assessment, prepared by Kielty Arborist Services, LLC, dated June 2, 2015
- I. Site Specific Tsunami Report, prepared by Moffatt & Nichol, dated March 10, 2016
- J. Fire Station Relocation Study, prepared by Citygate Associates, LLC, dated February 19, 2104, available at <http://planning.smcgov.org/fire-station-41-el-granada-replacement-project>
- K. Initial Study, Draft Environmental Impact Report (EIR), Final EIR, available online at <http://planning.smcgov.org/fire-station-41-el-granada-replacement-project>

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County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2016-00346

Hearing Date: July 12, 2017

Prepared By: Summer Burlison
Project Planner

For Adoption By: Planning Commission

RECOMMENDED FINDINGS

For the Environmental Review, Find:

1. That San Mateo County, acting as a responsible agency, has reviewed and considered the Initial Study, Draft Environmental Impact Report (EIR), and Final EIR prepared and certified by Coastside Fire Protection District, who acted as the lead agency for purposes of the California Environmental Quality Act (CEQA). All adopted mitigation measures from the certified EIR have been included as project conditions of approval.

For the Coastal Development Permit, Find:

2. That the project, as described in the application and accompanying materials required by Section 6328.7 and as conditioned in accordance with Section 6328.14, conforms to the plans, policies, requirements and standards of the San Mateo County Local Coastal Program (LCP), specifically in regard to Locating and Planning New Development, Public Works, Sensitive Habitats, Visual Resources, and Hazards Components of the LCP. Staff has reviewed the plans and materials and determined that the project, as proposed and conditioned, will not pose any adverse significant impacts on coastal resources, sensitive habitats, or visual resources in the area. Furthermore, the project would not be exposed to any natural hazards.
3. That the project is not subject to the public access and public recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Section 30200 of the Public Resources Code) since the project is not located between the nearest public road and the sea, or the shoreline of Pescadero Marsh.
4. That the project conforms to specific findings required by policies of the San Mateo County LCP with regard to Locating and Planning New Development, Public Works, Sensitive Habitats, Visual Resources, and Hazards Components, as discussed in detail in the Staff Report dated July 12, 2017.

For the Use Permit, Find:

5. That the establishment, maintenance and/or conducting of the use will not, under the circumstances of the particular case, result in a significant adverse impact to coastal resources, or be detrimental to the public welfare or injurious to property or improvements in said neighborhood as the new fire station will allow the Coastside Fire Protection District to meet current and future public service and emergency demands from the community within appropriate response times; the proposed fire station has been designed to minimize public view impacts, buffer temporary noise impacts from emergency calls/siren events; and blend into the neighborhood character and natural environment through architectural style and proportion. The new fire station will not result in any changes to operation, staffing, or emergency vehicle trips. Additionally, an Initial Study and Environmental Impact Report (EIR) for the project has concluded that the project, as proposed and mitigated, will not have a significant adverse impact on the environment, including coastal resources and all adopted mitigation measures from the EIR have been included as conditions of approval.

For the Variance, Find:

6. That the parcel's location, size, shape, topography, and/or other physical conditions vary substantially from those of other parcels in the same zoning district or vicinity as the project parcel is a uniquely narrow-shaped parcel of land that abuts four (4) public roads and contains a riparian corridor that runs through the approximate center of the parcel. Also, the usable site area of the parcel consists of 15 – 19% slope. These characteristics make the project parcel unique from other similarly zoned parcels in the area.
7. That without the variance, the landowner would be denied the rights and privileges that are enjoyed by other landowners in the same zoning district or vicinity as the project parcel's unique size and shape in comparison to other parcels in the same zoning district make it infeasible to develop a public service use, allowable by use permit, in compliance with all of the applicable EG Zoning Standards.
8. That the variance does not grant the landowner a special privilege which is inconsistent with the restrictions placed on other parcels in the same zoning district or vicinity as the other parcels in the EG Zoning District are subject to the same development standards and may seek variances if physical site constraints are demonstrated.
9. That the variance authorizes only uses or activities which are permitted by the zoning district as the County Zoning Regulations allows public service uses in any zoning district subject to the issuance of a use permit, for which the applicant is seeking as part of the subject project application.

10. That the variance is consistent with the objectives of the General Plan, the Local Coastal Program (LCP) and the Zoning Regulations as discussed in detail in Sections A.1. through A.4. of the staff report dated July 12, 2017.

For the Design Review, Find:

11. That the project complies with the applicable design standards contained in Section 6565.17 of the Zoning Regulations as the proposed fire station is designed to blend into the surrounding residential development and uses gable roofing, stone and cement board siding, and earth-toned colors; the building will be set into the excavated project site so as to minimize visual impacts from uphill views towards the ocean; the development includes on-site drainage facilities to capture and treat post-construction runoff; erosion control measures will be implemented to minimize construction-related erosion and sediment from the project site; denuded areas will be replaced with drought-tolerant landscaping that consists of plant species that are native and/or acclimated to the local area; the development will maintain over a 50-foot buffer zone from the limit of riparian vegetation around the drainage channel so as to not alter or impact the sensitive area; and the proposed building identification signage is proportional to the building and does not detract from the architectural style of the building or developed character of the area.

For the Minor Subdivision, Find:

12. That the proposed map, together with the provisions for its design and improvement, is consistent with applicable general and specific plans as discussed in detail in Section A.1. of the staff report dated July 12, 2017. Furthermore, while proposed Parcel B does not meet the minimum parcel size (3.5 acres) of the respective EG Zoning District, it does meet the provision of being no less than 5,000 sq. ft. pursuant to the subdivision regulation for size and an exception is being requested for the substandard parcel size (for proposed Parcel B).
13. That the site is physically suitable for the type and proposed density of development as the proposed development plans demonstrate that proposed Parcel B is physically suitable for development, subject to the variance request being sought due to the parcel's unique, narrow shape. Furthermore, proposed Parcel A is a relatively flat, corner parcel that would be capable of supporting future development.
14. That the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat as an Initial Study and EIR concluded that the project, as proposed and mitigated, will not result in significant environmental impacts, including to biological resources.

15. That the design of the subdivision or type of improvements is not likely to cause serious public health problems as the project has been reviewed and conditionally approved by the County Building Department, Department of Public Works, Geotechnical Section, and Coastside Fire Protection District to ensure that public health and safety are preserved and protected.
16. That the design of the subdivision and the proposed improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision as the project parcel contains no public easements, nor proposes any public easement through or over the project parcels.
17. That the discharge of waste from the proposed subdivision into an existing community sewer system would not result in violation of existing requirements prescribed by a State Regional Water Control Board pursuant to Division 7 (commencing with Section 13000) of the State Water Code as there is no indication that sewer connection to the Granada Community Services District would result in any violations of the State Regional Water Control Board.
18. That the land is not subject to a contract entered into pursuant to the California Land Conservation Act of 1965 (“the Williamson Act”) as the land proposed for subdivision is not under a Williamson Act Contract.

For the Exception to the Subdivision Regulations, Find:

19. That there are special circumstances or conditions affecting the property, or the exception is necessary for the preservation and enjoyment of substantial property rights of the owner/subdivider as the existing project parcel proposed for subdivision is a split-zoned parcel that consists of 0.31 acres of C-1 Zoning and 2.38 acres of EG Zoning; the acquisition of contiguous parcels to create a conforming sized (3.5 acres) EG-zoned parcel is not reasonably feasible as all contiguous lots are zoned C-1 and developed with single to multi-family residences or commercial uses.
20. That the exception is appropriate for the proper design and/or function of the subdivision as the creation of the proposed 2.38-acre parcel would allow the creation of separate parcels for each of the adopted land use and zoning designations that currently exist over the 2.7-acre, split-zoned parcel; the application of EG development standards on the newly created 2.38-acre parcel would not change as only that portion of land within the respective zoning district is used to establish setbacks, lot coverage, etc.; and the subdivision would allow the commercially zoned portion of the existing 2.7-acre parcel to be better utilized in the future as a separate parcel for commercial development.
21. That the granting of the exception will not be detrimental to the public health, safety, or welfare or injurious to other property or uses in the area in which the property is situated as the subdivision will eliminate the inadvertent creation of a

split-zoned parcel and provide an opportunity for better utilization of the commercially zoned portion of the parcel for future development while resulting in no change to the application of zoning development standards for either newly created parcel.

For the Grading Permit, Find:

22. That the granting of the permit will not have a significant adverse effect on the environment as the Initial Study and certified EIR found that the implementation of all adopted mitigation measures will prevent the project from having a significant adverse effect on the environment and all adopted mitigation measures from the project EIR have been incorporated as conditions of approval below.
23. That the project conforms to the criteria of Chapter 8, Division VII, San Mateo County Ordinance Code, including the standards referenced in Section 9296 as the project, as proposed and conditioned, conforms to the standards in the County Grading Regulations, including those relative to erosion and sediment control, dust control, fire safety, and timing of grading activity. Furthermore, the project has been reviewed and approved by the County's Department of Public Works and the County's Geotechnical Engineer.
24. That the project is consistent with the General Plan as the project conforms to all applicable General Plan policies, including Vegetative, Water, Fish and Wildlife Resources; Soil Resources; Visual Quality; Historical and Archaeological Resources; Water Supply; Wastewater; Transportation; Natural Hazards; and Man-Made Hazards policies, as well as the San Mateo County Energy Efficiency Climate Action Plan (EECAP), as discussed in detail in the staff report dated July 12, 2017.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. This approval applies only to the proposal, documents, and plans described in this report and submitted and approved by the Planning Commission on July 12, 2017. Minor modifications to the project may be approved by the Community Development Director if they are consistent with the intent of, and in substantial conformance with, this approval.
2. This subdivision approval is valid for two (2) years from the date of final approval, during which time compliance with applicable conditions of approval must be demonstrated and, subsequently, a final parcel map shall be filed. An extension to this time period in accordance with Section 7013.5.c of the Subdivision Regulations may be issued by the Community Development Director upon written request submitted 30 days prior to the expiration date and payment of any applicable extension fees if required.

3. The Coastal Development Permit, Use Permit, Variance, Design Review, and Grading Permit approvals shall run concurrently with the subdivision approval.
4. The applicant shall submit all approved exterior color and material specifications as part of the building permit submittal. Color and materials verification by the Current Planning Section shall occur prior to final building inspection.
5. All exterior lighting shall be designed and located so as to confine direct rays to the subject property and prevent glare in the surrounding area and shall be rated "Dark Sky" compliant. Manufacturer cut sheets for all proposed exterior lighting shall be reviewed and approved by the Planning Department during the building permit process to verify compliance with this condition. Installed exterior lighting shall be subject to inspection and approval by the Current Planning Section prior to final building inspection.
6. A total of 10 trees are approved for removal as shown on the Landscape Plan, dated December 2, 2016, of which 4 are regulated under the County's Significant Tree Ordinance. All regulated trees (4) proposed for removal shall be replaced at a 1:1 ratio, minimum 15-gallon size stock.
7. A Landscape and Tree Replanting Plan shall be submitted as part of the Building Permit plans for review and approval. The Plan shall include the species, size, and location of all proposed plantings, including the replacement trees required by Condition 6, and shall identify their maximum height at maturity. All plants and trees to be installed shall be drought resistant, non-invasive species that are appropriate for the site's soil type and climate. To ensure landscaping and tree plantings do not interfere with public view impacts from Avenue Alhambra or other uphill viewing locations, all plantings located in areas on the property that could result in public view obstructions at maturity shall be no greater in height at maturity than 3 ft. above the adjacent Avenue Alhambra street elevation.
8. The project shall be subject to compliance with the County's Water Efficient Landscape Ordinance (WELO). A landscape documentation package in compliance with WELO submittal requirements shall be submitted as part of the building permit for review and approval.
9. The applicant shall coordinate with the project biologist and a licensed land surveyor to identify in the field (i.e. visual markers) and on the plans submitted for building permit, the limits of riparian vegetation and the limits of the applicable 50-ft. buffer zone of the riparian corridor located northwest of the project site. Field identification shall be conducted and temporary exclusion fencing installed to the satisfaction of the Community Development Director and verified prior to grading permit "hard card" and/or building permit issuance to ensure that no construction activities or disturbance occurs within the buffer area.
10. No grading activities shall commence until the applicant has been issued a Grading Permit "Hard Card" by the Planning Department. Prior to the issuance of

a Grading Permit “Hard Card,” the applicant shall submit a schedule to the Current Planning Section stating the date when grading operations will begin, anticipated end date of grading operations, including dates of revegetation and estimated date of establishment of newly planted vegetation.

11. No grading shall be allowed during the wet weather season (October 1 through April 30) to avoid potential soil erosion, unless the applicant applies for an Exception to the Winter Grading Moratorium and the Community Development Director grants the exception. Exceptions will only be granted if dry weather is forecasted during scheduled grading operations, and the erosion control plan includes adequate winterization measures (amongst other determining factors).
12. The site is considered a Construction Stormwater Regulated Site (SWRS). Any grading activities conducted during the wet weather season (October 1 to April 30) will require monthly erosion and sediment control inspections in compliance with the National Pollutant Discharge Elimination System Municipal Regional Permit Section C.6 (Construction Site Control) and Planning and Building Department’s Enforcement Response Plan.
13. An Erosion Control and Tree Protection Pre-Site Inspection shall be conducted prior to the issuance of a grading permit “hard card” and building permit to ensure the approved erosion control and tree protection measures are installed adequately prior to the start of ground disturbing activities.
14. The applicant shall submit a State Water Resources Control Board Waste Discharge Identification (WDID) number to the Current Planning Section prior to issuance of the grading permit hard card.
15. The provision of the San Mateo County Grading Ordinance shall govern all grading on the project site. Per San Mateo County Ordinance Code Section 9296.5, all equipment used in grading operations shall meet spark arrester and firefighting tool requirements, as specified in the California Public Resources Code.
16. The engineer who prepared the final approved grading and drainage plans shall be responsible for the inspection and certification of the grading as required by Section 9297.2 of the Grading Ordinance. The engineer’s responsibilities shall include those relating to non-compliance detailed in Section 9297.4 of the Grading Ordinance.
17. In order to receive final sign-off on the Grading Permit “Hard Card,” the applicant shall ensure performance of the following activities within thirty (30) days of the completion of grading at the project site:
 - a. The engineer shall submit written certification, that all grading has been completed in conformance with the approved plans, conditions of approval/mitigation measures, and the Grading Regulations, to the

Department of Public Works and the Planning and Building Department's Geotechnical Engineer.

- b. The geotechnical consultant shall observe and approve all applicable work during construction and sign Section II of the Geotechnical Consultant Approval form, for submittal to the Planning and Building Department's Geotechnical Engineer and the Current Planning Section.

Please include the Geotechnical File Number, 10B-920, in all correspondence with the Geotechnical Section of the Planning and Building Department.

18. Erosion and sediment control during the course of grading work shall be according to the plan prepared and signed by the engineer of record, and approved by the Department of Public Works and the Current Planning Section. Revisions to the approved erosion and sediment control plan shall be prepared and signed by the engineer and reviewed and approved by the Department of Public Works and the Current Planning Section.
19. It shall be the responsibility of the engineer of record to regularly inspect the erosion control measures for the duration of all grading activities, especially after major storm events, and determine that they are functioning as designed and that proper maintenance is being performed. Deficiencies shall be immediately corrected, as determined by and implemented under the observation of the engineer of record.
20. In the event that archaeological resources are inadvertently discovered during construction, work in the immediate vicinity (within 25 feet) of the find must stop until a qualified archaeologist can evaluate the significance of the find. Construction activities may continue in other areas beyond the 25-foot stop work area. A qualified archaeologist is defined as someone who meets the Secretary of the Interior's Professional Qualifications Standards in archaeology. The Current Planning Section shall be notified of such findings, and no additional work shall be done in the stop work area until the archaeologist has recommended appropriate measures, and those measures have been approved by the Current Planning Section and implemented.
21. Should any human remains be discovered during construction, all ground disturbing work shall cease and the County Coroner be immediately notified, pursuant to Section 7050.5 of the State of California Health and Safety Code. Work must stop until the County Coroner can make a determination of origin and disposition of the remains pursuant to California Public Resources Code Section 5097.98. If the County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within 24 hours. A qualified archaeologist, in consultation with the Native American Heritage Commission, shall recommend subsequent measures for disposition of the remains.

22. Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving, and Christmas (San Mateo Ordinance Code Section 4.88.360).
23. Prior to the commencement of grading or construction at the project site, an information sign shall be posted at the entrance to the construction site that identifies the permitted construction hours and provides a telephone number to call and receive information about the construction project or to report complaints regarding excessive noise levels.
24. The applicant shall submit one (1) set of building plans to the Current Planning Section, separate from the plan sets submitted for building permit, for referral to the San Mateo County Mosquito Abatement District.
25. All new electric lines shall be installed underground from the nearest existing utility pole.
26. Any future development on the subdivided Parcel A shall be subject to separate review and permitting requirements.
27. Within four (4) business days of the final approval date for this project, the applicant shall submit an environmental filing fee of \$2,216.25, as required under Fish and Game Code Section 711.4, plus a \$50.00 recording fee. Thus, the applicant shall submit a check in the total amount of \$2,266.25, made payable to "San Mateo County Clerk", to the project planner for the County's filing, as a responsible agency pursuant to Section 15096(i) of the CEQA Guidelines, of a Notice of Determination. Please be aware that the Department of Fish and Game environmental filing fee increases starting the 1st day of each new calendar year (i.e., January 1, 2017). The fee amount due is based on the date of payment of the fees.

National Pollutant Discharge Elimination System (NPDES) Municipal Regional Permit (MRP) Provision C.3 Requirements:

28. A separate C.3 and C.6 Development Review Checklist shall be submitted as part of the building permit submittal.
29. The project proposes new and replaced project impervious surface in excess of 10,000 sq. ft. Therefore, the applicant shall include in their building permit submittal a Stormwater Management Plan (SWMP) that includes, at a minimum, exhibit(s) showing drainage areas and location of Low Impact Development (LID) treatment measures; project watershed; total project site area and total area of land disturbed; total new and/or replaced impervious area; treatment measures and hydraulic sizing calculations; a listing of source control and site design measures to be implemented at the site; hydromodification management

measures and calculations, if applicable; NRCS soil type; saturated hydraulic conductivity rate(s) at relevant locations or hydrologic soil type (A, B, C, or D) and source of information; elevation of high seasonal groundwater table; a brief summary of how the project is complying with Provision C.3 of the Municipal Regional Permit (MRP); and detailed Maintenance Plan(s) for each site design, source control and treatment measure requiring maintenance. Treatment controls shall be designed and sized to treat runoff from new and/or replaced impervious areas only.

30. LID treatment measures to be shown on final improvement or grading plans shall not differ materially from the LID treatment measures presented on the project plans, approved on July 12, 2017, without written approval from the Planning Department.
31. No treatment measures shall have standing water for more than five (5) days, for vector control.
32. The project shall comply with all requirements of the Municipal Regional Stormwater NPDES Permit Provision C.3. Please refer to the San Mateo Countywide Water Pollution Prevention Program's (SMCWPPP) C.3 Stormwater Technical Guidance Manual, for assistance in implementing LID measures, at the site at http://www.flowstobay.org/bs_new_development.php.
33. Efficient irrigation systems shall be used throughout all landscaped areas in accordance with the Model Water Efficient Landscape Ordinance.
34. The project shall incorporate at least one site design measure, pursuant to Provision C.3.c.i.(2)(a) of the Municipal Regional Permit.
35. Biotreatment measures (including bioretention areas, flow-through planters and non-proprietary tree well filters) shall be sized to treat runoff from 100% of the applicable drainage area (all impervious areas and applicable landscaped areas) using flow- or volume-based sizing criteria as described in the Provision C.3.d of the MRP, or using the simplified sizing method (4% rule of thumb), described in the C.3 Technical Guidance and based on the flow-based sizing criteria in Provision C.3.d.i.(2)(c).
36. Plant species used within the biotreatment measure area shall be consistent with Appendix A of the C.3 Technical Guidance.
37. Biotreatment soil mix for biotreatment measures shall have a minimum percolation rate of 5 inches per hour and a maximum percolation rate of 10 inches per hour, and shall be in conformance with Attachment L of the MRP, which is included in Appendix K of the C.3 Technical Guidance.

38. Design of biotreatment measures shall be consistent with technical guidance for the applicable type of biotreatment measure provided in Chapter 6 of the C.3 Technical Guidance.
39. The property owner shall enter into an Operation and Maintenance Agreement (O&M Agreement) with the County (executed by the Community Development Director) to ensure long-term maintenance and servicing by the property owner of stormwater site design and treatment control measures according to the Maintenance Plan(s), for the life of the project. The O&M Agreement shall be recorded prior to final building inspection. As required by the NPDES Municipal Regional Permit:
 - a. The property owner shall be responsible for conducting all servicing and maintenance as described and required by the treatment measure(s) in the Maintenance Plan(s). Maintenance of all site design and treatment control measures shall be the property owner's responsibility.
 - b. The property owner is responsible for submitting an Annual Report to the Planning and Building Department by December 31 of each year, as required by the O&M Agreement. The property owner is responsible for the payment of any inspection fee for County inspections of the stormwater facility.
 - c. Approved Maintenance Plan(s) shall be kept on-site and made readily available to maintenance crews. Maintenance Plan(s) shall be strictly adhered to.
 - d. Site access shall be granted to all applicable representatives of the County, San Mateo County Mosquito and Vector Control District, and the Water Board, at any time, for the sole purpose of performing operation and maintenance inspections of the installed stormwater treatment systems. A statement to that effect shall be made a part of the O&M Agreement.
40. Within one (1) week of the installation date of the approved facility, the project civil engineer shall notify Richard Lee, Associate Engineer, Department of Public Works, by email at rlee@smcgov.org or by fax at 650/363-4859. Notice shall include the installation date of the last component of the approved facility and the name of the project civil engineer. The County will perform a final inspection of the approved facility within 45 days of the date of installation.

Mitigation Measures from the certified Environmental Impact Report:

41. The Applicant shall require their construction contractor to comply with the following Bay Area Air Quality Management District (BAAQMD) Best Management Practices for reducing construction emissions of PM10 and PM2.5:

- a. Water all active construction areas at least twice daily or as often as needed to control dust emissions. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.
- b. Pave, apply water twice daily or as often as necessary to control dust, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- c. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
- d. Sweep daily (with water sweepers using reclaimed water if possible) or as often as needed all paved access roads (e.g., Obispo Road, Avenue Alhambra, and Coronado Road), parking areas, and staging areas at the construction site to control dust.
- e. Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
- f. Hydro-seed (using native species, whenever possible) or apply non-toxic soil stabilizers to inactive construction areas.
- g. Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (e.g., dirt, sand).
- h. Limit vehicle traffic speeds on unpaved roads to 15 mph.
- i. Replant vegetation in disturbed areas as quickly as possible.
- j. Install fiber rolls, silt fencing or other erosion control measures to prevent silt runoff onto public roadways.

The County of San Mateo Planning and Building Official or their designee shall verify compliance that these measures have been implemented during normal construction site inspections.

42. During construction, the construction contractor(s) shall use construction equipment fitted with Level 3 Diesel Particulate Filters (DPF) and engines that meet the USEPA Certified Tier 3 emissions standards for all equipment of 25 horsepower or more.

The construction contractor shall maintain a list of all operating equipment in use on the project site for verification by the County of San Mateo Building Division

official or his/her designee. The construction equipment list shall state the makes, models, and number of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with manufacturer recommendations. The construction contractor shall ensure that all non-essential idling of construction equipment is restricted to five minutes or less in compliance with California Air Resources Board Rule 2449. Prior to issuance of any construction permit, the construction contractor shall ensure that all construction plans submitted to the County of San Mateo Planning Division and/or Building Division clearly show the requirement for Level 3 DPF and USEPA Tier 3 or higher emissions standards for construction equipment over 25 horsepower.

43. Ensure avoidance of California Red-legged Frog and San Francisco Garter Snake. The following measures shall be implemented as recommended in the 2015 Preliminary Environmentally Sensitive Habitat Area Assessment of the site to ensure avoidance of individual California red-legged frog (CRLF) or San Francisco garter snake (SFGS) in the remote instance individuals were to disperse onto the site in the future in advance of or during construction:
 - a. Wildlife exclusion fence: Wildlife exclusion fencing shall be installed prior to the start of construction and maintained until construction of the proposed project is complete. Such fencing shall, at a minimum, run along the proposed project boundaries with riparian habitat and for a distance of at least 100 feet perpendicular to riparian habitat. Silt fence material may be used to also provide erosion control, however, per CRLF and SFGS fence standards, it must be at least 42 inches in height (at least 36 inches above ground and buried at least 6 inches below the ground) and stakes must be placed on the inside of the project (side on which work will take place).
 - b. Pre-construction survey: Pre-construction surveys for CRLF and SFGS shall be conducted prior to initiation of project activities including fence installation and within 48 hours of the start of ground disturbance activities following completion of exclusion fence installation. Surveys are to be conducted by approved qualified biologists with experience surveying for each species. If project activities are stopped for greater than 7 days, a follow-up preconstruction survey may be required within 48 hours prior to reinitiating project activities.
 - c. Earth Disturbing Activities only during dry weather: No earth disturbing activities shall take place during rain events when there is potential for accumulation greater than 0.25-inch in a 24-hour period. In addition, no earth disturbing activities shall occur for 48 hours following rain events in which 0.25 inch of rain accumulation within 24 hours.
 - d. Biological monitoring: An approved biologist shall be required to inspect and approve installation of the exclusion fence.

- e. Erosion Control Materials: Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure amphibians and reptile species do not get trapped. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.
44. Ensure Avoidance of Bird Nests in Active Use. Tree removal, landscape grubbing, and building demolition shall be performed in compliance with the Migratory Bird Treaty Act and relevant sections of the California Fish and Game Code to avoid loss of nests in active use. This shall be accomplished by scheduling building demolition, tree removal and landscape grubbing outside of the bird nesting season (which occurs from February 1 to August 31) to avoid possible impacts on nesting birds if new nests are established in the future. Alternatively, if building demolition, tree removal and landscape grubbing cannot be scheduled during the non-nesting season (September 1 to January 31), a pre-construction nesting survey shall be conducted. The pre-construction nesting survey shall include the following:
- a. A qualified biologist (Biologist) shall conduct a pre-construction nesting bird (both passerine and raptor) survey within seven calendar days prior to tree removal, landscape grubbing, and/or building demolition.
 - b. If no nesting birds or active nests are observed, no further action is required and tree removal, landscape grubbing, and building demolition shall occur within seven calendar days of the survey.
 - c. Another nest survey shall be conducted if more than seven calendar days elapse between the initial nest search and the beginning of tree removal, landscape grubbing, and building demolition.
 - d. If any active nests are encountered, the Biologist shall determine an appropriate disturbance-free buffer zone to be established around the nest location(s) until the young have fledged. Buffer zones vary depending on the species (i.e., typically 75 to 100 feet for passerines and 300 feet for raptors) and other factors such as ongoing disturbance in the vicinity of the nest location. If necessary, the dimensions of the buffer zone shall be determined in consultation with the California Department of Fish and Wildlife.
 - e. Orange construction fencing, flagging, or other marking system shall be installed to delineate the buffer zone around the nest location(s) within which no construction-related equipment or operations shall be permitted. Continued use of existing facilities such as surface parking and site maintenance may continue within this buffer zone.
 - f. No restrictions on grading or construction activities outside the prescribed buffer zone are required once the zone has been identified and delineated in

- the field and workers have been properly trained to avoid the buffer zone area.
- g. Construction activities shall be restricted from the buffer zone until the Biologist has determined that young birds have fledged and the buffer zone is no longer needed.
 - h. A survey report of findings verifying that any young have fledged shall be submitted by the Biologist for review and approval by the County of San Mateo prior to initiation of any tree removal, landscape grubbing, building demolition, and other construction activities within the buffer zone. Following written approval by the County, tree removal, and construction within the nest-buffer zone may proceed.

Department of Public Works

- 45. The applicant shall submit a Parcel Map to the Department of Public Works County Surveyor for review, to satisfy the State of California Subdivision Map Act. The final map will be recorded only after all Inter Department conditions have been met.
- 46. The applicant shall submit written certification from the appropriate utilities to the Department of Public Works and the Planning and Building Department stating that they will provide utility (e.g., sewer, water, energy, communication, etc.) services to the proposed parcels of this subdivision.
- 47. The applicant shall submit to the Current Planning Section, for recordation, legal descriptions of the reconfigured parcels. The Current Planning Section will review these descriptions and forward them to the Department of Public Works for approval.
- 48. The applicant shall have prepared, by a Registered Civil Engineer, a drainage analysis of the proposed subdivision and submit it to the Department of Public Works for review and approval. The drainage analysis shall consist of a written narrative and a plan. The flow of the stormwater onto, over, and off of the property being subdivided shall be detailed on the plan and shall include adjacent lands as appropriate to clearly depict the pattern of flow. The analysis shall detail the measures necessary to certify adequate drainage. Post development flows and velocities shall not exceed those that existed in the predeveloped state. Recommended measures shall be designed and included in the street improvement plans and submitted to the Department of Public Works for review and approval.
- 49. Prior to the issuance of the building permit, the applicant shall submit a driveway "Plan and Profile," to the Department of Public Works, showing the driveway access to the parcel (e.g., garage slab) complying with County Standards for driveway slopes (not to exceed 20%) and to County standards for driveways (at the property line) being the same elevation as the center of the access roadway.

When appropriate, as determined by the Department of Public Works, this plan and profile shall be prepared from elevations and alignment shown on the roadway improvement plans. The driveway plan shall also include and show specific provisions and details for both the existing and the proposed drainage patterns and drainage facilities.

50. No proposed construction work or hauling of heavy loads within the County right-of-way shall begin until County requirements for the issuance of an encroachment permit, including the review of traffic control plans, have been met and an encroachment permit issued. The applicant shall contact a Department of Public Works Inspector 48 hours prior to commencing work in the right-of-way.
 - a. All landscaping shall be properly maintained and shall be designed with efficient irrigation practices to reduce runoff, promote surface filtration and minimize the use of fertilizers, herbicides and pesticides which can contribute to runoff pollution.
 - b. Where subsurface conditions allow, the roof downspout systems from all structures shall be designed to drain into a designated, effective infiltration area or structure (refer to BMP Handbook for infiltration system designs and requirements).
 - c. Prior to completion of the building permit, all storm drains on-site shall be labeled "No Dumping - Drains to Bay."

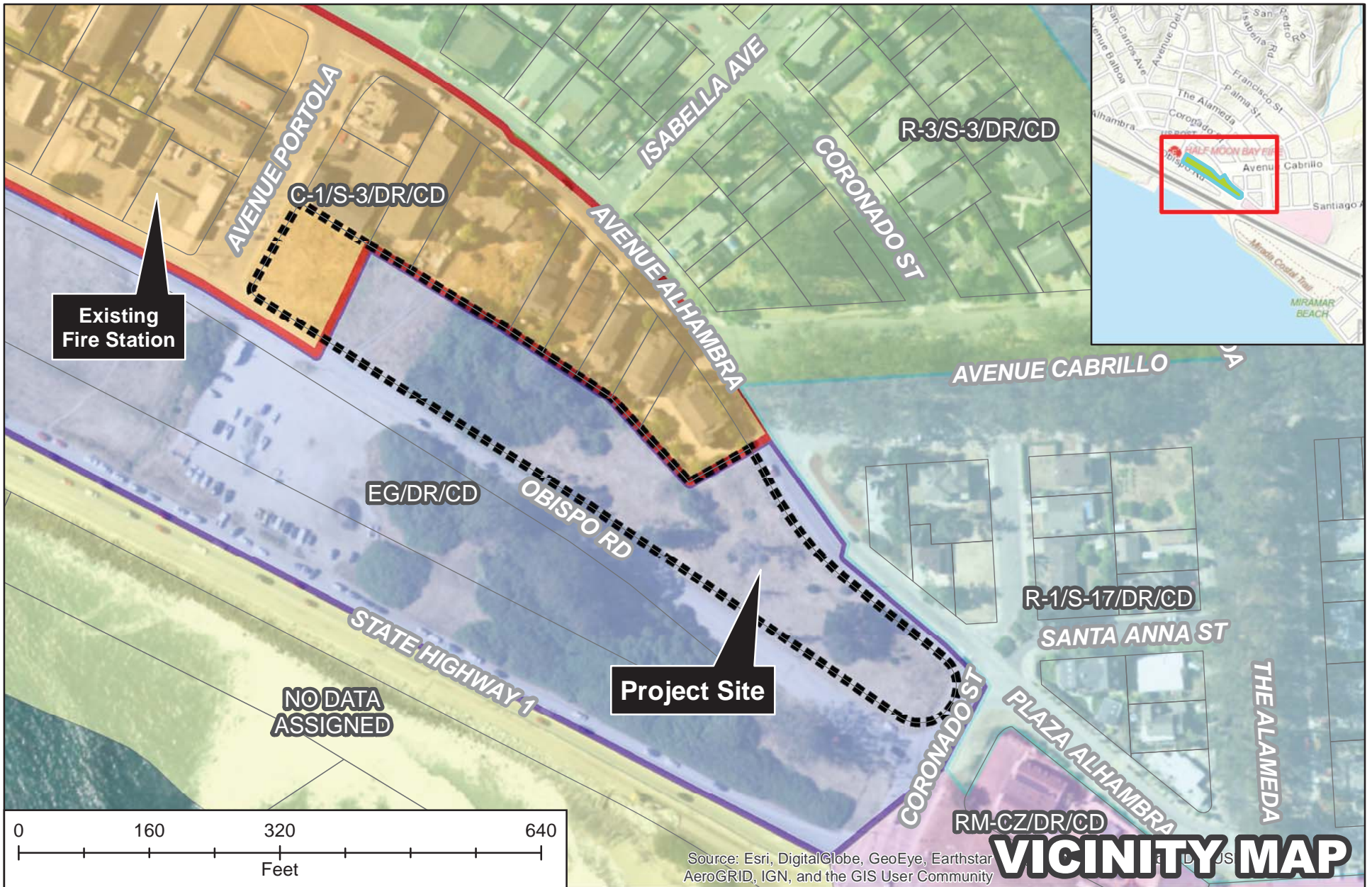
Granada Community Services District

51. The applicant must comply with all applicable requirements and standards for sewer service and garbage service as set forth by the Granada Community Services District, which may include the requirement for a sewer service variance, rural zone sewer connection determination, and sewer connection permit.

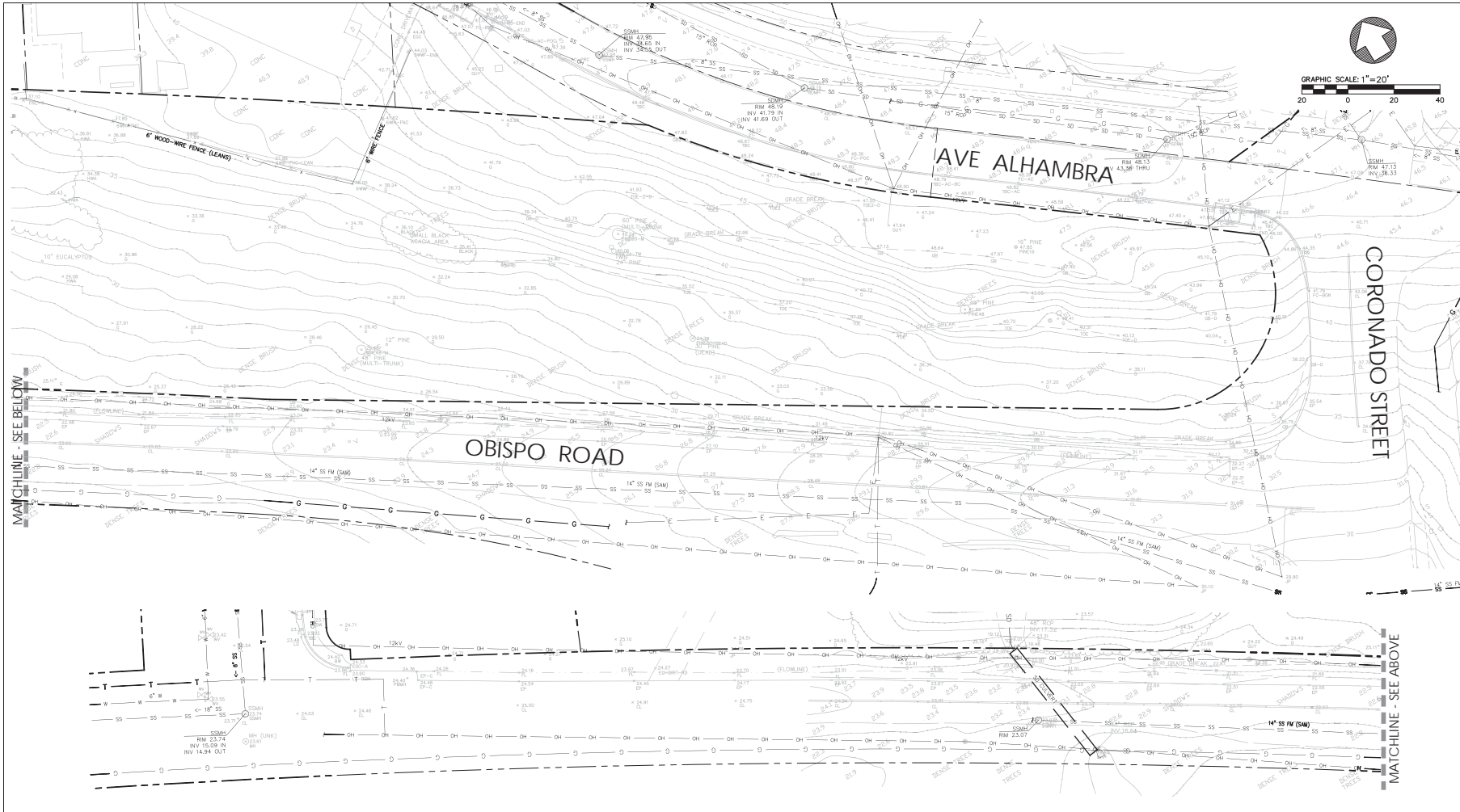
Coastside County Water District

52. The applicant must comply with all applicable requirements and standards for water service as set forth by the Coastside County Water District, including but not limited to compliance with the District's Indoor Water Use Efficiency Ordinance, requirements for a separate and dedicated irrigation meter with an approved backflow protection device, and separate fire service water connection with separate fire meter.

SSB:aow – SSBBB0316_WAU.DOCX



ATTACHMENT B



JKA ARCHITECTURE
 4933 EL CAMINO REAL, SUITE 100, SAN DIEGO, CA 92108
 TEL: 619.594.9777
 WWW.JKARCHITECTURE.COM



Project: COASTSIDE FIRE PROTECTION DISTRICT FIRE STATION #41
 OBISPO ROAD EL GRANADA, CA 94018



Description: 50% DESIGN DEVELOPMENT
 Date: TBD

NOT FOR CONSTRUCTION

Project Number: 20146103
 Approved By: SS
 Checked By: PC
 Drawn By: PK

Sheet Title: EXISTING CONDITIONS

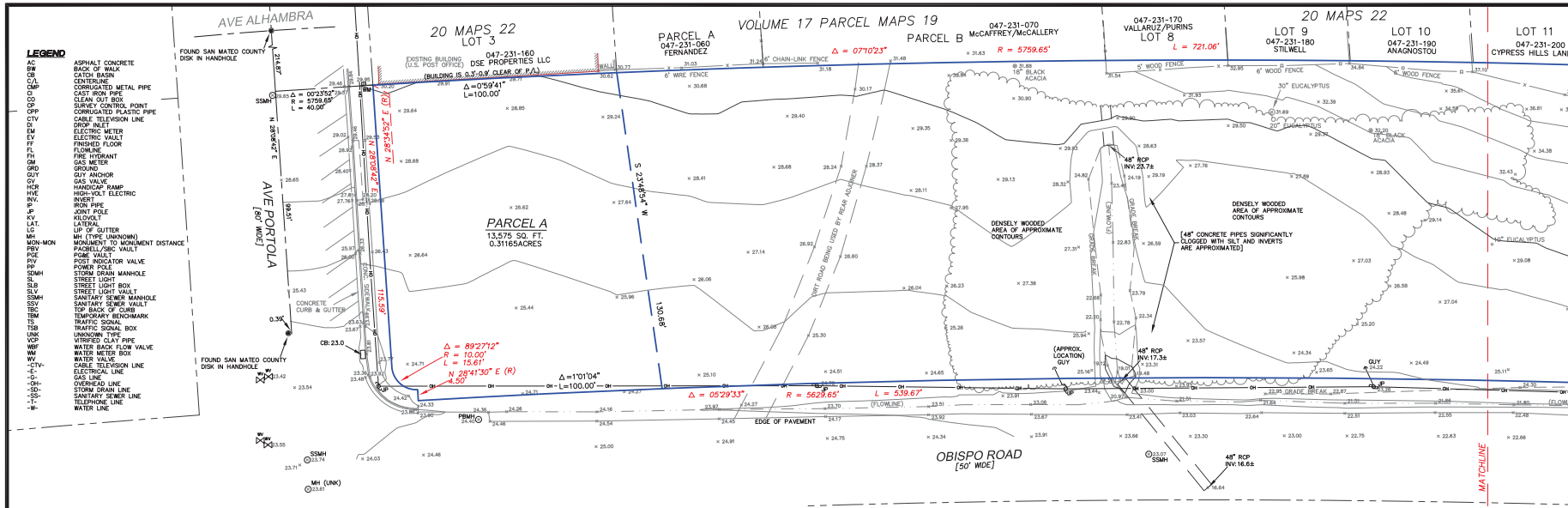
Sheet: 3 OF 16
 Sheet Number:

C2.0

LEGEND

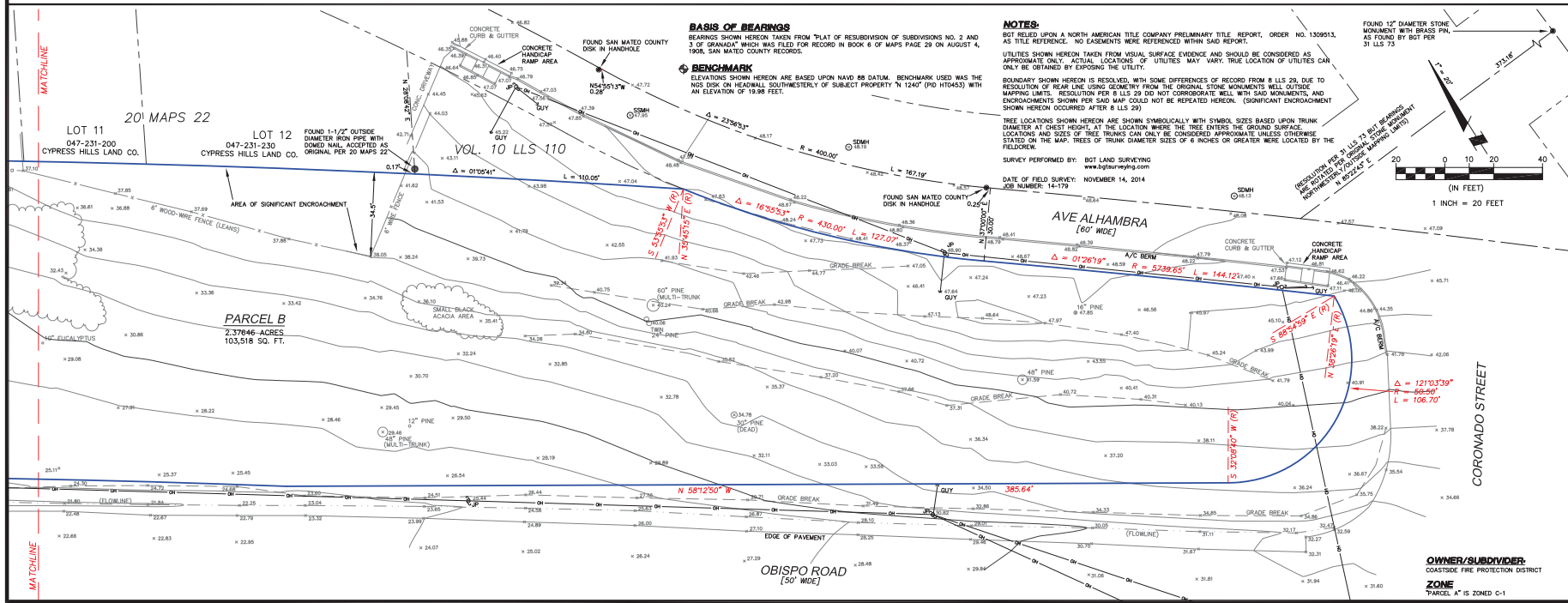
PROPERTY LINE	---
ADJACENT LOT LINE	- - -
GAS MAIN	— G —
WATER MAIN	— W —
ELECTRICAL LINE	— T —
SANITARY SEWER LINE	— SS —
STORM DRAIN LINE	— SD —
OVERHEAD LINE	— OH —
TELEPHONE LINE	— T —

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Assessor Parcel Number: 047-261-030

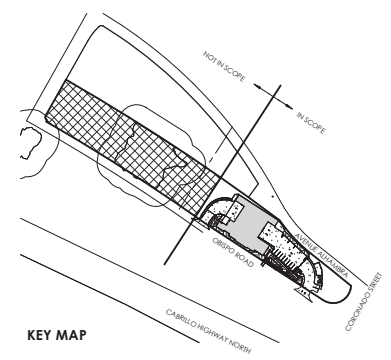
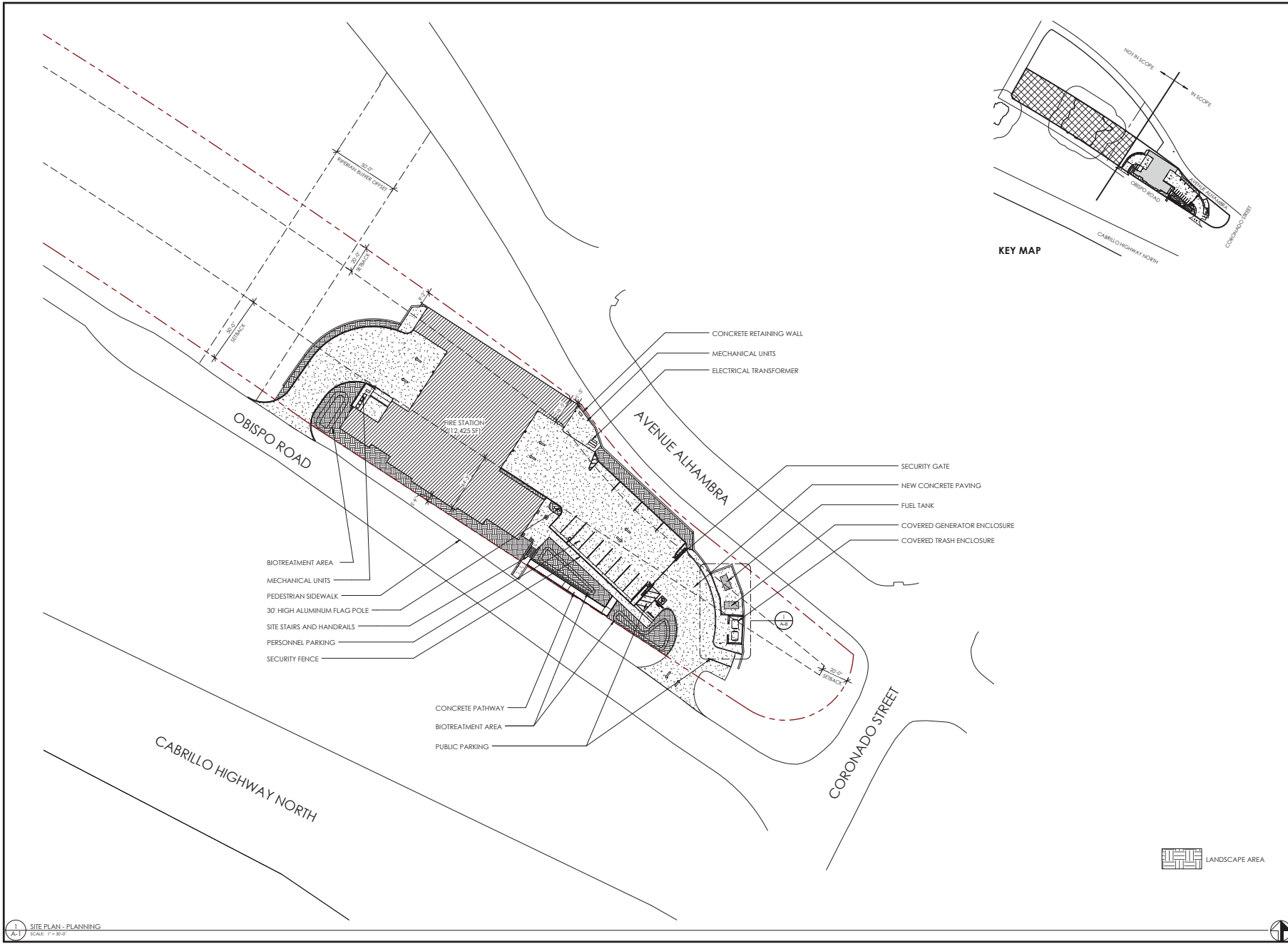
Prepared For: COASTSIDE FIRE PROTECTION DISTRICT



TENTATIVE PARCEL MAP - "STATION 41"
 BEING THE FORMER LANDS OF SAN MATEO COUNTY-HARBOR DISTRICT AS SHOWN ON 8 ILLS 29
VACANT PARCEL, OBISPO ROAD
 EL GRANADA, COUNTY OF SAN MATEO, CALIFORNIA

Date: AUG. 2016
 Scale: 1" = 20'
 Contour Interval: 2'
 Drawn: LHL
 Drawing Number: SU-1
 SHEET 1 OF 1
 Job No. 14-179

OWNER/SUBDIVIDER:
 COASTSIDE FIRE PROTECTION DISTRICT
 ZONE
 PARCEL A* IS ZONED C-1



- CONCRETE RETAINING WALL
- MECHANICAL UNITS
- ELECTRICAL TRANSFORMER
- CONCRETE PATHWAY
- BIOTREATMENT AREA
- PUBLIC PARKING
- CONCRETE RETAINING WALL
- MECHANICAL UNITS
- ELECTRICAL TRANSFORMER
- SECURITY GATE
- NEW CONCRETE PAVING
- FUEL TANK
- COVERED GENERATOR ENCLOSURE
- COVERED TRASH ENCLOSURE

- BIOTREATMENT AREA
- MECHANICAL UNITS
- PEDESTRIAN SIDEWALK
- 30' HIGH ALUMINUM FLAG POLE
- SITE STAIRS AND HANDRAILS
- PERSONNEL PARKING
- SECURITY FENCE

FIRE STATION
(12,423 SF)

OBISPO ROAD

AVENUE ALHAMBRA

CORONADO STREET

CABRILLO HIGHWAY NORTH



1 SITE PLAN - PLANNING
A-1 SCALE: 1" = 30'

JKA ARCHITECTURE
4838 EL CERRILLO LANE | SAN DIEGO, CA 92123 | 619.584.1177
www.jkaarchitecture.com

Project:
COASTSIDE FIRE PROTECTION DISTRICT
FIRE STATION #41
OBISPO ROAD
EL GRANADA, CA 94018



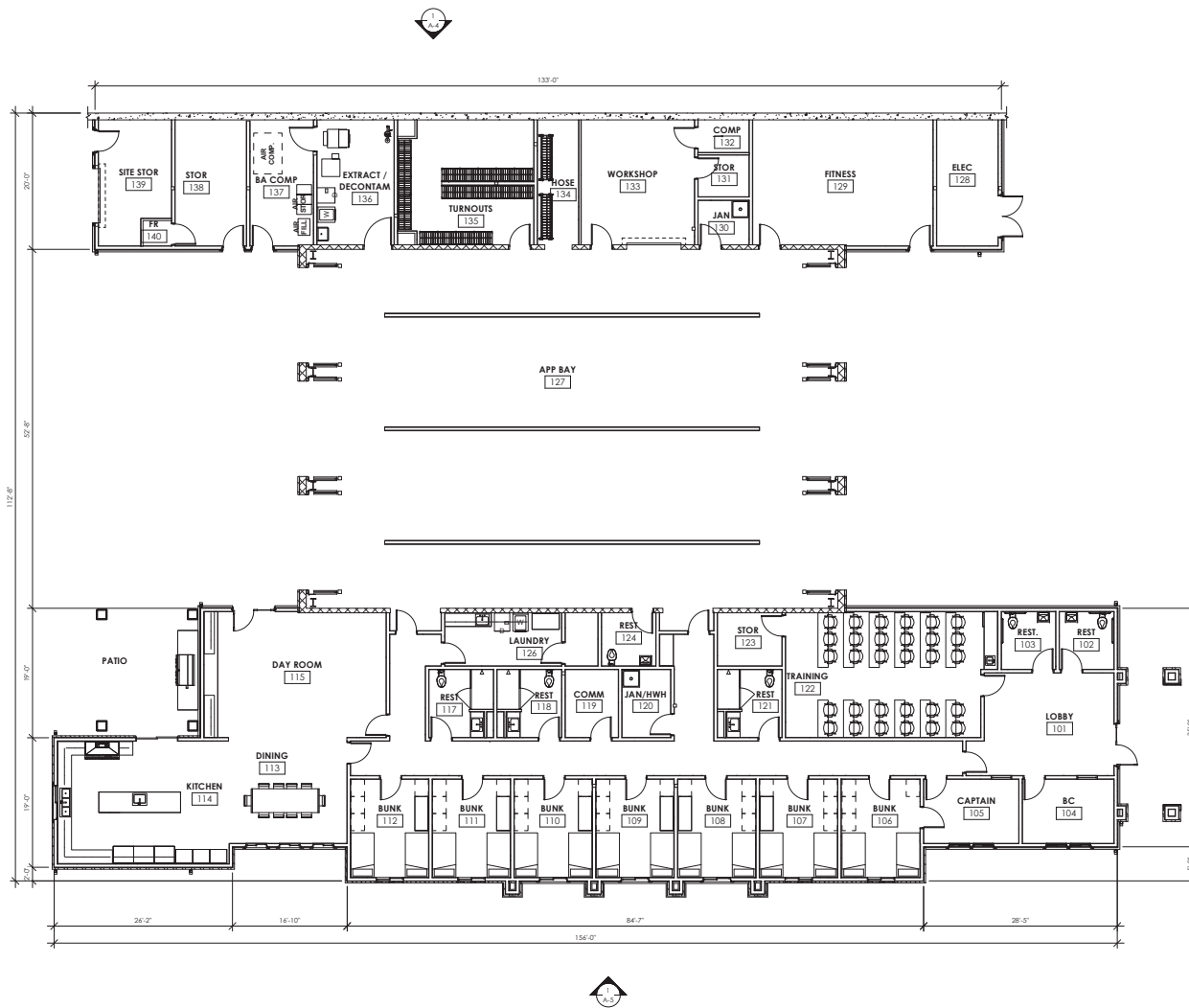
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Date: 08/16/14

Project Number: 150202
Approved By: Approver
Checked By: Checker
Drawn By: Author

Sheet Title:
SITE PLAN - PLANNING

Sheet: 8 OF 16
Sheet Number:

A-1



ROOM AREA SCHEDULE

ROOM NAME	GROSS AREA	CLASS
LOBBY	326 SF	B
REST	74 SF	B
REST	73 SF	B
REST	128 SF	B
CAPTAIN	435 SF	B
BUNK	182 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
BUNK	180 SF	B-3
COMMING	284 SF	B-3
KITCHEN	494 SF	B-3
DAY ROOM	336 SF	B-3
HALL	203 SF	B-3
REST	95 SF	B-3
REST	95 SF	B-3
COMM	54 SF	B-3
JAN/HWH	77 SF	B-3
REST	95 SF	B-3
TRAINING	598 SF	B
WORK	80 SF	B-3
REST	48 SF	B-3
SECRET	41 SF	B-3
LAUNDRY	146 SF	B-3
APP BAY	4491 SF	S-2
ELEC	182 SF	S-2
FITNESS	332 SF	S-2
JAN	23 SF	S-2
SECRET	50 SF	B-3
SECRET	50 SF	B-3
WORKSHOP	333 SF	S-2
HOSE	121 SF	S-2
TURNOUTS	176 SF	S-2
EXTRACT / DECONTAM	226 SF	S-2
BA COMP	187 SF	S-2
SECRET	211 SF	S-2
SITE STOR	196 SF	S-2
SECRET	17 SF	S-2
TOTAL GROSS AREA	12425 SF	



Project: COASTSIDE FIRE PROTECTION DISTRICT FIRE STATION #41
 OBISPO ROAD EL GRANADA, CA 94018



Description: PLANNING SUBMITTAL Date: 08/16/14

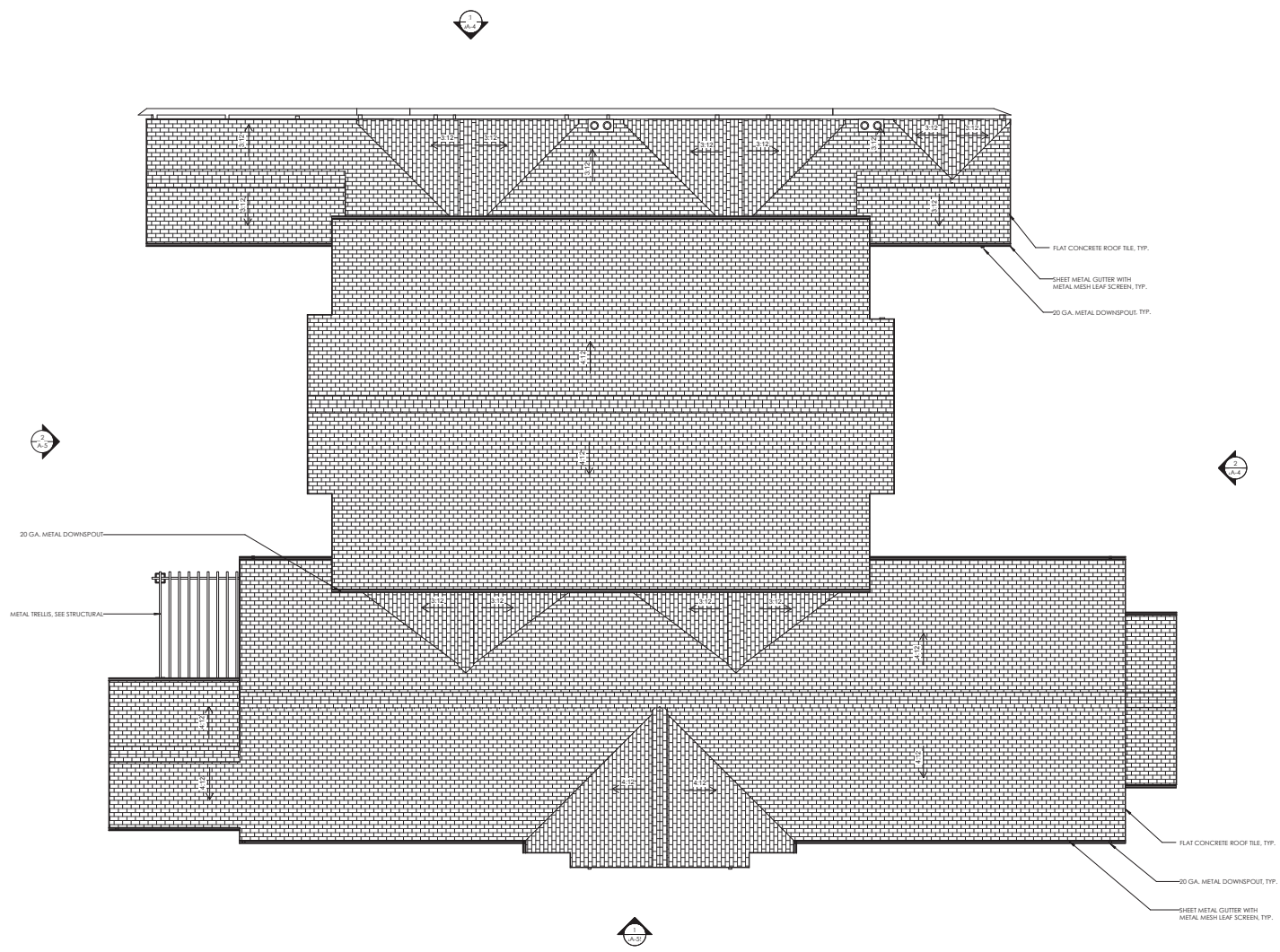
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 Approved By: Approver
 Checked By: Checker
 Drawn By: Author

Sheet Title: FLOOR PLAN - PLANNING

Sheet: 9 OF 14
 Sheet Number:

A-2

1 FLOOR PLAN - PLANNING
 SCALE: 1/8" = 1'-0"



FLAT CONCRETE ROOF TILE, TYP.
 SHEET METAL GUTTER WITH METAL MESH LEAF SCREEN, TYP.
 20 GA. METAL DOWNSPOUT, TYP.

20 GA. METAL DOWNSPOUT
 METAL TRUSS, SEE STRUCTURAL

FLAT CONCRETE ROOF TILE, TYP.
 20 GA. METAL DOWNSPOUT, TYP.
 SHEET METAL GUTTER WITH METAL MESH LEAF SCREEN, TYP.

1 ROOF PLAN - PLANNING
 A-3 SCALE: 1/8" = 1'-0"



Project:
 COASTSIDE FIRE PROTECTION DISTRICT
 FIRE STATION #41
 OBISPO ROAD
 EL GRANADA, CA 94018



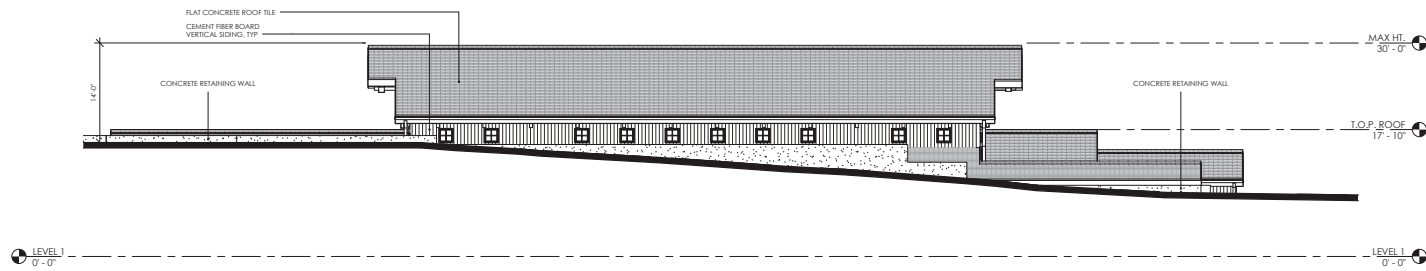
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 Date: 08/16/16

Project Number: 150202
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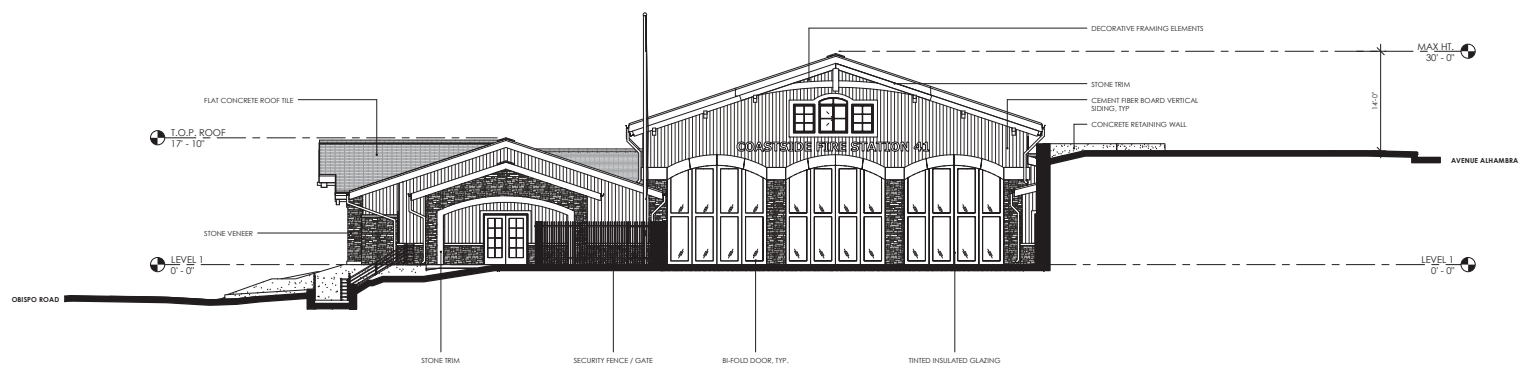
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ROOF PLAN - PLANNING

Sheet: 10 OF 16
 Sheet Number:

A-3



1 NORTH - PLANNING
SCALE: 1/8" = 1'-0"



2 EAST - PLANNING
SCALE: 1/8" = 1'-0"



Project:
COASTSIDE FIRE
PROTECTION DISTRICT
FIRE STATION #41
OBISPO ROAD
EL GRANADA, CA 94018



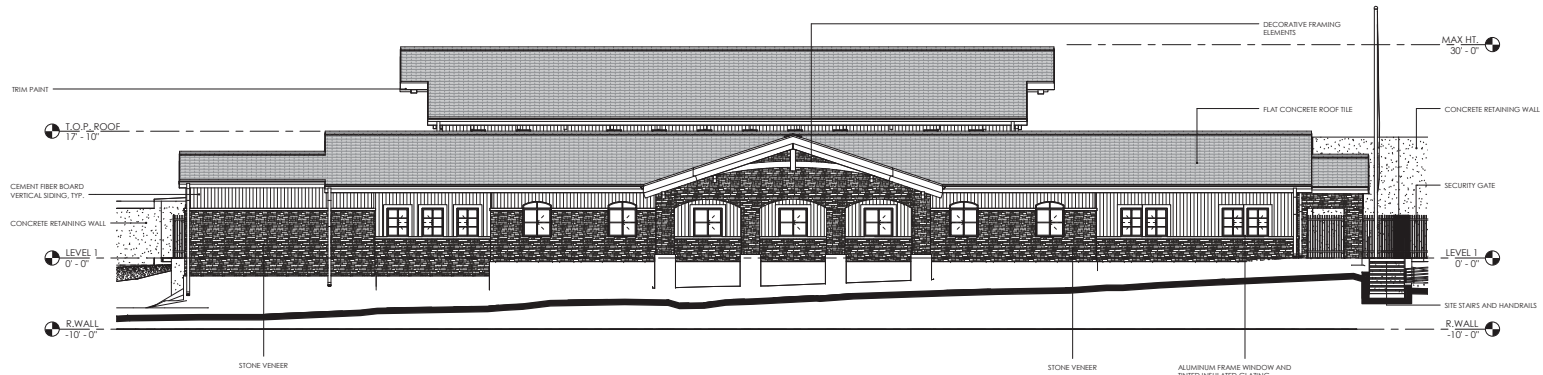
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Date: 08/16/16

Project Number: 150202
Approved By: Approver
Checked By: Checker
Drawn By: Author

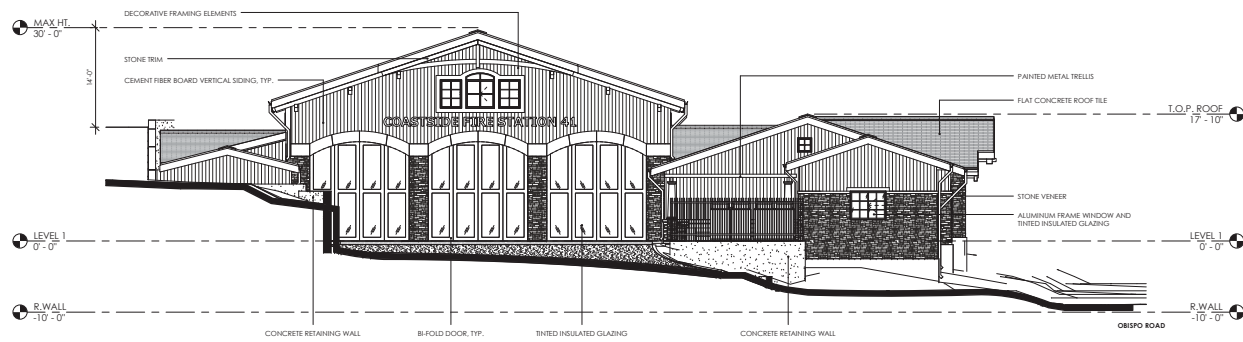
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EXTERIOR
ELEVATIONS -
PLANNING

Sheet: 11 OF 16
Sheet Number:

A-4

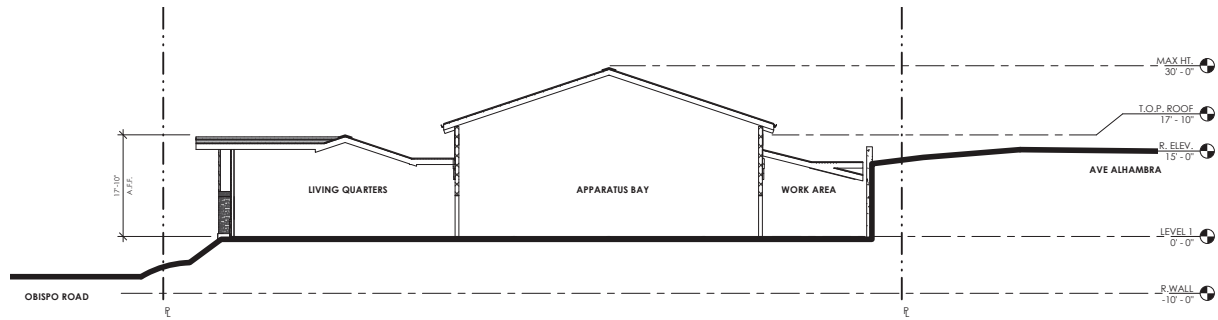


1 SOUTH - PLANNING
A-5
SCALE: 1/8" = 1'-0"

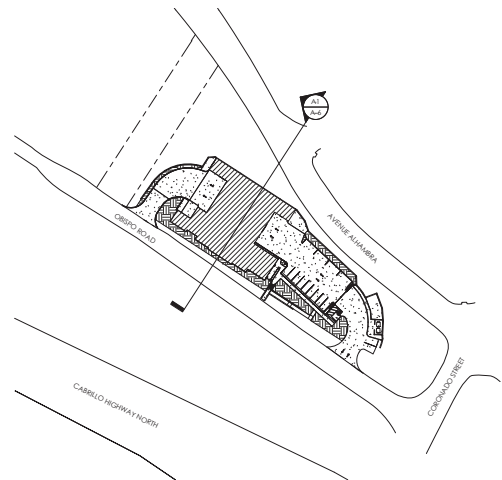


2 WEST - PLANNING
A-5
SCALE: 1/8" = 1'-0"





A1 SITE SECTION
R-6 SCALE: 1" = 10'-0"



KEY MAP

Project:
 COASTSIDE FIRE
 PROTECTION DISTRICT
 FIRE STATION #41
 OBISPO ROAD
 EL GRANADA, CA 94018



Description: PLANNING SUBMITTAL
 Date: 08/16/16

Project Number: 150202
 Approved By: Approver
 Checked By: Checker
 Drawn By: Author

Sheet Title:
**SITE SECTION -
 PLANNING**

Sheet: 13 OF 16
 Sheet Number:

A-6



VIEW 1 FROM OBISPO ROAD



VIEW 2 FROM OBISPO ROAD

Project:
 COASTSIDE FIRE
 PROTECTION DISTRICT
 FIRE STATION #41
 OBISPO ROAD
 EL GRANADA, CA 94018



Description: PLANNING SUBMITAL
 Date: 08/16/14

Project Number: 30202
 Approved By: [signature]
 Checked By: [signature]
 Drawn By: [signature]
 Sheet Title: RENDERINGS

Sheet: 1 of 18
 Sheet Number:



VIEW 1 FROM AVENUE ALHAMBRA



VIEW 2 FROM AVENUE ALHAMBRA

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Project:
 COASTSIDE FIRE
 PROTECTION DISTRICT
 FIRE STATION #41
 OBISPO ROAD
 EL GRANADA, CA 94018

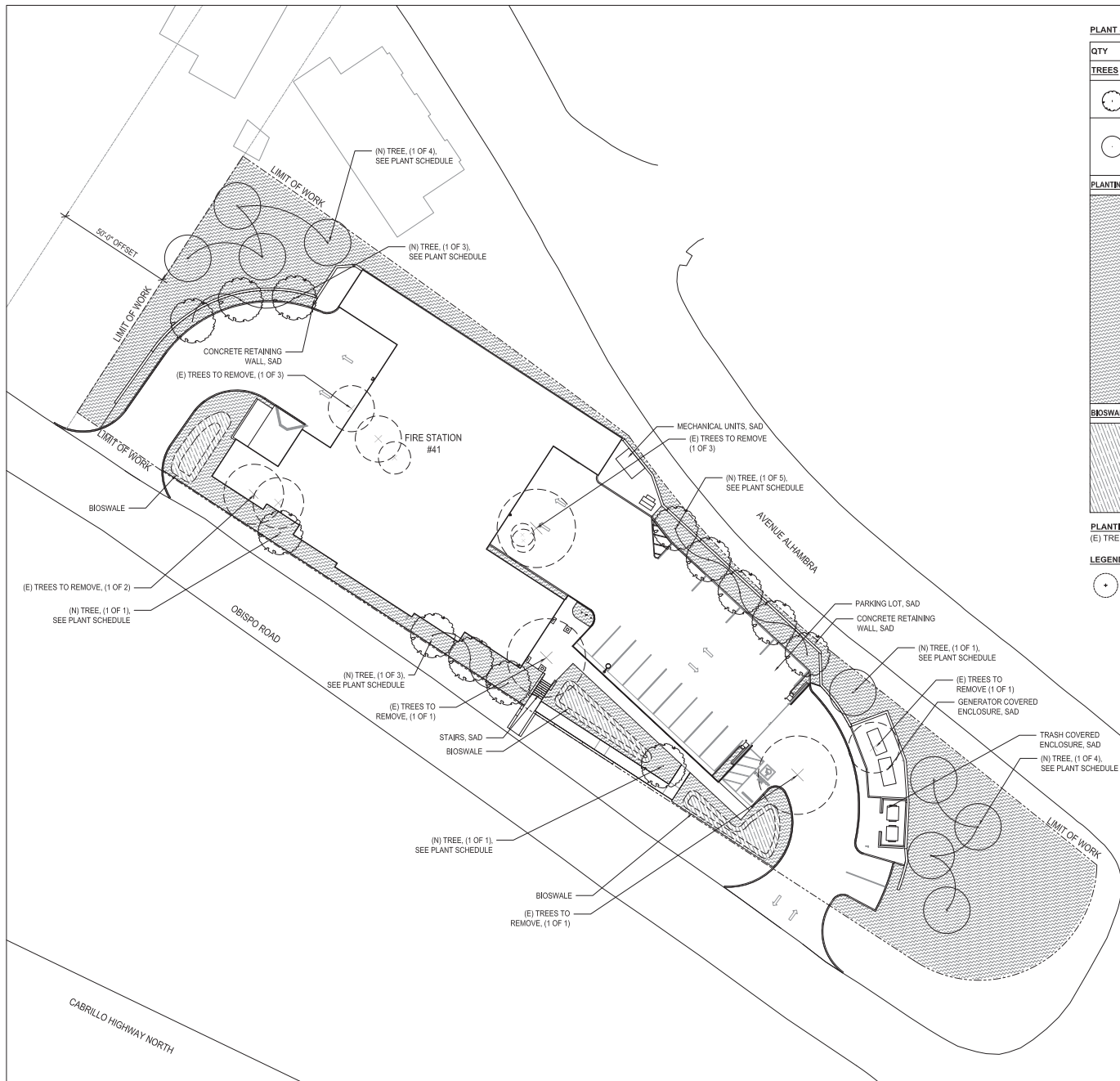


Description: PLANNING SUBMITTAL
 Date: 08/16/14

Project Number: 30202
 Approved By: [signature]
 Checked By: [signature]
 Drawn By: [signature]
 Staff Title: RENDERINGS

Sheet: 1 of 18
 Sheet Number:

A-8



PLANT SCHEDULE

QTY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER USE
TREES					
1	Acer campestre	HEDGE MAPLE	36" BOX	AS SHOWN	MODERATE
1	Acer griseum	PAPERBARK MAPLE	36" BOX	AS SHOWN	MODERATE
1	Hesperocyparis Macrocarpa	MONTEREY CEDAR	36" BOX	AS SHOWN	MODERATE
1	Juniper kalzuka	HOLLYWOOD JUNIPER	36" BOX	AS SHOWN	MODERATE
1	Pinus mugo	MUGO PINE	36" BOX	AS SHOWN	MODERATE

PLANTING - 15,865 SF

1	Aconitum 'Sunburst'	CANARY ISLAND ROSE	1 GAL	10" O.C.	LOW
1	Agave attenuata	FOXTAIL AGAVE	5 GAL	48" O.C.	LOW
1	Carex pansa	CALIFORNIA MEADOW SEDGE	1 GAL	-	MODERATE
15	Dodonea viscosa	HOPSEED BUSH	15 GAL	80" O.C.	LOW
5	Euphorbia characias	MEDITERRANEAN SPURGE	5 GAL	30" O.C.	LOW
15	Leucadendron 'Cloudbank Jenny'	CONEBUSH	15 GAL	30" O.C.	LOW
5	Leymus condensatus 'Canyon Prince'	GIANT WILD RYE	5 GAL	24" O.C.	LOW
15	Myrica californica	PACIFIC WAX MYRTLE	15 GAL	10" O.C.	MODERATE
15	Rhamnus californica	COFFEEBERRY	15 GAL	48" O.C.	LOW
5	Salvia clelandii 'Winnifred Galman'	CLEVELAND SAGE	5 GAL	24" O.C.	LOW
5	Pennisetum setaceum	FOUNTAIN GRASS	5 GAL	18" O.C.	LOW

BIOSWALE PLANTING - 1,270 SF

5	Chondropetalum tectorum	CAPE RUSH	5 GAL	24" O.C.	LOW
1	Iris douglasiana	DOUGLAS IRIS	1 GAL	12" O.C.	LOW
5	Juncus patens 'Elk Blue'	CALIFORNIA GREY RUSH	5 GAL	18" O.C.	LOW
1	Lupinus bicolor	MINATURE LUPINE	1 GAL	12" O.C.	LOW
5	Muhlenbergia rigens	DEER GRASS	5 GAL	30" O.C.	LOW

PLANTING NOTES

(E) TREES TO BE REMOVED, UNLESS OTHERWISE NOTED.

LEGEND

(*) (E) TREES TO BE REMOVED



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Project: COASTSIDE FIRE PROTECTION DISTRICT FIRE STATION #41

OBISPO ROAD EL GRANADA, CA 94018



Description: PLANNING SUBMITAL Date: 08/17/16

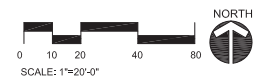
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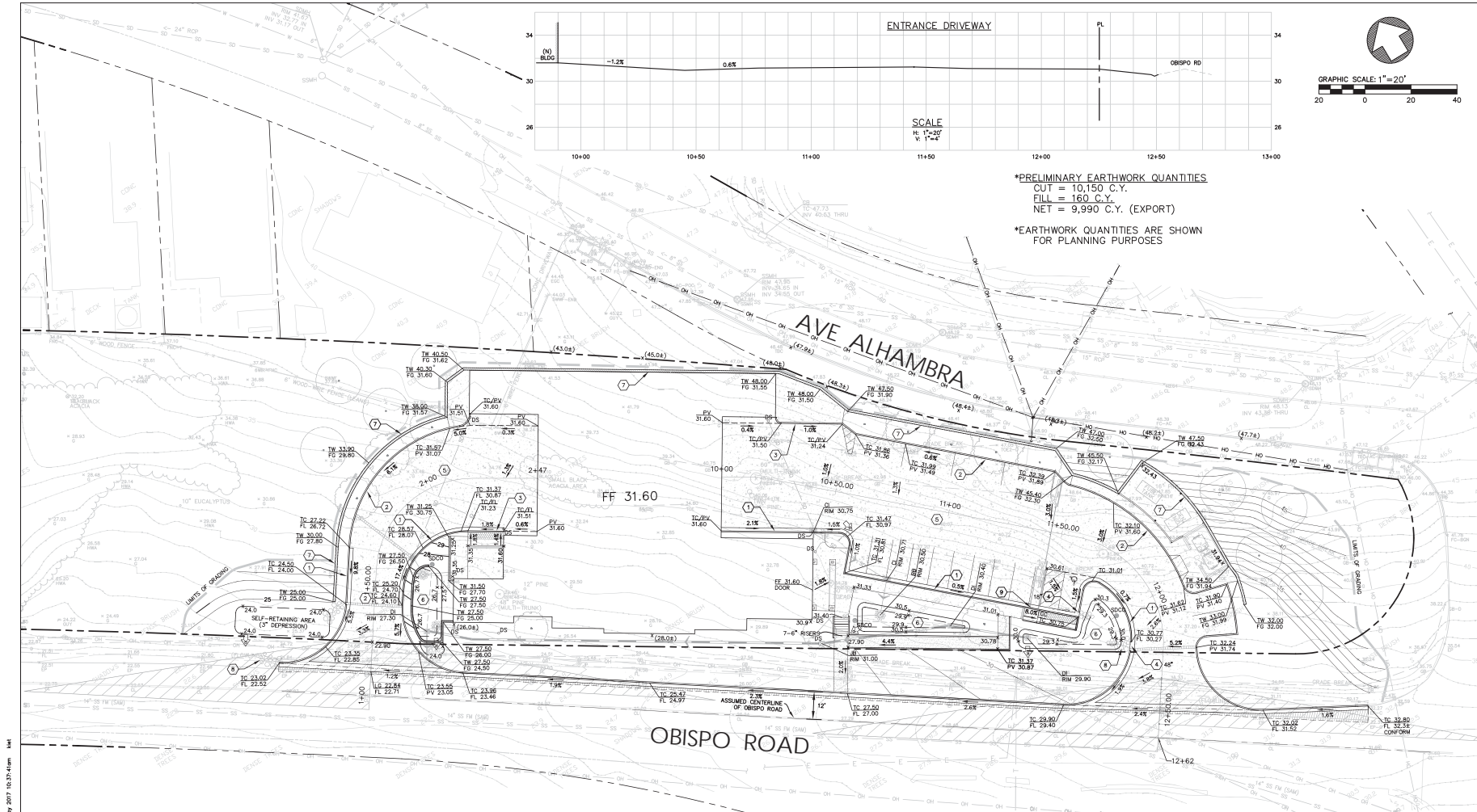
Project Number: 150202
 Approved By: MK
 Checked By: JM
 Drawn By: AJ

Sheet Title: LANDSCAPE SITE PLAN

Sheet: 7 OF 16
 Sheet Number:

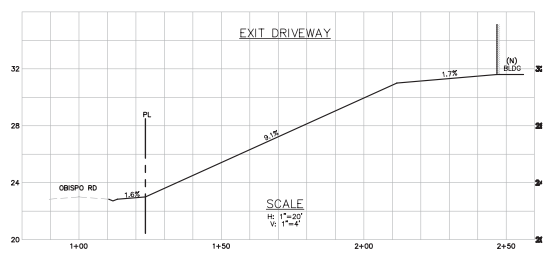
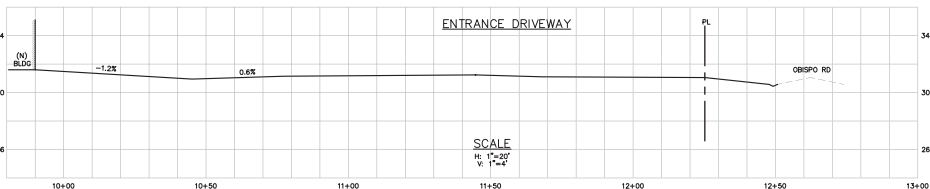
L-1





*PRELIMINARY EARTHWORK QUANTITIES
 CUT = 10,150 C.Y.
 FILL = 160 C.Y.
 NET = 9,990 C.Y. (EXPORT)

*EARTHWORK QUANTITIES ARE SHOWN FOR PLANNING PURPOSES



LEGEND

PROPERTY LINE	---	EXISTING ELEVATION	(TC 97.04)
ADJ. PROPERTY LINE	---	PROPOSED ELEVATION	(TC 100.8)
VERTICAL CURB & GUTTER	====	SLOPE TO DRAIN (HARDSCAPE)	---
VERTICAL CURB	====	SLOPE TO DRAIN (SOFTSCAPE)	---
VERTICAL CURB	====	OVERLAND RELEASE	---
BIORETENTION BASH	[Symbol]	STEP	---
CONCRETE PAVEMENT	[Symbol]	STORM DRAIN MANHOLE	[Symbol]
CONCRETE SIDEWALK	[Symbol]	STORM DRAIN CATCH BASIN	[Symbol]
SIGHT DISTANCE TRIANGLE (55 MPH)	[Symbol]	STORM DRAIN DROP INLET	[Symbol]
CONCRETE VALLEY GUTTER	====	STORM DRAIN JUNCTION BOX	[Symbol]
		STORM DRAIN BUBBLER BOX	[Symbol]
		STORM DRAIN AREA DRAIN	[Symbol]
		STORM DRAIN CLEAN OUT	[Symbol]
		SANITARY SEWER MANHOLE	[Symbol]
		SANITARY SEWER CLEANOUT	[Symbol]

GRADING NOTES

- ALL WALKWAYS SHALL SLOPE 2% MAX.
- LANDSCAPE FINISH GRADE ADJACENT TO THE BUILDING SHALL BE MINIMUM 4" BELOW FINISH FLOOR AND SLOPE AWAY AT A MINIMUM 2% GRADIENT FROM FOUNDATION.
- NO GRADING OR STORAGE OF MATERIALS SHALL OCCUR UNDER THE TREE'S CANOPY AT ANY TIME, UNLESS OTHERWISE SPECIFY BY PLAN.
- DOWNSPUTS TO BE EITHER:
 A) DISCHARGE ONTO SPLASH BLOCKS POSITIONED TOWARDS PRIVATE STREET, BIORETENTION BASINS, OR AREA DRAIN.
 B) HARD PIPED TO BIORETENTION AREAS.
- 2'-4" COBBLE STONE EMERT DISSIPATORS SHALL BE A MINIMUM 24"x24" AREA AS DEPICTED PER PLAN AND TO BE PLACED AT CURB CUTS AND AROUND OVERFLOW DRAINS (OFS) & BUBBLER BOXES (BB).

CONSTRUCTION KEY NOTES

- INSTALL CURB & GUTTER PER COUNTY STANDARDS
- INSTALL 4" VERTICAL CURB PER COUNTY STANDARDS
- INSTALL FLUSHED CURB
- INSTALL CURB OPENING
- INSTALL CONCRETE PAVEMENT
- BIORETENTION AREA
- CONSTRUCT RETAINING WALL
- INSTALL COBBLE STONE EMERT DISSIPATOR
- 4'-4" CURB TRANSITION

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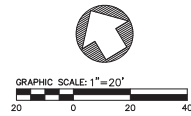
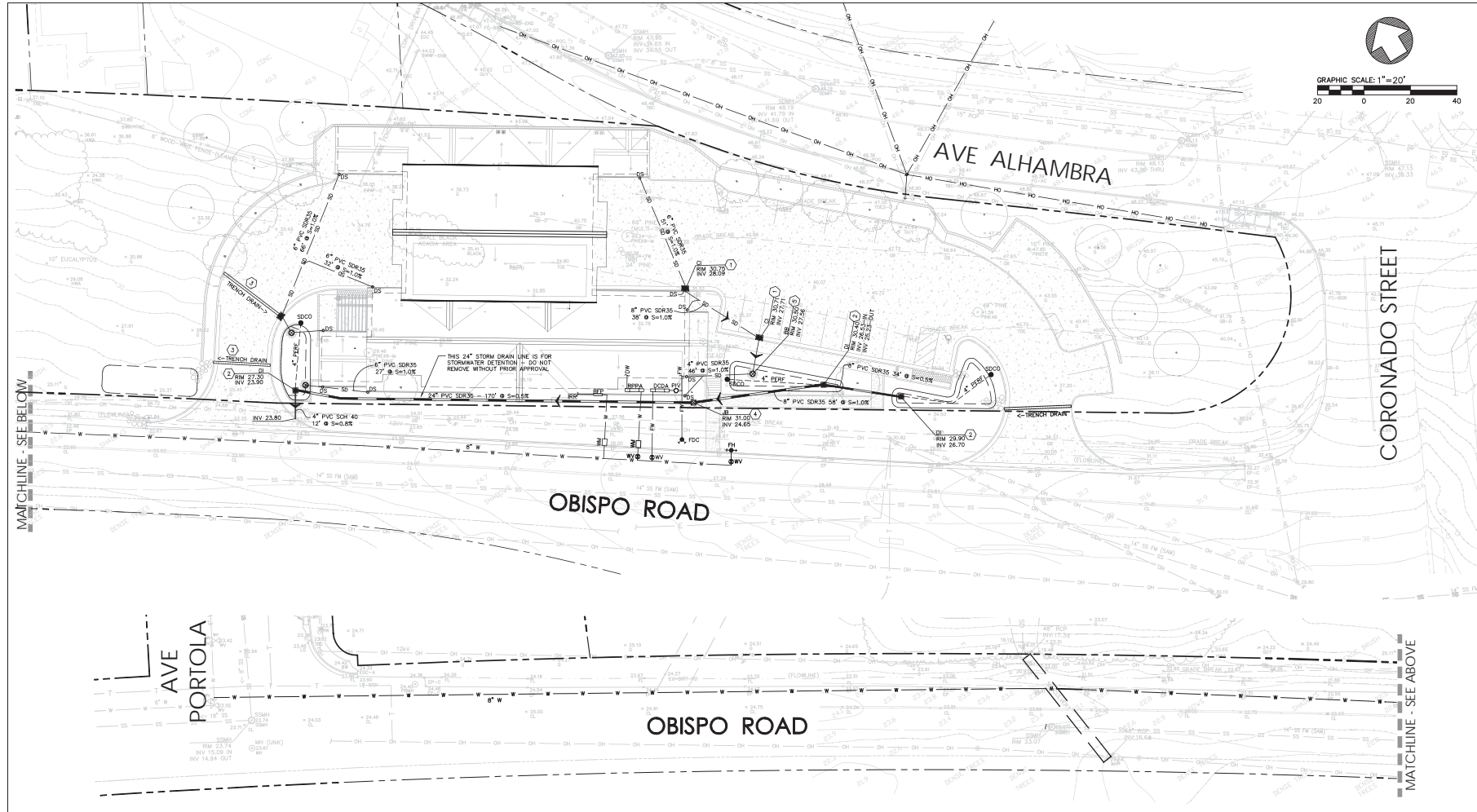
BKF
 Business Development Planning
 1738 N. FIRST STREET, SUITE 400
 SAN JOSE, CA 95131
 408/961-7400
 bkf.com

Project: COASTSIDE FIRE PROTECTION DISTRICT FIRE STATION #41
 OBISPO ROAD EL GRANADA, CA 94018

Description: 50% DESIGN DEVELOPMENT
 Date: TBD

NOT FOR CONSTRUCTION
 Project Number: 20146103
 Approved By: JS
 Checked By: PC
 Drawn By: PK
 Sheet Title: GRADING PLAN
 Sheet Number: 4 OF 16
 C3.0

ATTACHMENT C.10



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 OBISPO ROAD EL GRANADA, CA 94018



Description: 50% DESIGN DEVELOPMENT
 Date: TBD

NOT FOR CONSTRUCTION

Project Number: 20164103
 Approved By: JS
 Checked By: PC
 Drawn By: PK

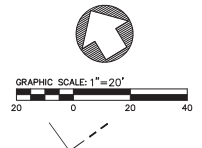
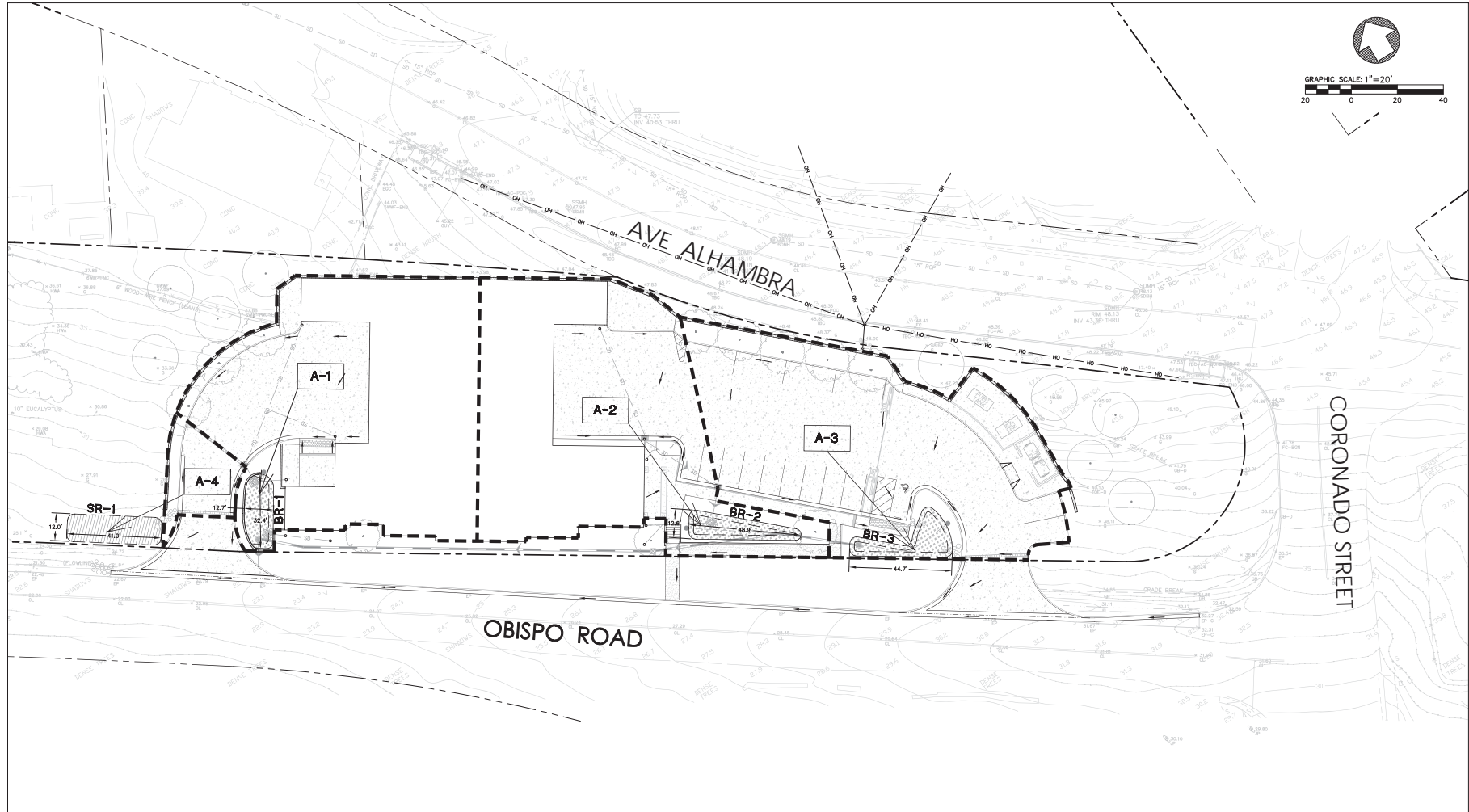
Sheet Title: UTILITY PLAN

Sheet: 5 OF 16
 Sheet Number:

C4.0

LEGEND	UTILITY NOTES	CONSTRUCTION KEY NOTES
<p>PROPERTY LINE: ---</p> <p>LOT LINE/ADJ. PROPERTY LINE: - - -</p> <p>STORM DRAIN LINE (UNTREATED): -SD-</p> <p>STORM DRAIN LINE (TREATED): -SD-</p> <p>SANITARY SEWER LINE: -SS-</p> <p>DOMESTIC WATER LINE: -W-</p> <p>FIRE WATER/SERVICE LINE: -FW-</p> <p>IRRIGATION LINE: -IRR-</p> <p>TRENCH DRAIN: -TRENCH DRAIN-</p> <p>STORM DRAIN MANHOLE: (SMH)</p> <p>STORM DRAIN CATCH BASIN: (CB)</p> <p>STORM DRAIN DROP INLET: (DI)</p> <p>STORM DRAIN JUNCTION BOX: (JB)</p> <p>STORM DRAIN BUBBLER BOX: (BB)</p> <p>STORM DRAIN AREA DRAIN: (AD)</p> <p>STORM DRAIN CLEAN OUT: (SDCO)</p> <p>SANITARY SEWER MANHOLE: (SMH)</p> <p>SANITARY SEWER CLEANOUT: (SSCO)</p>	<p>DIRECTION OF PIPE FLOW: (arrow)</p> <p>DOUBLECHECK DETECTOR ASSEMBLY: (DCDA)</p> <p>POST INDICATOR VALVE: (PIV)</p> <p>FIRE DEPARTMENT CONNECTION: (FDC)</p> <p>WATER VALVE: (WV)</p> <p>WATER METER: (WM)</p> <p>REDUCED PRESSURE ASSEMBLY BACKFLOW PREVENTOR: (RPPA)</p> <p>BACKFLOW PREVENTER: (BFP)</p> <p>EXISTING FIRE HYDRANT: (FH)</p> <p>PROPOSED FIRE HYDRANT: (+FH)</p>	<p>1. INSTALL CURB INLET PER COUNTY STANDARDS</p> <p>2. INSTALL 24"x24" DROP INLET</p> <p>3. INSTALL TRENCH DRAIN</p> <p>4. INSTALL STORM DRAIN JUNCTION BOX</p> <p>5. INSTALL BUBBLER BOX</p>

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Project:
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 PROTECTION DISTRICT
 FIRE STATION #41
 OBISPO ROAD
 EL GRANADA, CA 94018



Description: 50% DESIGN DEVELOPMENT
 Date: TBD

NOT FOR CONSTRUCTION

Project Number: 20161003
 Approved By: JS
 Checked By: PC
 Drawn By: PK

Sheet Title:
**STORMWATER
 MANAGEMENT
 PLAN**

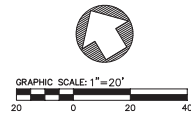
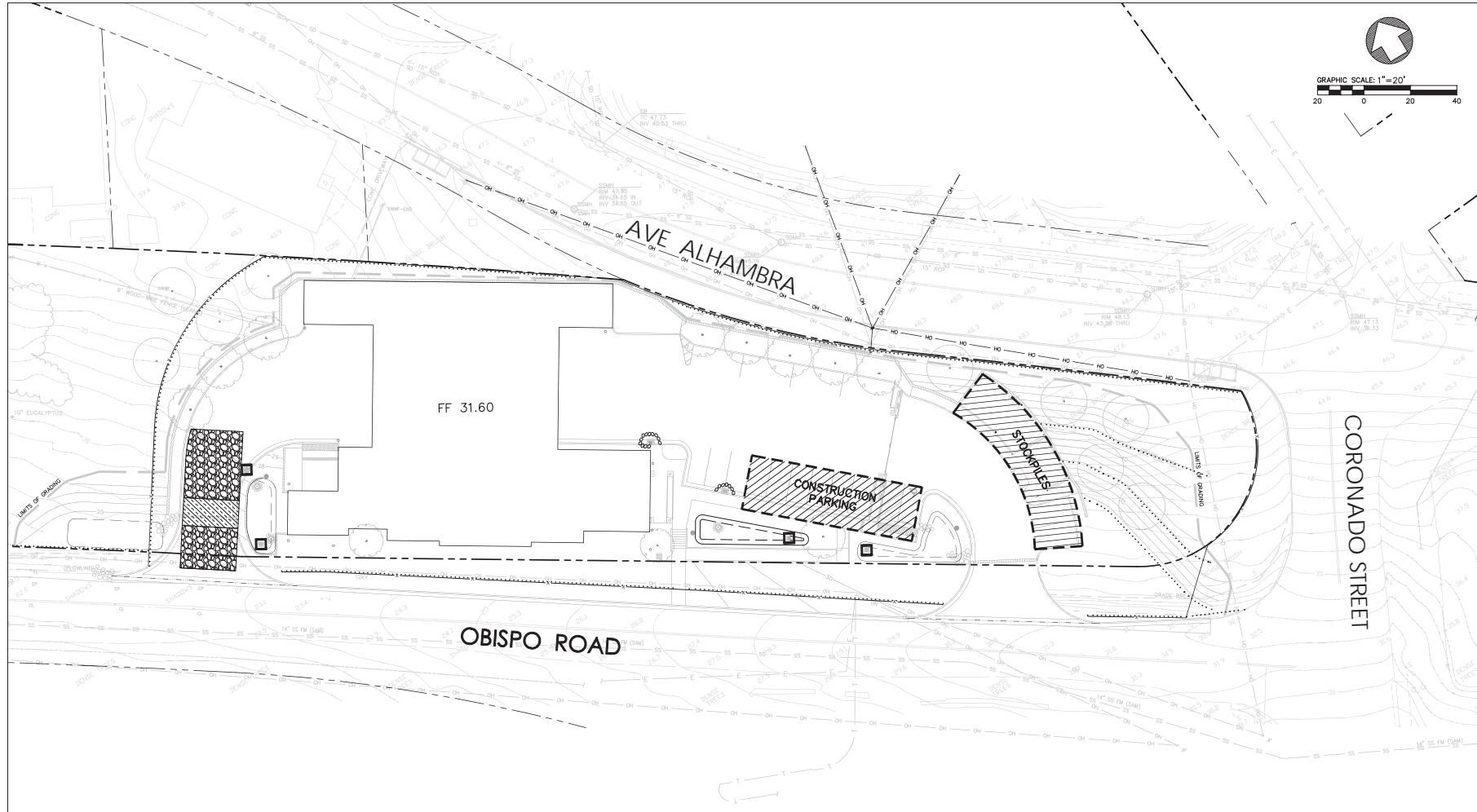
Sheet: 6 OF 16
 Sheet Number:

C5.0

LEGEND

PROPERTY LINE	---	DIRECTION OF PIPE FLOW	→
LOT LINE/ADJ. PROPERTY LINE	---	STORM DRAIN MANHOLE	⊙
TOP OF BANK (BIORETENTION/Self-RETAINING)	---	STORM DRAIN CATCH BASIN	▒
STORM DRAIN LINE (UNTREATED)	SD	STORM DRAIN DROP INLET	⊕
STORM DRAIN LINE (TREATED)	SD	STORM DRAIN JUNCTION BOX	⊕
BIORETENTION TREATMENT AREA	▒	STORM DRAIN BUBBLER BOX	⊕
Self-RETAINING TREATMENT AREA	▒	STORM DRAIN AREA DRAIN	⊕
DRAINAGE AREA BOUNDARY	A-X	STORM DRAIN CLEAN OUT	⊕
BIORETENTION DESIGNATION	BR-#		
Self-RETAINING DESIGNATION	SR-#		
SLOPE TO DRAIN	→		

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Project: COASTSIDE FIRE PROTECTION DISTRICT FIRE STATION #41
 OBISPO ROAD EL GRANADA, CA 94018



Description: 50% DESIGN DEVELOPMENT
 Date: TBD

NOT FOR CONSTRUCTION

Project Number: 2016103
 Approved By: JS
 Checked By: PC
 Drawn By: PK

Sheet Title: EROSION CONTROL PLAN

Sheet: 8 OF 16
 Sheet Number:

C6.0

LEGEND
PROPERTY LINE
ADJACENT LOT LINE
FIBER ROLL PER DETAIL 1, SHEET C6.1
TEMPORARY 6" CONSTRUCTION FENCE
STORM DRAIN INLET PROTECTION PER DETAIL 2, SHEET C6.1
STORM DRAIN INLET PROTECTION PER DETAIL 3, SHEET C6.1
STABILIZED CONSTRUCTION ENTRANCE/EXIT PER DETAIL 4, SHEET C6.1
ENTRANCE/EXIT TIRE WASH PER DETAIL 5, SHEET C6.1
CONCRETE WASTE MANAGEMENT PER DETAIL 6, SHEET C6.1

GENERAL NOTES
1. SHEET C6.0 IS INTENDED TO BE USED FOR EROSION CONTROL ONLY.
2. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. IN GENERAL, THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ANY SEDIMENT FROM LEAVING THE SITE. FIBER ROLLS, SAND BAGS, AND SILT FENCES SHALL BE USED BY THE CONTRACTOR ON AN AS NEEDED BASIS TO INHIBIT SILT FROM LEAVING THE SITE AND EXTENDING THE STORM DRAIN SYSTEM. ALL EXISTING TEMPORARY, OR PERMANENT CATCH BASINS SHALL USE ONE OF THE SEDIMENT BARRIERS SHOWN.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED WITH ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURE MAINTENANCE THROUGHOUT THE DURATION OF THE PROJECT.
4. THE CONTRACTOR WILL BE LIABLE FOR ANY AND ALL DAMAGES TO PUBLIC AND/OR PRIVATE OWNED AND MAINTAINED ROAD CAUSED BY THE CONTRACTOR'S GRADING ACTIVITIES, AND WILL BE RESPONSIBLE FOR THE CLEANUP OF ANY MATERIAL SPOILED ON ANY PUBLIC ROAD ON THE MAINT ROUTE. ADJACENT PUBLIC ROADS SHALL BE CLEANED AT THE END OF EACH WORKING DAY.
5. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE OPERABLE YEAR ROUND OR UNTIL VEGETATION IS ESTABLISHED ON LANDSCAPED SURFACES.
6. DURING THE RAINY SEASON, ALL PAVED AREAS ARE TO BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE IS TO BE MAINTAINED SO AS TO MINIMIZE SEDIMENT-LOADED RUNOFF TO ANY STORM DRAIN SYSTEM.
7. ALL EROSION CONTROL FACILITIES MUST BE MONITORED AS REQUIRED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD (CRWQCB). ALL SLOPES SHALL BE REPAIRED AS SOON AS POSSIBLE WHEN DAMAGED.
8. BORROW AND TEMPORARY STOCKPILES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES (TARPS, FIBER ROLLS, SILT FENCES, ETC.) TO ENSURE SILT DOES NOT LEAVE THE SITE OR ENTER THE STORM DRAIN SYSTEM.
9. ALL TRUNK TREES SHALL BE CLEANED PRIOR TO ENTERING THE PROPERTY.
10. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES AS REQUIRED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD (CRWQCB).
11. DURING PERIODS WHEN STORMS ARE FORECAST -
a. EXCAVATED SOILS SHOULD NOT BE PLACED IN STREETS OR ON PAVED AREAS.
b. ANY EXCAVATED SOILS SHOULD BE REMOVED FROM THE SITE BY THE END OF THE DAY.
c. WHERE STOCKPILING IS NECESSARY, USE A TARPALIN OR SURROUND THE STOCKPILED MATERIAL WITH FIBER ROLLS, SILT FENCE, OR OTHER RUNOFF CONTROLS.
d. THOROUGHLY SWEEP ALL PAVED AREAS EXPOSED TO SOIL EXCAVATION AND PLACEMENT.
e. USE INLET CONTROLS (E.G. FILTER MAT) FOR STORM DRAINS ADJACENT TO STOCKPILED SOIL.
12. DURING PERIODS WHEN STORMS ARE NOT FORECAST -
a. PREVENT STOCKPILED MATERIAL FROM ENTERING THE STORM DRAIN SYSTEM.
b. THOROUGHLY REMOVE LOOSE SOIL VIA SWEEPING FOLLOWING REMOVAL OF DIRT.
13. THE EROSION CONTROL PLAN IS FOR CONSTRUCTION BETWEEN OCTOBER 1 AND APRIL 15. OPEN SPACE AREAS ARE TO BE PLANTED BY SEPTEMBER 15. IF THESE CONDITIONS ARE NOT MET, CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN TO THE PROJECT ENGINEER THAT REFLECTS CURRENT SITE CONDITIONS FOR REVIEW AND APPROVAL.
14. EROSION CONTROL MEASURES SHOWN ON THIS PLAN SHALL BE MAINTAINED REPAIRED AND REPLACED AFTER EACH SIGNIFICANT RAINFALL OR AS DIRECTED BY THE OWNER AND/OR THE CALIFORNIA REGIONAL WATER CONTROL BOARD (CRWQCB).
15. ALL DRAINAGE INLETS WITHIN AND NEAR THE PROJECT SITE SHALL BE PROVIDED WITH SEDIMENT TRAPS OR SEDIMENT BARRIERS AS PER THIS PLAN.
16. SEDIMENT DAMS AND TRAPS SHALL BE CHECKED FOR SEDIMENT ACCUMULATION AFTER EACH SIGNIFICANT RAINFALL. SEDIMENT SHALL BE REMOVED FROM THESE DEVICES WHEN IT HAS ACCUMULATED TO THREE-QUARTER OF THE ORIGINAL STORAGE HEIGHT.
17. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY THE OWNER AND/OR THE CALIFORNIA REGIONAL WATER CONTROL BOARD (CRWQCB) BASED ON FIELD REVIEWS OF THE SITE.
18. DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AS SOON AS PRACTICAL AFTER THE DAMAGE OCCURS.
19. ALL EXPOSED DISTURBED SURFACES SHALL BE HYDROSEEDING WITH BROME SEED SPREAD AT THE RATE OF 5 POUNDS PER 1000 SQUARE FEET, OR APPROVED EQUAL SEEDING AND WATERING SHALL BE MAINTAINED AS REQUIRED TO ENSURE GROWTH. HYDROSEEDING AREAS SHALL THEN BE COVERED WITH STRAW MULCH AND STABILIZED BY CHIPPING OR THE APPLICATION OF A LIQUID TACKLER.
20. DURING GRADING OPERATIONS THE SITE SHALL BE WATERED ON A DAILY BASIS TO MINIMIZE THE RELEASE OF DUST AND OTHER PARTICULATE MATTER.
21. EARTHWORK SHALL NOT BE PERFORMED DURING UNFAVORABLE CONDITIONS. AFTER INTERRUPTION OF WORK DUE TO HEAVY RAIN, THE ENGINEER SHALL APPROVE EARTHWORK BEFORE RESUMING EARTHMOVING OPERATIONS.
22. CONTRACTOR SHALL BE RESPONSIBLE TO PUT IN PLACE THE NECESSARY MEANS AND EXECUTE PROPER METHODS TO PROTECT EARTHWORK AGAINST UNFAVORABLE WEATHER CONDITIONS. CONTRACTOR SHALL NOT BE PAID FOR ANY DELAY OR ADDITIONAL WORK TO REMEDY PREVIOUS EARTHWORK RESULTING FROM THE CONTRACTOR'S NEGLIGENCE TO PROTECT THE SITE.
23. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLETE AND SUBMIT THE ANNUAL COMPLIANCE STATUS REPORT OF THE CONSTRUCTION STORM WATER GENERAL PERMIT ON SEPTEMBER 1ST OF EACH YEAR THE PROJECT IS IN CONSTRUCTION.
24. THIS PROJECT SHALL COMPLY WITH APPLICABLE PROVISIONS IN THE STATE OF CALIFORNIA GENERAL PERMIT FOR STORMWATER DISCHARGES, ORDER NO. 2009-0009-DWG.

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AESTHETICS



Before



After

Source: PlaceWorks, 2017.

Figure 4.1-1
Northwest View from Highway 1

AESTHETICS



Before



After

Source: PlaceWorks, 2017.

Figure 4.1-2
West View from Avenue Alhambra

AESTHETICS



Before



After

Source: PlaceWorks, 2017.

Figure 4.1-3
View 3 Southeast View from Avenue Alhambra



Coastside Fire Protection District

Standard Operating Procedures Manual

Section:	Tsunami	Effective:	January 1, 2017
Title:	Station 41 Apparatus Relocation	Revised:	N/A
Number:	T-001	Approved:	<u>10/1/16 Paul Cole</u>

Purpose:

To provide District personnel with guidelines for vacating Fire Station 41 and relocating emergency response vehicles upon receipt of a pending Tsunami Warning.

General:

This plan describes actions to be taken by Station 41 personnel upon notification of a Tsunami Warning. A Tsunami Warning is an announcement that a tsunami has been detected. A Tsunami Warning will be given if a Tsunami Wave is detected in the Pacific basin.

Definition:

A Tsunami Warning is issued when a potential tsunami with significant widespread inundation is imminent or expected. Tsunami Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Tsunami Warnings may be updated, adjusted geographically, downgraded or cancelled. To provide the earliest possible alert, initial Warnings are normally based only on seismic information.

Procedure:

1. Upon notification of a Tsunami Warning, personnel residing in Fire Station 41 shall immediately move all emergency vehicles to the corner of Cabrillo Ave and The Alameda.
2. Personnel not in the fire station at the time of the Tsunami Warning issuance shall return to the fire station to retrieve emergency vehicles and move them to the staging area identified in #1.
3. Time permitting; personnel shall secure access and egress to the fire station prior to moving to the aforementioned staging area.
4. Once all personnel and emergency vehicles have arrived at the staging location, the Company Officer shall contact Public Safety Communications (PSC) advising of their new location.
5. Placement of personnel and equipment shall not impede evacuation routes for pedestrian and vehicle traffic.

Send revision comments to Assistant Chief

Tsunami Emergency Vehicle Relocation

T-001

ATTACHMENT E



Coastside Fire Protection District

Standard Operating Procedures Manual

6. Company Officer shall advise PSC when/if the Tsunami makes landfall.
7. Station 41 personnel and equipment shall maintain their staging location a minimum of two-hours after the arrival of the last wave or upon ALL CLEAR.
8. Personnel shall initiate a windshield damage assessment in order to establish response priorities



April 16, 2015

Chief Paul Cole
Coastside Fire Protection District
531 Obispo Road
El Granada, CA 94018

Re: Preliminary Environmentally Sensitive Habitat Areas Assessment at the Proposed Coastside Fire District Project in El Granada, San Mateo County, California

Dear Chief Cole,

The purpose of this letter is to provide you of the results of the preliminary Environmentally Sensitive Habitat Areas (ESHAs) assessment for the proposed Coastside Fire District Project located along Obispo Road between Avenue Portola and Coronado Street in El Granada, San Mateo County, California (Project Area). The site visits were conducted on March 26 and 27, 2015.

The focus of the site reconnaissance was to provide an analysis of potential constraints related to ESHAs, specifically setbacks related to riparian habitat and the potential for presence of California red-legged frog (CRLF; *Rana draytonii*) and San Francisco gartersnake (SFGS; *Thamnophis sirtalis tetrataenia*). Typical mitigation measures for projects near potential CRLF and SFGS habitats are also described. Other potentially sensitive species or resources known in the vicinity are not addressed in this letter.

Project Area Description

The proposed Project Area (APN 047-261-030) is located in downtown El Granada immediately north of Obispo Road between two busy thoroughfares (Avenue Portola and Coronado Street). It consists of undeveloped ruderal uplands and a riparian corridor. The ruderal uplands are dominated by weedy vegetation including cheeseweed mallow (*Malva parviflora*), ripgut brome (*Bromus diandrus*), slender oats (*Avena barbata*) and wild radish (*Raphanus sativus*). The riparian corridor is dominated by arroyo willow (*Salix lasiolepis*) with dense understory vegetation composed of silktree mimosa (*Albizia julibrissin*), English ivy (*Hedera helix*), garden nasturtium (*Tropaeolum majus*) and cape ivy (*Delairea odorata*). The Project Area is bounded by development and roads. Commercial and residential development present to the north and west, Obispo Road and an unpaved beach access parking lot are to the south, and Coronado Street and development are to the east.

Riparian Corridor

Unnamed, culverted waters with intermittent flows are present through the central portion of the proposed Project Area. The waters are culverted through most of El Granada beginning at Columbus Street and do not daylight until the Project Area. The waters are also culverted under Obispo Road (approximately 24-inch concrete culvert) at the southern border of the Project Area and under Pacific Coast Highway at which the waters terminate at an outfall to the Pacific Ocean. This feature contained a small amount of running water at the time of the site visit.

A stormwater ditch directly connected to surface stormwater flows is present southeast of the proposed Project Area. The ditch ends at a box grate which connects the ditch to the stormwater system at the intersection of Coronado Street and Pacific Coast Highway. Although dry at the time of the site visit, there was evidence of intermittent hydrology consisting of drift deposits, rack lines, and sediment deposits.

Immediately south of the intersection of Obispo Road and Avenue Portola, are other culverted waters with intermittent flows extending across the adjacent property. Although this feature is not within the proposed Project Area, it is in close proximity and needs to be considered in determination of setbacks in accordance with the local regulations. This feature contained a small amount of running water at the time of the site visit. The feature supports riparian vegetation consisting of arroyo willow for approximately 75 linear feet, after which it is largely unvegetated prior to entering a culvert under Pacific Coast Highway and emptying into the Pacific Ocean.

Riparian Corridor and Buffer Zones

Based on available USGS topographic maps (USGS 2015, 1978, and 1956) and aerial photographs (Google Earth 2015), these features are intermittent waters. Pursuant to the San Mateo County Local Coastal Program (LCP; County of San Mateo 2013), riparian corridors are defined as an association of plant and animal species containing at least 50 percent cover of the following species: red alter, jaumea, pickleweed, big leaf maple, narrow-leaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood, and box elder. Accordingly, the arroyo willow areas identified in the proposed Project Area qualify as riparian corridors under the San Mateo LCP. For intermittent streams, the LCP requires a buffer 30 feet outward from the limit of riparian vegetation. Where no riparian vegetation exists, buffer zones along intermittent streams extend 30 feet from the stream midpoint as shown in the attached figure.

Within riparian corridors, the following uses are permitted: 1) education and research; 2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, 3) fish and wildlife management activities, 4) trails and scenic overlooks on public lands, and 5) necessary water supply projects. Relevant permitted uses in buffer zones include 1) uses permitted in riparian corridors, 2) residential uses on existing legal building sites, set back 20 feet from the limit of riparian vegetation only if no feasible alternative exists and if no other building site on the parcel exists, 3) on parcels designated as Agriculture, Open Space, or Timber Production on the LCP Land Use Plan Map, residential structures or impervious surfaces only if no feasible alternative exists.

Potential for CRLF and SFGS

California red-legged frog

Typical CRLF breeding habitat is characterized by deep and still or slow-moving water associated with emergent marsh and/or riparian vegetation. CRLF often undergoes estivation (a period of inactivity) during the dry months, over-summering in small mammal burrows, moist leaf litter, incised stream channels, or large cracks in the bottom of dried ponds (Jennings and Hayes 1994). Adult and sub-adult CRLF may disperse between breeding habitats and nearby riparian and/or estivation habitats during the respective rainy season and summer. During such dispersals, frogs can travel up to one mile over a variety of topographic and habitat types during rain events or wet weather (Bulger et al. 2003, Fellers and Kleeman 2007, USFWS 2010); however, typical dispersal distances are less than 0.5 mile (Fellers 2005). Dispersal habitat is defined as accessible upland or riparian habitats between occupied locations within one mile of each other that allow for movement between these sites and do not contain barriers to movement (USFWS 2010). Moderate to high density urban or industrial developments, large reservoirs and heavily traveled roads without bridges or culverts are considered barriers to dispersal (USFWS 2010).

San Francisco gartersnake

The preferred habitat of the SFGS is a densely vegetated pond near an open hillside where they can sun themselves, feed, and find cover in rodent burrows; however, considerably less ideal habitats can be successfully occupied. Temporary ponds and other seasonal freshwater bodies are also used. Emergent and bankside vegetation such as cattails (*Typha* spp.), bulrushes (*Scirpus* spp.) and spike rushes (*Juncus* spp. and *Eleocharis* spp.) apparently are preferred and used for cover. The area between stream and pond habitats and grasslands or bank sides is used for basking, while nearby dense vegetation or water often provide escape cover (USFWS 2006). During periods of heavy rain or shortly after, SFGS may make long-distance movements of up to 1.25 miles along drainages within the dense riparian cover, and are not documented to travel over open terrain (McGinnis 2001).

Potential for Occurrence

A review of California Natural Diversity Database records (CDFW 2015) reveals documented locations of both CRLF and SFGS to be north and east of the proposed Project Area, the nearest 0.6 mile north. Occurrence data for SFGS are confidential and exact locations cannot be released publicly; however, both CRLF and SFGS locations are in habitats discontinuous with the proposed Project Area. The community of El Granada is a complete barrier to dispersal from occurrences to the north and east for both CRLF and SFGS because of the high density residential development and high traffic conditions. In addition, all intermittent streams have been culverted between the occupied open spaces to the north and the proposed Project Area, approximately 0.3 mile. High traffic roads including Highway 1 and development are barriers between CRLF occurrences to the northwest, and there are no occurrences near the shoreline south of the proposed Project Area. In addition, Highway 1 and the community of Miramar are present between the proposed Project Area and the intermittent Arroyo de en Medio Creek 0.75 mile to the south, the nearest potential habitat for CRLF or SFGS. The nearest documented occurrence of CRLF south of the proposed Project Area is in Frenchmans Creek 1.6 miles south.

The proposed Project Area does not contain habitat for either CRLF or SFGS, nor is the Project Area contiguous with habitat for either species. The intermittent stream within the proposed Project Area does not contain breeding habitat for CRLF, and therefore CRLF individuals would have to disperse to the Project Area from further breeding habitats. The nearest suitable habitat is in Arroyo de en Medio Creek and the nearest potential breeding habitat is in Frenchmans Creek. As mentioned above, typical dispersal distances are at most 0.6 mile over open habitats. Both creeks are farther than this distance (0.75 mile and 1.6 miles, respectively) and have major dispersal barriers between these creeks and the proposed Project Area, such as Pacific Coast Highway and residential development. In addition, there are no pond habitats in the vicinity for SFGS to occupy and creeks are typically only used for dispersal and movement corridors if contiguous or near to pond habitats. The intermittent streams and stormwater drainages within and adjacent to the proposed Project Area are not contiguous with occupied habitats or potential breeding habitats to qualify as dispersal habitat or corridors for either species. Therefore, the proposed Project Area does not contain any habitat elements for CRLF or SFGS.

Based upon habitat characteristics, distance from known occupied habitat or potentially occupied habitat, and dispersal barriers, there is no potential for CRLF or SFGS to occur in the proposed Project Area. However, the standard avoidance and minimization measures for sites where CRLF and/or SFGS may be present are provided below for consideration. These measures are based upon accepted measures by federal and state agencies for projects in the vicinity. These standard measures may be employed for this project in lieu of consultation with USFWS and/or CDFW to confirm absence of either species at the site. Alternatively, the applicant may conduct protocol-level surveys in coordination with USFWS to confirm absence.

- *Wildlife exclusion fence:* At a minimum, wildlife exclusion fence shall be installed along the proposed Project boundaries with riparian habitat and for a distance of at least 100 feet perpendicular to riparian habitat. Silt fence material may be used to also provide erosion control; however, per CRLF and SFGS fence standards, it must be at least 42 inches in height (at least 36 inches above ground and buried at least 6 inches below the ground) and stakes must be placed on the inside of the Project (side on which work will take place).
- *Pre-construction survey:* Pre-construction surveys for CRLF and SFGS shall be conducted prior to initiation of project activities (including fence installation) and within 48 hours of the start of ground disturbance activities following completion of exclusion fence installation. Surveys are to be conducted by approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up pre-construction survey may be required within 48 hours prior to re-initiation of Project activities.
- *Work only during dry weather:* No work shall take place during rain events when there is potential for accumulation greater than 0.25 inch in a 24-hour period. In addition, no work shall occur for 48 hours following rain events in which 0.25 inch of rain accumulated within 24 hours.
- *Biological monitoring:* An approved biologist shall be required to inspect and approve installation of the exclusion fence and may be required to conduct daily or weekly inspections of the exclusion fence during all grading and/or ground-disturbing activities.

- *Erosion Control Materials:* Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure amphibian and reptile species do not get trapped. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.

SUMMARY

There is an intermittent stream present in the proposed Project Area and immediately south of the Project Area which require a setback of 30 feet from the limit of riparian vegetation per the San Mateo County LCP. Although a riparian corridor is present, neither CRLF nor SFGS are anticipated to occur within the proposed Project Area because of distance from occupied habitats, barriers to dispersal, and lack of breeding habitat in the vicinity. However, standard avoidance and minimization measures accepted by federal and state agencies for projects in the vicinity where CRLF and/or SFGS may be present were outlined for consideration. These measures are likely to include pre-construction surveys and installation of exclusion fencing near riparian habitats.

The analysis provided is a preliminary review of potential resources in the vicinity of the Proposed project and does not constitute a full biological review. Further studies are necessary for species and resources not addressed in this letter. Should you have any questions, comments, or concerns, please do not hesitate to contact our office.

Sincerely,



Patricia Valcarcel
Wildlife Biologist

Attachment: Proposed Project Area Map with Riparian Setbacks

REFERENCES

Bulger, J. B., S. J. Norman, and R. B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs (*Rana aurora draytonii*) in coastal forests and grasslands. *Biological Conservation* 110 (2003) 85–95.

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Attachment 1.

Proposed Project Area Map with Riparian Setbacks



	ProjectArea
	Riparian Habitat
	30' Setback from Riparian Habitat



Coastside Fire District ESHA Assessment

El Granada, San Mateo County, California

Attachment 1.

Proposed Project Area with Riparian Setbacks



Map Prepared Date: 4/9/2015
Map Prepared By: pkobylarz
Base Source: Esri Streaming Imagery
Data Source(s): WRA

August 7, 2014

Mr. Paul Cole
Coastside Fire Protection District Headquarters
1191 Main Street
Half Moon Bay, CA 94019

SUBJECT: Riparian Setback Analysis – Obispo Road Property

Dear Mr. Cole,

As requested, TRA Environmental Sciences, Inc. (TRA) has conducted an evaluation of the riparian habitat adjacent to the proposed new fire station at the corner of Obispo Road and Ave Portola in Half Moon Bay, California. There is a narrow band of riparian habitat situated off of the property, south of the intersection of Obispo Road and Ave Portola, where an unnamed drainage (Drainage 1) daylight and discharges to the Pacific Ocean. A second unnamed drainage divides the east and west sides of the property (Drainage 2) (Figure 1). On August 1, 2014, TRA staff conducted a survey of the two drainages to determine what type of setback would be required to comply with Policy 7.11 of the San Mateo County Local Coastal Program (LCP).

The property is situated approximately 300 feet north of the Pacific Ocean, east of Ave Portola and north of Obispo Road. The west side of the property consists of non-native annual grassland habitat with an unimproved dirt road that crosses the site between Obispo Road and Drainage 2. Drainage 2 is surrounded by a band of dense riparian habitat approximately 200 feet in width. This band of riparian habitat continues south, and consumes the majority of the parcel between the subject property and the Pacific Ocean. The eastern portion of the property is made up of non-native annual grassland with scattered native and non-native trees. There are no structures or other developed areas on the property, but a housing development defines the northern boundary of the site. To the south is an undeveloped parcel, with Drainage 1 defining its western boundary. Drainage 1 and 2 both discharge to the Pacific Ocean.

During the site visit, TRA staff walked both Drainage 1 and Drainage 2, compiling a list of plant and animal species present. It was determined during the site visit that both drainages meet the definition of Riparian Corridors as defined under Policy 7.7 of the LCP. Policy 7.7 defines Riparian Corridors as freshwater bodies such as streams and lakes that have at least 50% cover of some combination of "red alder, jaumea, pickleweed, big leaf maple, narrow-leaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood and box elder". Both drainages are comprised of riparian cover dominated by an equal mix of acacia (*Acacia* sp.) and arroyo willow (*Salix lasiolepis*).

Policy 7.11 of the LCP requires that a buffer zone of 50 feet be extended from both sides of the limit of riparian vegetation for perennial streams, and 30 feet outward for intermittent streams. Perennial streams are streams that have year round flow in all or part of their streambed, whereas intermittent streams contain water for only part of the year, typically during the winter

and spring. Drainage 1 and 2 contained standing water at the time of the site visit, which is particularly significant considering the current drought conditions that the state is experiencing. That, and the density and age of the riparian vegetation, indicate that both Drainage 1 and 2 are perennial streams, requiring a 50-foot setback buffer.

Figure 1 shows the limits of the riparian vegetation associated with Drainage 1 and Drainage 2 as well as the LCP Policy 7.7 required 50-foot buffer. Figure 2 shows photographs of the site taken during the site visit. Tables 1 and 2 include a list of plant and animal species observed in Drainage 1 and 2 and on the subject property during the site visit.

Table 1 – Plant Species Observed

Common Name	Scientific Name
Coast live oak	<i>Quercus agrifolia</i>
California bay	<i>Umbellularia californica</i>
Ornamental fig	<i>Ficus benjamina</i>
Acacia	<i>Acacia</i> sp.
Arroyo willow	<i>Salix lasiolepis</i>
Cotoneaster	<i>Cotoneaster</i> sp.
English ivy	<i>Hedera helix</i>
Himalayan blackberry	<i>Rubus armeniacus</i>
Coyote brush	<i>Baccharis pilularis</i>
Ripgut brome	<i>Bromus diandrus</i>
Dune bent grass	<i>Agrostis pallens</i>
Soft rush	<i>Juncus effusus</i>
Curly dock	<i>Rumex crispus</i>
Loosestrife	<i>Lysimachia</i> sp.
Poison hemlock	<i>Conium maculatum</i>
English plantain	<i>Plantago erecta</i>
Mugwort	<i>Artemisia douglasiana</i>
Pincushion	<i>Chaenactis</i> sp.
Black mustard	<i>Brassica nigra</i>
Wild radish	<i>Raphanus raphanistrum</i>
Cheeseweed	<i>Malva parviflora</i>
Primrose	<i>Oenothera</i> sp.
Nasturtium	<i>Tropaeolum majus</i>
Watercress	<i>Nasturtium officinale</i>
Seep monkeyflower	<i>Mimulus guttatus</i>

Common Name	Scientific Name
Common borage	<i>Borago officinalis</i>
Aster	<i>Aster</i> sp.
Sweet alyssum	<i>Allysum</i> sp.
Fumitory	<i>Fumeria</i> sp.
Scarlet pimpernel	<i>Anagallis arvensis</i>

Table 2 – Animal Species Observed

Common Name	Scientific Name
Common garter snake	<i>Thamnophis sirtalis</i>
Forster's tern	<i>Sterna forsteri</i>

TRA has appreciated the opportunity to work with you on this project. Please do not hesitate to contact me should you have any questions or concerns or are in further need of our services.

Sincerely,



Robin Dakin
Senior Biologist
(408) 439-2938 (mobile)
dakin@traenviro.com

Figure 1
Coastside Fire District
Riparian Habitat with
50' Buffer

BCFS



-  Project Area
-  Riparian Habitat
-  50-foot buffer



TRA

Figure 2 – Site Photos



Drainage 1 looking southwest from south of Obispo Road



Drainage 2 looking south from north end of drainage.

Kiely Arborist Services LLC

Certified Arborist WE#0476A

P.O. Box 6187

San Mateo, CA 94403

650-515-9783

June 3, 2015

Coastside Fire Protection District

Attn: Mr. Neil Martin

1191 Main Street

Half Moon Bay, CA 94019

Site: Coastside Fire Station #41, El Granada, CA

As requested on Wednesday, May 27, 2015, I visited the above site to inspect and comment on the trees. New fire station is planned for this site and your concern for the future health and safety of the trees has prompted this visit.

Method:

All inspections were made from the ground; the tree was not climbed for this inspection. The tree in question was located on a "Not-to-Scale" map provided by me. The tree was then measured for diameter at 54 inches above ground level (DBH or diameter at breast height). The



tree was given a condition rating for form and vitality. The trees' condition rating is based on 50 percent vitality and 50 percent form, using the following scale.

1 - 29 Very Poor

50 - 69 Fair

70 - 89 Good

90 - 100 Excellent

The height of the tree was measured using a Nikon Forestry 550 Hypsometer. The spread was paced off. Comments and recommendations for future maintenance are provided.

Tree #1 with a large failed leader at the base.

Coastside fire/6/3/15

(2)

Survey:

Tree#	Species	DBH	CON	HT/SP	Comments
1	Monterey pine (<i>Pinus radiata</i>)	10.4-9.2	45	35/25	Poor vigor, poor form, leans east, bark beetle on trunk, pine pitch canker.
2	Monterey pine (<i>Pinus radiata</i>)	24.4-30	40	40/45	Poor vigor, poor form, large failed leader on ground, failed limbs. Bark beetle at base.
3	Blue gum (<i>Eucalyptus globulus</i>)	6.5	55	35/10	Fair vigor, fair form, volunteer.
4	Monterey pine (<i>Pinus radiata</i>)	30.6	0	30/35	Dead.
5	Monterey pine (<i>Pinus radiata</i>)	20.9-13.4	30	35/25	Poor vigor, poor form, in decline, large failed limbs, bark beetle.
7	Monterey pine (<i>Pinus radiata</i>)	9.2	65	25/15	Good vigor, fair form, shares root zone with #8.
8	Monterey pine (<i>Pinus radiata</i>)	25.7-26.9	50	45/40	Poor-fair vigor, poor form, codominant at 3 feet. Bark beetle.
9	Acacia (<i>Acacia longifolia</i>)	4.2	55	15/20	Fair vigor, poor form, largest trunk of several.
10	Black acacia (<i>Acacia melanoxylon</i>)	11.3	45	20/20	Poor-fair vigor, poor form, trunk bends south.
11	Black acacia (<i>Acacia melanoxylon</i>)	8.1	40	20/15	Fair vigor, poor form, trunk bends south. One of several.



Summary:

The trees on site are a mix of imported trees, there are no trees native to the El Granada area. The Monterey pines on site are in decline. The trees have a history of large limb and leader failure. Bark beetle has infested the trees and the trees will soon be dead. Pine tree #4 has already dead and the remaining will follow. Remove the Monterey pines prior to construction and replace as required with appropriate trees for the fire station. Natives are highly recommended.

Dead Monterey pine #4. Bark beetle and pine pitch canker has contributed to the death of this tree.



The acacias and the eucalyptus are of an invasive species that are known to be flammable. Remove these invasive trees and replace with appropriate trees at the time of landscaping. If any trees are retained the following tree protection plan should be followed. Tree protection will lessen impacts to retained trees and the riparian area.

Grove of acacias, the photo depicts the invasive nature of the species.

Tree Protection Plan:

Tree protection zones should be established and maintained throughout the entire length of the project. Fencing for the protection zones should be 4 foot orange plastic fencing supported by metal stakes pounded into the ground. The support poles should be spaced no more than 10 feet apart on center. The location for the protection fencing should be as close to the dripline as possible still allowing room for construction to safely continue. Signs should be placed on fencing signifying "Tree Protection Zone - Keep Out". No materials or equipment should be stored or cleaned inside the tree protection zones. Areas outside the fencing but still beneath the dripline of protected trees, where foot traffic is expected to be heavy, should be mulched with 4 to 6 inches of chipper chips. The riparian area shall be fenced off with construction fencing and no access to the area should be allowed.

Trenching for irrigation, electrical, drainage or any other reason should be hand dug when beneath the driplines of protected trees. Hand digging and carefully laying pipes below or beside protected roots will dramatically reduce root loss of desired trees thus reducing trauma to the entire tree. Trenches should be backfilled as soon as possible with native material and compacted to near its original level. Trenches that must be left exposed for a period of time should also be covered with layers of burlap or straw wattle and kept moist. Plywood over the top of the trench will also help protect exposed roots below.

Normal irrigation should be maintained throughout the entire length of the project. If the trees on this site is traumatized it should receive heavy flood type irrigation 2 times a month. During the fall and winter 1 time a month should suffice. Mulching the root zone of protected trees will help the soil retain moisture, thus reducing water consumption. The redwood trees will require regular irrigation until winter rains saturate the soil.

The information included in this report is believed to be true and based on sound arboricultural principles and practices.

Sincerely,

Kevin R. Kielty
Certified Arborist WE#0476A

DRAFT



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March 10, 2016

Mr. Paul Cole
Assistant Chief, Operations/Special Operations
Coastside Fire Protection District
CAL FIRE – San Mateo – Santa Cruz Unit

Subj: Site Specific Tsunami Study – Rev1
Relocation of El Granada Fire Station 41

Dear Mr. Cole:

We are pleased to provide this site-specific tsunami assessment for the proposed El Granada Fire Station Relocation Site (EGFSR) in San Mateo County, shown on Figure 1, and referred to as the EGFSR site such throughout the report. This revised report addresses comments that were received from the Coastal Commission.

We understand that the Coastside Fire Protection District proposes to relocate the existing Station 41 in El Granada. The proposed relocation site is a 2.5 acre parcel, known as Assessor Parcel Number 047-261-030, which is approximately 600-feet southeast of the existing Station 41. This parcel is bounded by Avenue Portola, Obispo Road, Coronada Street and a portion of Avenue Alhambra.

In 2009, the California Emergency Management Agency (Cal-EMA) developed tsunami inundation maps for emergency planning purposes that show inundation limits defined as an aggregate of the maximum runup caused by simulating hypothetical tsunami events assuming a tide level equal to or greater than Mean High Water (MHW). The EGFSR site, currently lies within a tsunami inundation area, as does the existing Station 41, per the Cal-EMA tsunami hazard maps.

Moffatt & Nichol (M&N) has conducted a site-specific tsunami study for the EGFSR site to understand the historical and scientific background, as well as the statistical significance of the Cal-EMA and other relevant tsunami hazard maps.

The main findings of the study are:

1. A review of topographic information for the site, literature, and discussions with authors of the Cal-EMA maps, indicate that the maximum inland limit of runup shown on the maps is based on tsunamis that have a return period of over 500 years. The proposed EGFSR site is close to the inland limit of the inundation shown on the Cal-EMA map for this area. Therefore, the probability of tsunami-induced inundation at the EGFSR site as shown on the 2009 Cal EMA tsunami hazard map is quite low, and very likely even lower than that of typical seismic design criteria for buildings (generally equates to about 475 year return period).
2. The 2013 U.S. Geological Survey map (SAFRR scenario), which is estimated to have a return period of 200 – 250 years, shows the EGFSR site well outside the inundation zone.



3. When compared to typical coastal flood hazard analysis using, for example, FEMA guidance (100-year return period or 1% annual chance), the site has a significantly small risk of inundation from tsunamis. Extrapolation of available tsunami runup elevations resulted in a 100-year tsunami runup elevation range of 8 to 10 ft (NAVD88). Ground elevations at the EGFSR site range from 25 to 44 ft (NAVD88), with finish floor of the new fire station proposed at elevation 32.5 ft; therefore, the 100-year event is not expected to cause flooding. Also, the probability of a 100-yr or larger return period tsunami event occurring at a tide level equal to or greater than MHW is much lower than 1 in 100 years.
4. In a review of the applicable section of the Local Coastal Plan (LCP) relevant to tsunami hazards – *Section 6326.2: Tsunami Inundation Area Criteria* – it is not clear what probability of tsunamis is referenced therein. In other words, was the intent of the language to show events with return periods as large as the Cal-EMA maps? If yes, do other sections that deal with similar low probability geologic events, including earthquakes and landslides, also reference similar probabilities?
5. Our understanding via discussions with you is that the fire station will be occupied by first responders and support staff that operate on a *shift* basis, and that the building will not provide long-term or even short-term *living quarters* for anyone. It is not clear to us if operating on a shift basis qualifies the fire station for human occupancy as referenced in the LCP, and County officials should clarify the intent. An important point for consideration relevant to this subject is the fact that the large tsunami-causing events that would result in inundation of the EGFSR site are all far field, which implies that there will be several hours of advance notice before the inundation occurs.

The assessment is divided into four sections: 1) Introduction; 2) Review of site characteristics, including ground elevations, water levels, and waves; 3) Review of literature on tsunami hazards in California; and 4) Site-specific probabilistic analysis of tsunami occurrence at tide levels equal to or higher than MHW.

1.0 INTRODUCTION

The existing El Granada Fire Station 41 is located in El Granada, San Mateo County, just north of the City of Half Moon Bay. The fire station building is located approximately 400 ft inland from the Half Moon Bay shoreline. Relocation of the fire station is currently being contemplated to a site about 600 ft southeast of the present location, north of Obispo Road, in an undeveloped 2.5 acre parcel owned by the Coastside Fire Protection. Figure 1 shows the approximate footprint of the relocation site (blue), and the footprint of the fire station (red line).

The San Mateo County Local Coastal Program (LCP) Policies (County of San Mateo, 2013) defines a hazard area as an area (including land) subject to dangers from, among other phenomena, tsunamis. These areas are identified by flood and natural hazard maps. Therefore, per the 2009 Cal EMA tsunami hazard map, the EGFSR site would be in a hazard area.



Figure 1: Existing El Granada Fire Station 41 Site and Proposed EGFSR Site

(Source: Google Earth)

The LCP points to the Resource Management Zoning Ordinance for criteria applicable to designated hazard areas. The regulations relevant to tsunami hazard are described in Section 6326.2 Tsunami Inundation Area Criteria. In essence, this section limits the development of infrastructure in tsunami hazard areas unless a site-specific study is submitted and approved by the Planning Commission.

The guidance makes no distinction between a “tsunami hazard area” (area subject to a design event, such as a typical FEMA 100-yr return period event) and an “inundation area” (area subject to a hypothetically plausible extreme event). This study presents technical information with a primary objective of evaluating the magnitude in terms of tsunami runup of a typical FEMA type design event in the area the EGFSR site.

2.0 SITE CHARACTERISTICS

2.1 Ground Elevations

A Digital Elevation Model (DEM) containing topography and bathymetry for San Francisco Bay area was obtained online from the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information. The DEM was completed in July 2010 and has a cell size of 1/3 arc-second (roughly 33 ft). Figure 2 shows a rendition of the DEM. The ground elevation around the existing El Granada Fire Station 41 is about 26 ft (NAVD88). In the EGFSR relocation area, ground elevations range from 25 to 44 ft (NAVD88), generally increasing to the



north and towards the east end of the parcel. With the proposed grading, the fire station structure, parking lot, and eastern access road will all be above elevation 30 ft.

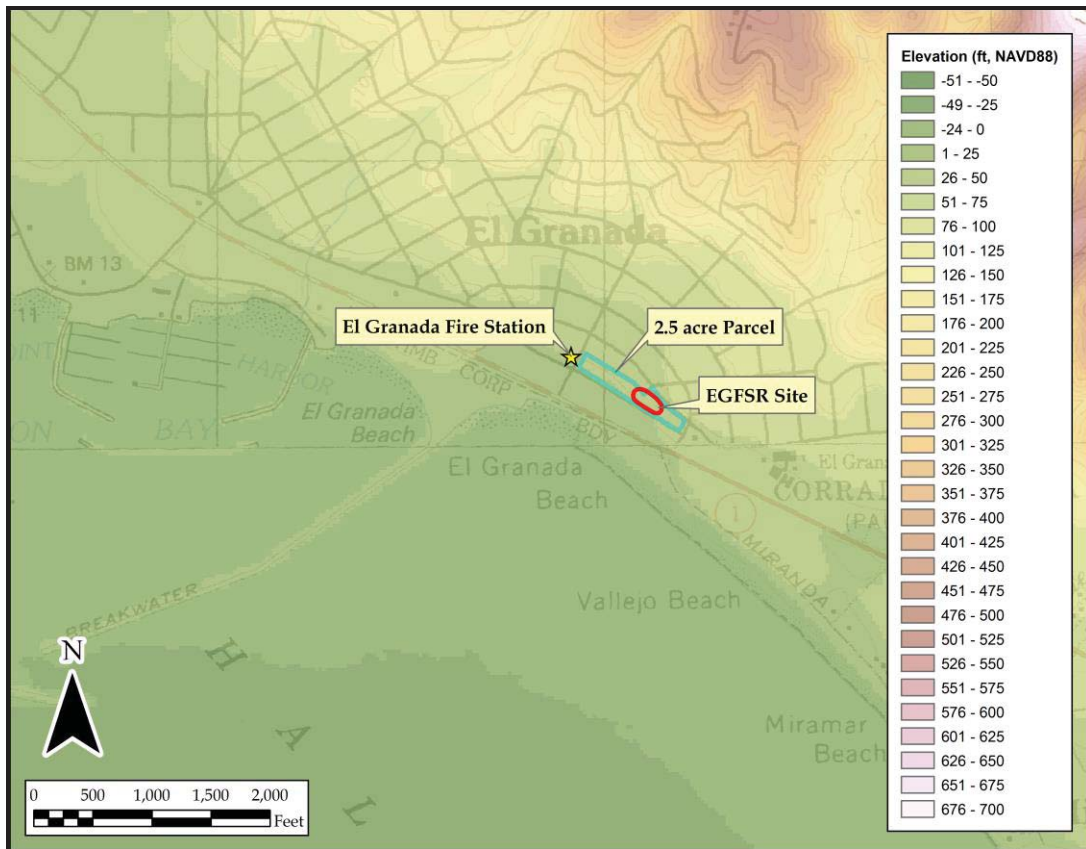


Figure 2: Bathymetry and topography around El Granada

2.2 Water Levels

Water level data in proximity to the relocation site was obtained from the NOAA Tides & Currents website. Table 1 presents information about these stations and the stations selected for analysis as shown on Figure 3.

The tidal datums reported by NOAA for each station are presented in Table 2. The datums that would be most applicable to Half Moon Bay are those from Station 9414290 San Francisco, simply based on proximity. Based on the mean tidal range at all the stations, it is reasonable to assume that the mean tidal range in Half Moon Bay is between 3.5 and 4.0 ft.

The best dataset to estimate extreme water levels is that of Station 9414290 San Francisco because it is the longest (~114 years). An extreme value analysis was performed following the methodology outlined in Goda (2000) where a set of extreme values is identified using the peak-over-threshold method, with a threshold defined as the 99.5 percentile value. The method identifies events using the threshold and then selects a single maximum for each event.



Table 1: Description of stations selected for analysis of water levels

Source	Station ID	Station Name	Location	Reporting Interval	Record Length
NOAA Tides & Currents	9415020	Point Reyes, CA	37° 59.8'N 122° 58.6'W	60 min	11/08/1973 – 08/31/2015
	9414958	Bolinas, Bolinas Lagoon, CA	37° 54.5'N 122° 40.7'W	60 min	07/01/2009 – 08/31/2015
	9414290	San Francisco, CA	37° 48.4'N 122° 27.9'W	60 min	01/01/1901 – 08/31/2015
	9413450	Monterey, CA	36° 36.3'N 121° 53.3'W	60 min	11/08/1973 – 08/31/2015

Figure 4 presents the results of the extreme value analysis. The 10-year water level is 4.86 ft (MSL), while the 100-year water level is only 0.68 ft higher. The small variability is indicative of an area where the residual or storm surge component of the measured tide signal is very small.

However, the California coastline is vulnerable to extreme water levels caused by tsunamis generated from local and distant sources as a result of the seismically active crustal plates underlying the Pacific Ocean. Tsunamis are addressed in Section 3.0.

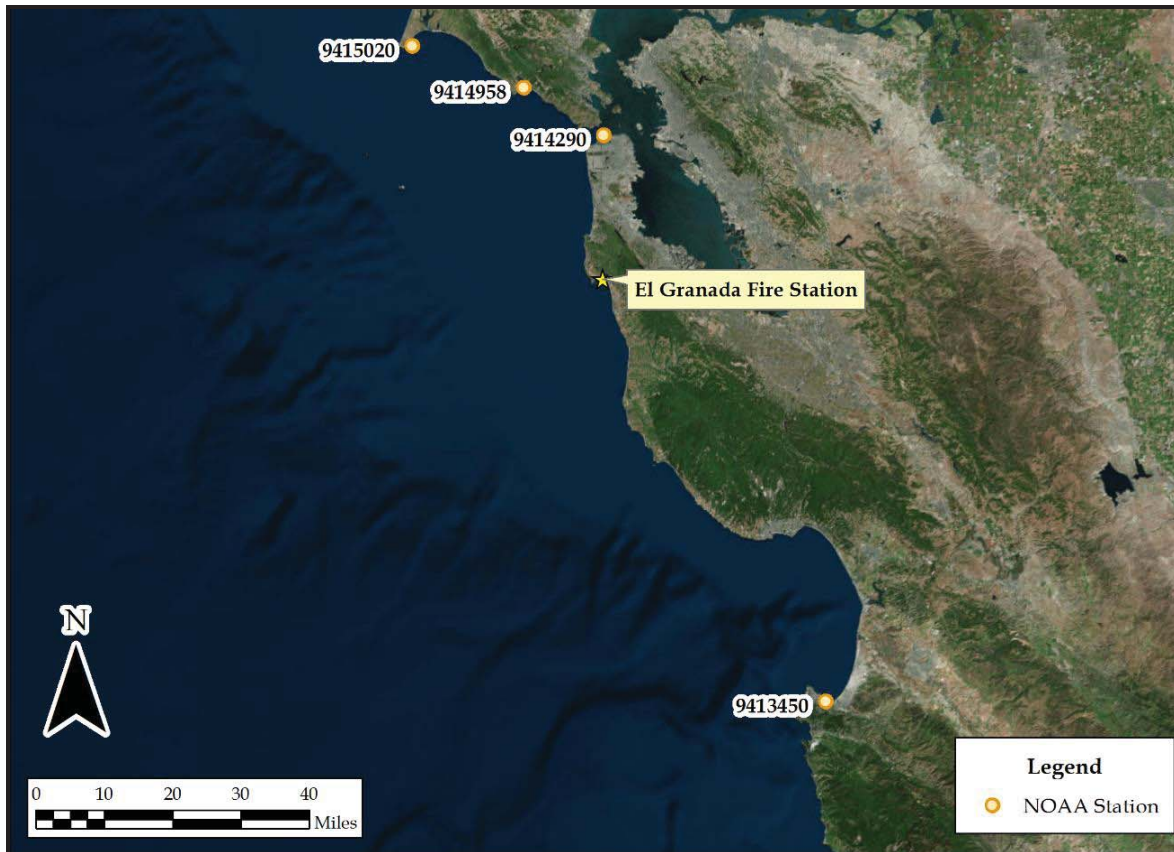


Figure 3: Location of stations selected for analysis of water levels



Table 2: Tidal datums at stations selected for water level analysis
 (feet, 1983 – 2001 epoch)

Datum	Description	9415020 Point Reyes	9414958 Bolinas	9414290 San Fran.	9413450 Monterey
HAT	Highest Astronomical Tide	+4.37	NA	+4.15	+4.20
MHHW	Mean Higher-High Water	+2.66	+2.08	+2.72	+2.51
MHW	Mean High Water	+2.00	+1.47	+2.11	+1.81
MSL	Mean Sea Level	0.00	0.00	0.00	0.00
MLW	Mean Low Water	-1.92	-1.53	-1.99	-1.74
MLLW	Mean Lower-Low Water	-3.10	-2.32	-3.12	-2.83
LAT	Lowest Astronomical Tide	-5.31	NA	-5.21	-4.80
MN	Mean Tidal Range (MHW – MLW)	3.92	3.00	4.10	3.55

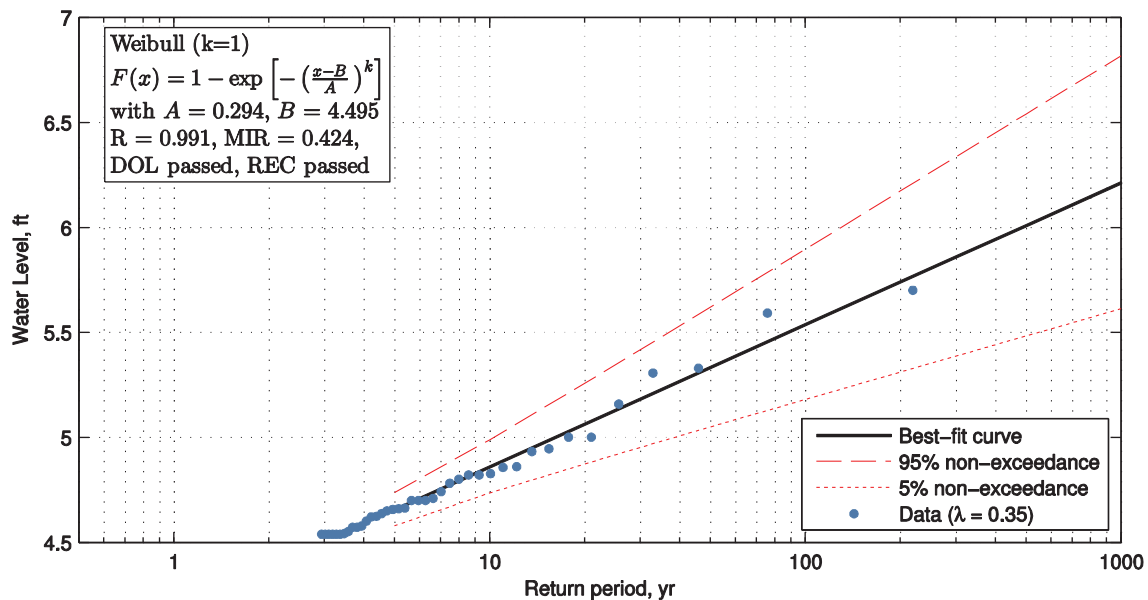


Figure 4: Best-fit distribution to extreme water levels measured
 (Station 9414290 San Francisco, CA)

2.3 Waves

Wave data from two offshore buoys were obtained online from the NOAA National Data Buoy Center. Table 3 presents information about the buoys and Figure 5 shows their location. The data consists of significant wave height, peak wave period, and mean wave direction. In the case of buoy 46012 Half Moon Bay, the data also includes wind speed and wind direction.

The Half Moon Bay buoy is located far offshore at a water depth of 685 ft; thus, it will not provide an accurate representation of nearshore conditions. The San Francisco Bar buoy,



located at a water depth of 56 ft, was selected to assess the changes to the waves as they near the shore. Water depths of about 60 ft are found just outside Half Moon Bay.

Table 3: Description of stations selected for analysis of waves

Source	Station ID	Station Name	Location	Reporting Interval	Record Length
NOAA National Data Buoy Center	46237	San Francisco Bar	37° 47.2'N 122° 38.1'W	60 min	07/25/2007 – 10/26/2015
	46012	Half Moon Bay	37° 21.75'N 122° 52.9'W	60 min	05/26/2010 – 12/31/2014

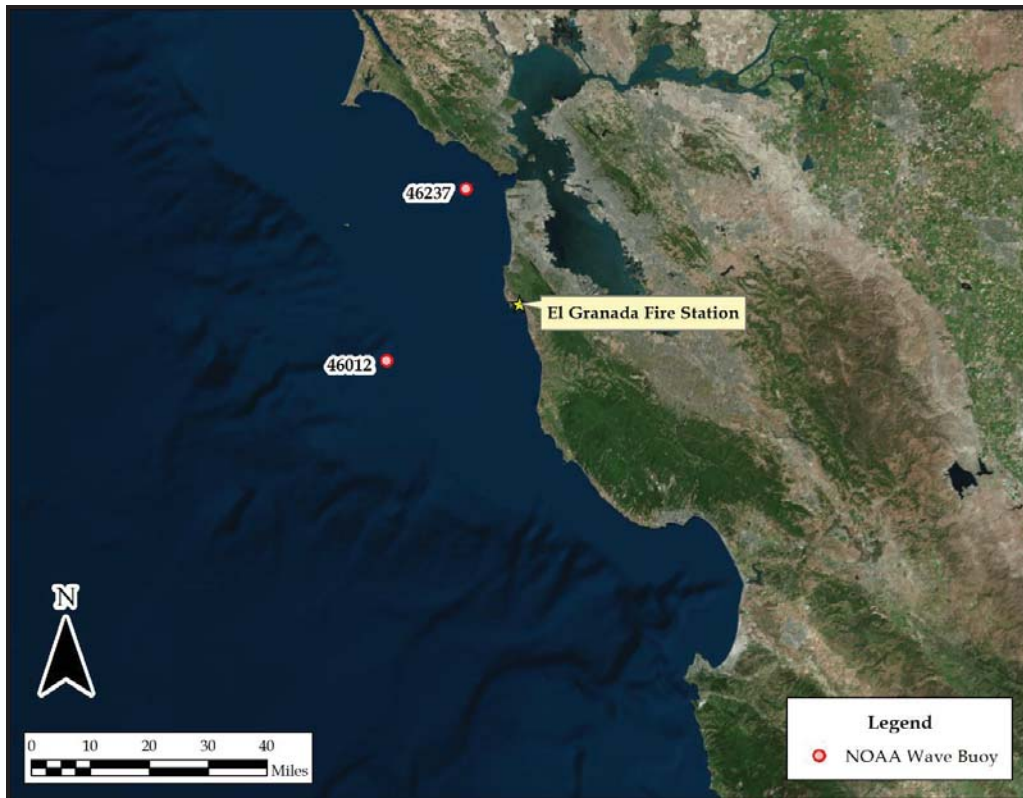


Figure 5: Location of stations selected for analysis of waves

The figures provided in the following (Figures 6 to 11) present annual wave roses and joint histograms developed based on the wave data. The following are some key observations:

- Waves primarily approach from the northwest to west sector. Predominant waves (over 80% of the waves) range from 1 to 10 ft in height, and 8 to 15 seconds in period. This range of wave periods indicates that the wave field is dominated by swell; that is, waves of long period not locally generated by the wind, but by other systems in the Pacific Ocean.
- Closer to shore, predominant waves are lower in height, with the same wave periods. In the vicinity of El Granada, the wave climate is expected to be characterized by waves 1 to 7.5 ft in height and 8 to 15 seconds in period.
- Waves from the south are also appreciable, but have a low frequency of occurrence.

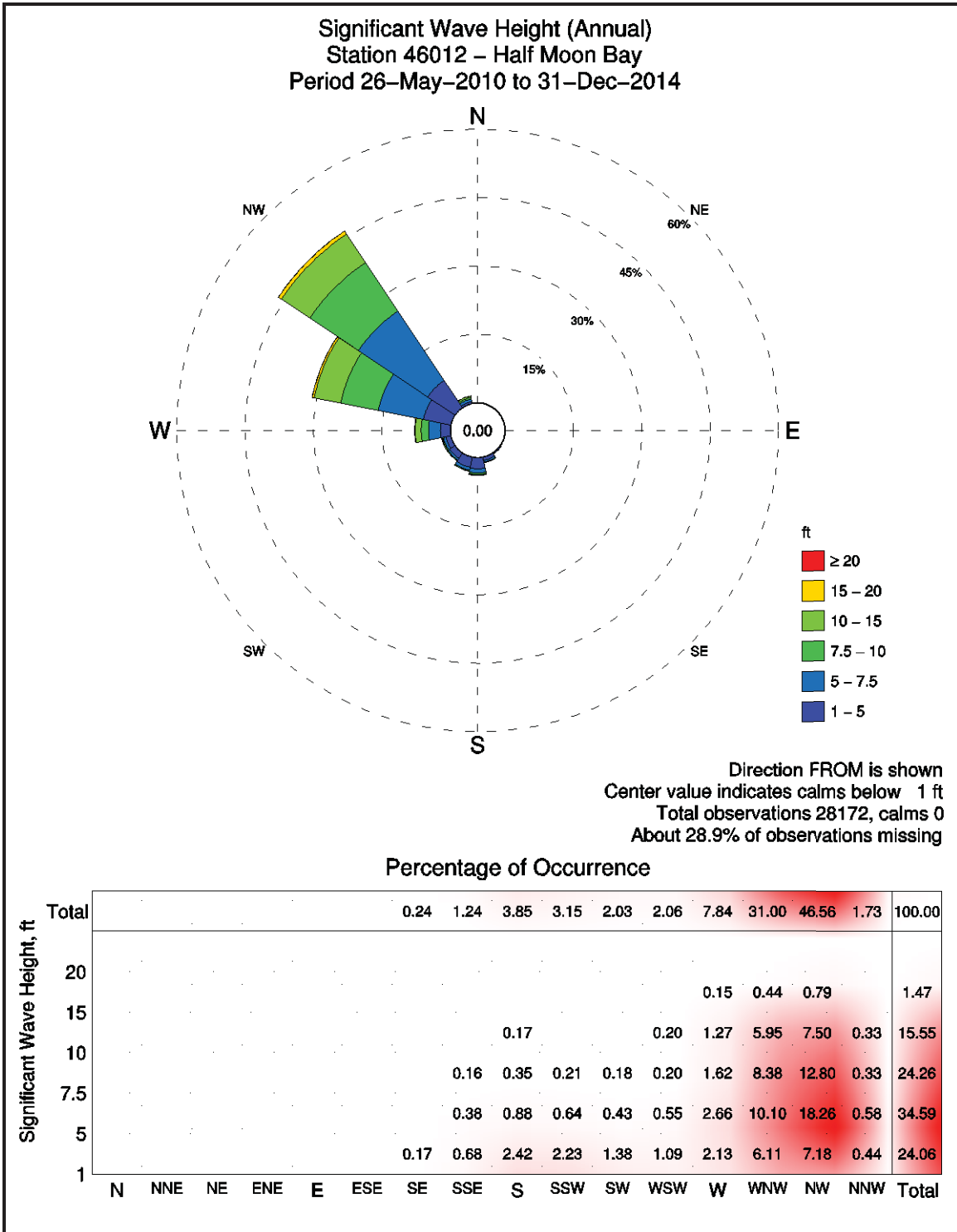


Figure 6: Annual wave height rose for wave buoy 46012 Half Moon Bay

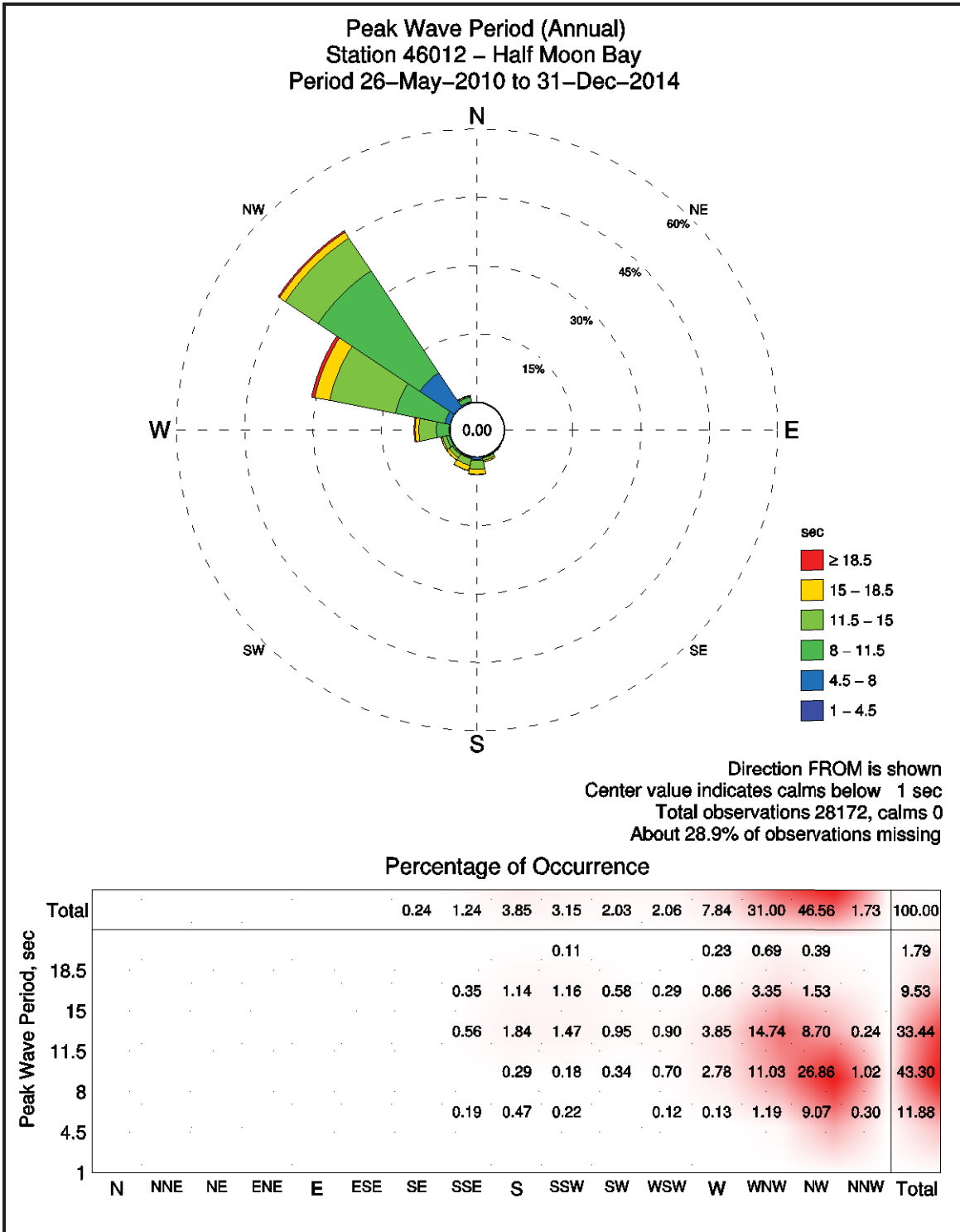


Figure 7: Annual wave period rose for wave buoy 46012 Half Moon Bay

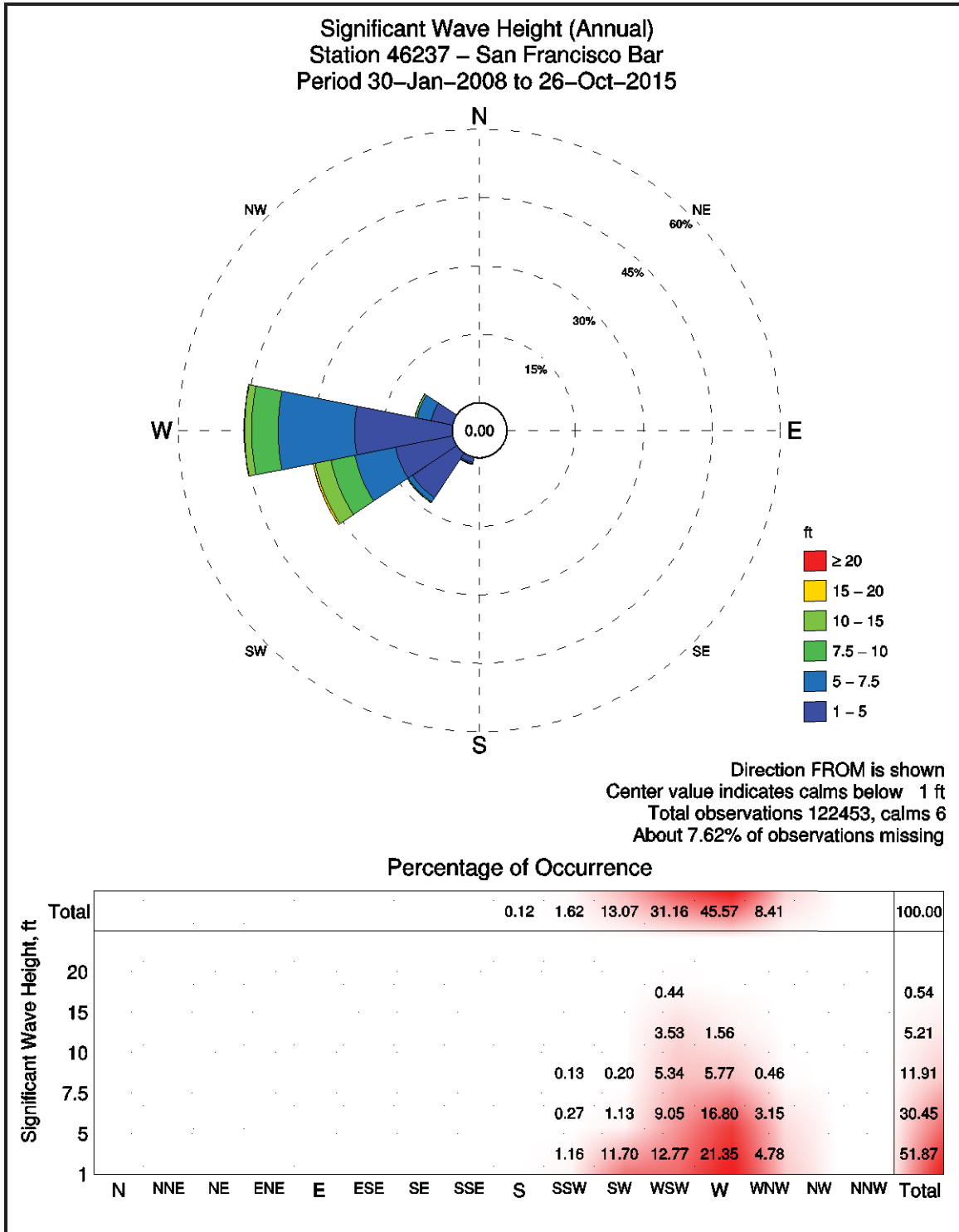


Figure 8: Annual wave rose for wave buoy 46237 San Francisco Bar

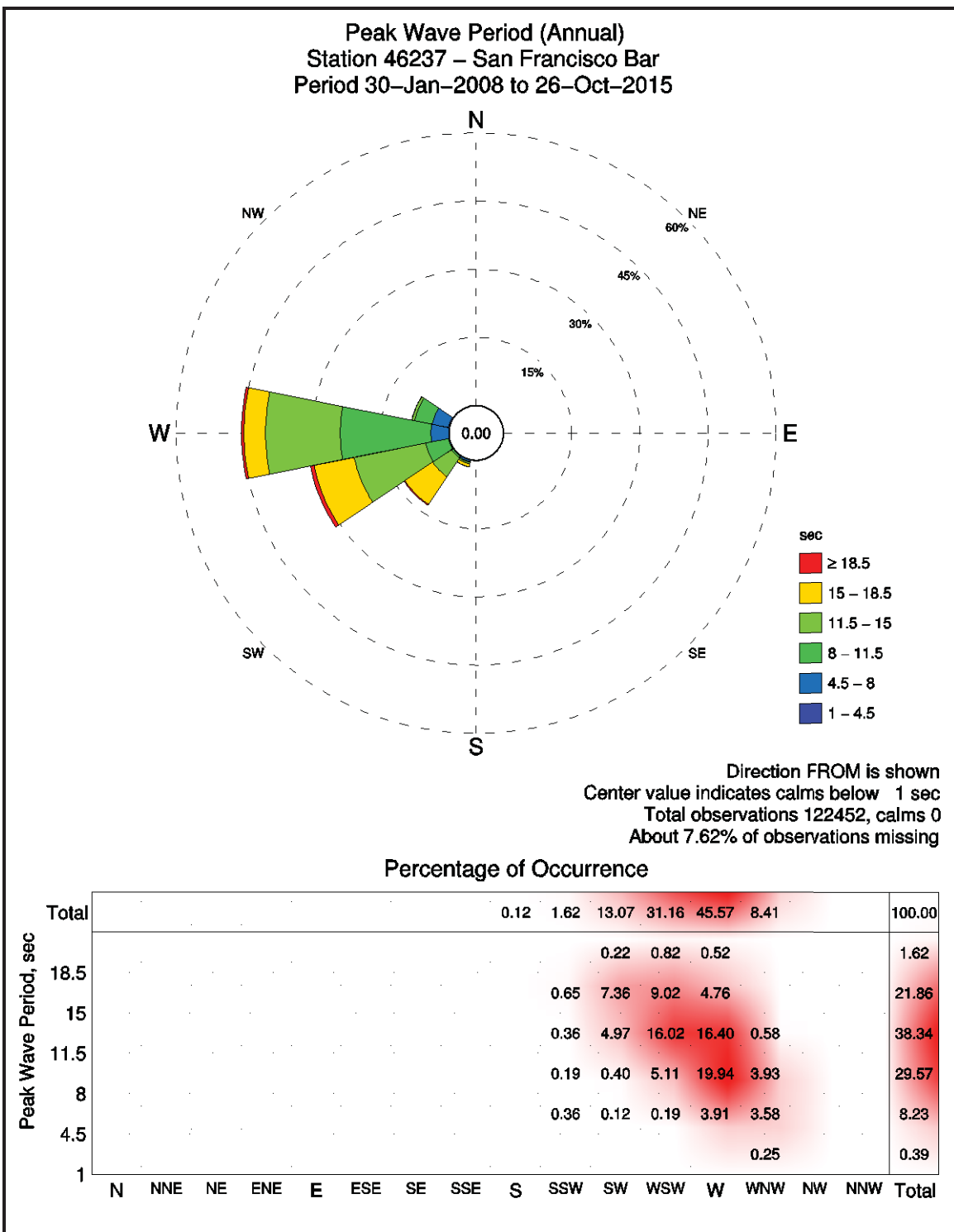


Figure 9: Annual wave period rose for wave buoy 46237 San Francisco Bar

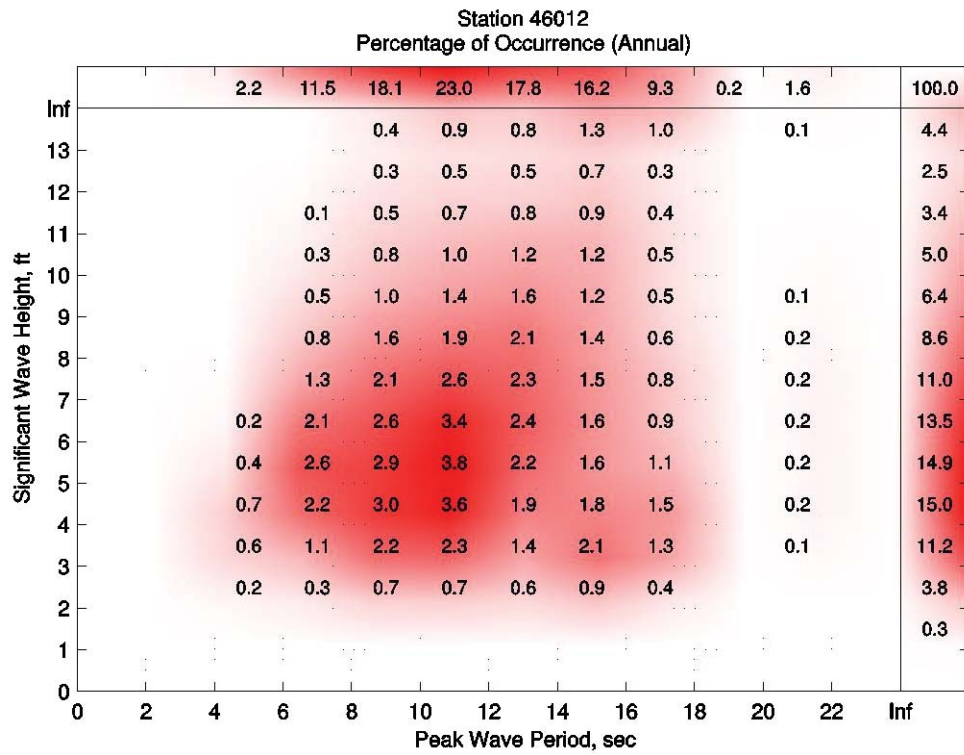


Figure 10: Joint histogram of waves for wave buoy 46012 Half Moon Bay

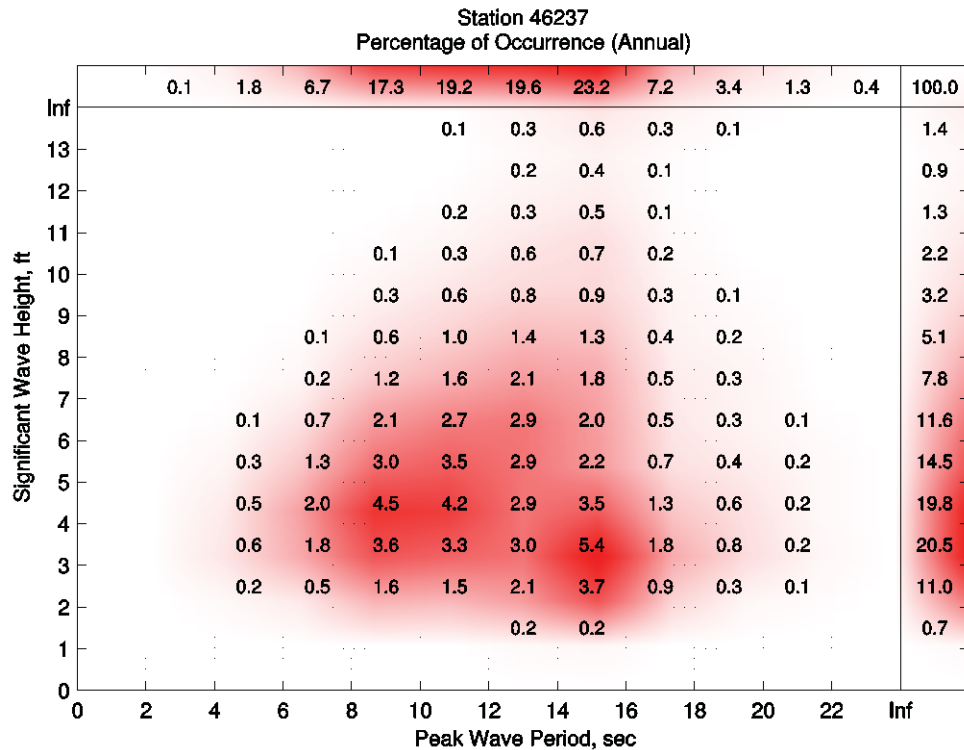


Figure 11: Joint histogram of waves for wave buoy 46237 San Francisco Bar

3.0 TSUNAMI STUDY

3.1 Definitions

Technical terms that repeatedly appear in this section are defined below (Eisner et al. 2001; NOAA NWS).

Tsunami: A series of long-period waves (on the order of minutes to hours depending on source location) generated by impulsive geological events, such as earthquakes, subaerial and submarine landslides, and volcanic eruptions.

Wave Height: Distance from wave trough (lowest part of the wave) to wave crest (highest part of the wave).

Wave Period: Time between consecutive wave crests past a fixed point, typically given in seconds.

Runup: The uprush of water over a beach or structure above the still water level. Figure 12 provides an illustration of this definition for the case of a tsunami.

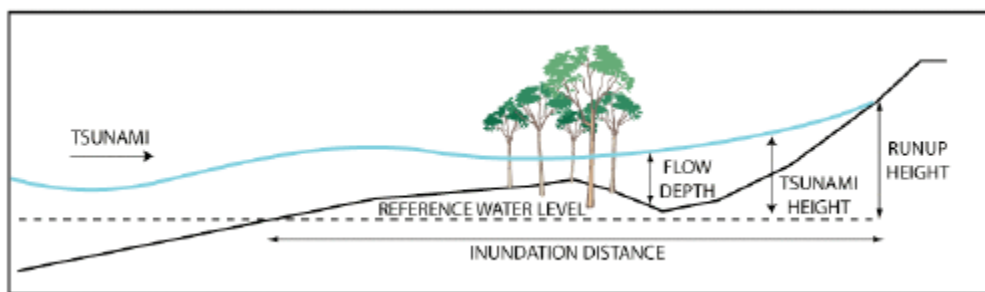


Figure 12: Tsunami runup illustration (UNESCO-IOC, 2012)

Nearfield or local source (relative to the California coastline): A geographical area or feature capable of generating a tsunami just offshore of the California coastline.

Farfield or distant source (relative to the California coastline): A geographical area or feature, particularly subduction zones, capable of generating a tsunami along the Pacific Rim.

3.2 Literature Review

Site specific tsunami studies for the Half Moon Bay have not been conducted; therefore, other relevant tsunami studies that would be applicable to the study area were reviewed and are summarized in this section.

3.2.1 Tsunami Hazards in San Francisco Bay

Borrero et al. (2006) conducted a study to deterministically assess the tsunami hazard at marine oil terminals in San Francisco Bay. The study consists of a literature review of the record of tsunami events in San Francisco Bay from distant and local sources and the execution of numerical hydrodynamic modeling of historic and hypothetical events.

The literature review of Borrero et al. (2006) covers tsunami events recorded in San Francisco Bay between 1851 and 2001 (157 years), allowing them to identify sources and triggering mechanisms that pose a potential threat to marine oil terminals. The majority of the tsunamis recorded in the Bay have been generated by earthquakes taking place in subduction zones



around the Pacific Rim, specifically in South America, Russia, Japan, and Alaska. The greatest tsunami-induced runup in the record was caused by the 1964 earthquake in Prince William Sound, Alaska of magnitude $M_w = 9.2$. This event resulted in runup exceeding 1 m in some locations in San Francisco Bay. The historic record also shows landslides as tsunami sources for a few local events occurring in Northern California; however, the runup induced by these events was of lower magnitude.

Borrero et al. (2006) also discuss previous efforts to assess tsunami hazard in San Francisco Bay. A brief summary of these studies is presented below:

- Magoon (1966) used runup data inside the Bay from the 1960 Chilean tsunami and the 1964 Alaskan tsunami to develop an attenuation model which predicts the reduction in wave height as the tsunami propagates through the Golden Gate into the San Pablo and San Francisco bays.
- Based on five co-seismic tsunami events occurring in 1946, 1952, 1957, 1960, and 1964, Wiegel (1970) developed a maximum tsunami wave height frequency of occurrence graph for Crescent City and the Presidio (Golden Gate).
- Ritter and Dupre (1972) created a tsunami inundation map for the Bay for a far-field tsunami by imposing a 20 ft water height at the Golden Gate. This condition was adopted based on the peak inundation at Crescent City after the 1964 Alaskan tsunami. They used the attenuation model of Magoon (1966) to model the effect inside the Bay. Furthermore, they extended the frequency of occurrence graph of Wiegel (1970) to assign a return period to the 20 ft water height at the Golden Gate. The resulting return period was 200 years.
- Garcia and Houston (1975) used a finite-difference long wave model to simulate tsunami events originating in the Aleutian Trench, with the objective of determining 100- and 500-year runup in Monterey and San Francisco Bay. Outside San Francisco Bay, the model-computed tsunami amplitude was taken and propagated into the Bay with a set period of 38 minutes. Their approach was probabilistic, in the sense that they included the effect of astronomical tides.

From their review of historic tsunami events, Borrero et al. (2006) defined 23 scenarios (historical and hypothetical) to be numerically modeled. They utilized the MOST (Method of Splitting Tsunami) model, which solves the nonlinear shallow water equations, to simulate generation, propagation, and runup. Model resolution in the nearshore areas of interest was refined to resolve runup and inundation more accurately. The far-field seismic sources included the subduction zones of Alaska – Aleutian Islands, Cascadia (Northern California to Vancouver Island), Kuril – Kamchatka (Russia), Chile – Peru, and Japan. The local sources included the San Gregorio and Rodgers Creek faults as co-seismic events and the Farallon Islands as a landslide-generated event.

For the far-field events triggered by earthquakes, Borrero et al. (2006) defined the source (rupture) characteristics using the National Oceanographic and Atmospheric Administration (NOAA) Facility for Climate Assessments (FACTS) database. This database is a compilation of numerical simulations of extreme events, including tsunami from segments of the main subduction zones in the Pacific Rim. These subduction zones are divided into 2 parallel rows of 100 km in length by 50 km in width and a 1 m unit slip. Borrero et al. (2006) combined the necessary segments to obtain the desired earthquake magnitude for each one of these



scenarios. The results were then used as initial condition on the ocean boundaries of the outermost grid of their model.

The modeled scenario that was found to cause the greatest impact in San Francisco Bay was the Aleutian III scenario ($M_w = 9.15$, 800 km rupture) which produced wave heights in San Francisco Bay 2 to 3 times greater than those observed in the 1964 Alaskan earthquake. The return period of the 1964 Alaskan earthquake is estimated to be 350 to 800 years; thus, the return period of the Aleutian III scenario can be expected to be on the upper end of this range.

Borrero et al. (2006) concluded their study by making recommendations for the marine oil terminals in terms of wave height and current speed, including a safety factor of 1.5 since the ecological consequences of a large oil spill in San Francisco Bay would be disastrous.

3.2.2 2010 Chilean and 2011 Tohoku Tsunami

Since the completion of the work of Borrero et al. (2006), two far field tsunami events of relevance to the California coast have occurred, namely the 2010 Chilean, and the 2011 Tohoku (Japan) tsunami.

The 2010 Chilean tsunami was generated by a magnitude 8.8 earthquake in the Maule region of central Chile on February 26, 2010. The earthquake occurred on the Nazca Plate – South American Plate subduction zone, about 300 km north of the 1960 event. Tide conditions were low at the time of the tsunami arrival on the California coast. In San Francisco Bay, the maximum tsunami amplitude recorded on tide gauges was 0.32 m (1.0 ft). Although no observations are available for Half Moon Bay, estimates of the maximum tsunami amplitude range from 0.6 to 0.96 m. No damage was reported in Half Moon Bay as a result of the tsunami (Wilson et al., 2010).

The March 11, 2011 Tohoku tsunami was generated by a magnitude 9.0 earthquake off the island of Honshu, Japan, along the subduction zone created between the Pacific and North American plates. At the San Francisco Marina, which is just east of the entrance to San Francisco Bay (Golden Gate), the maximum measured amplitude was 0.62 m (2.0 ft). At Pillar Point Harbor near Half Moon Bay, the maximum observed and maximum forecasted amplitudes were 0.7 and 0.92 m, respectively. Maximum currents speeds at this location range from 7 – 15 knots (Ewing, 2011). The return period of this event ranges from 500 to 1,200 years, with more literature leaning towards 1,000 years (Tsimopoulou, 2011; EERI, 2011; Tsimopoulou et al., 2013).

3.2.3 M&N Treasure Island Coastal Flooding Study

In 2009, M&N conducted a study to establish flood elevations around Treasure Island. The study was completed before the release of the Cal EMA tsunami hazard maps in June 2009. This study is relevant and applicable to El Granada because it incorporated tsunami contribution relative to the tide level, using probabilistic analyses¹.

Based on the work of Borrero et al. (2006), three historic tsunami events were identified based on the measured runup in the San Francisco Bay area. These events are: 1898 Northern

¹ Probabilistic analysis is where the probabilities of occurrence of various infrequently occurring phenomena are combined together to estimate the net result of an outcome, rather than using discrete measurements, because simultaneous measurements may not exist.



California Rogers Creek fault, 1960 South Central Chile, and 1964 Alaska. The wave height variation near Treasure Island, which served as boundary condition for a Boussinesq Wave Model, was digitized from Appendix 1 of Borrero et al. (2006) for each event. A probabilistic interpretation of tsunami runup relative to the tide level was conducted using results from the Boussinesq wave model in a Monte-Carlo simulation.

The 1898 and 1960 tsunami events were assumed to occur, on average, once in 157 years which is the length of the historic tsunami record (Borrero et al., 2006). The 1964 event was assumed to have a 314 year return period, twice that of the other two events. Borrero et al. (2006) suggest the return period of the 1964 event is between 350 and 800 years.

The water levels used were those measured at the San Francisco Presidio tide gage for the period from 1945 to 2008 (63 years). The Monte-Carlo simulations consisted of repeating the 63 year water level record 16 times for a total of 1,008 years while randomly determining the occurrence and type of tsunami event based on the three events and their associated return period as previously described. The annual maxima were then used to estimate extreme values.

Aspects of this study to highlight due to their applicability to the site specific tsunami hazard study for EGFSR site are:

- The methodology of using a measured long-term record of water levels in the site proximity as the base for water levels.
- The analysis of historical tsunami events in the San Francisco Bay area by Borrero et al. (2006). This list of events may have to be supplemented with post-2005 tsunami events relevant to the San Francisco Bay area.
- The Monte-Carlo simulation approach to quantify maximum water levels associated with tsunamis relative to tide levels.

3.2.4 Tsunami Inundation Maps for Emergency Planning

The University of Southern California (USC) Tsunami Research Center conducted a series of numerical model simulations for the development of tsunami inundation maps for emergency planning for the State of California. The project was funded by the National Tsunami Hazard Mitigation Program through the California Emergency Management Agency (Cal EMA). By defining the tsunami inundation area, the maps are intended to aid cities and counties in identifying areas vulnerable to tsunami hazard and in developing adequate emergency and evacuation practices.

The map that is relevant to the EGFSR site is the map corresponding to San Mateo County, Montara Mountain Quadrangle, published on June 15, 2009 (State of California, 2009). Per this map, as shown in Figure 13, the EGFSR site is practically entirely within the projected tsunami inundation extent. According to the DEM shown in Figure 2, the inundation extent reaches elevations of about 37 – 42 ft (NAVD88) in the relocation area.

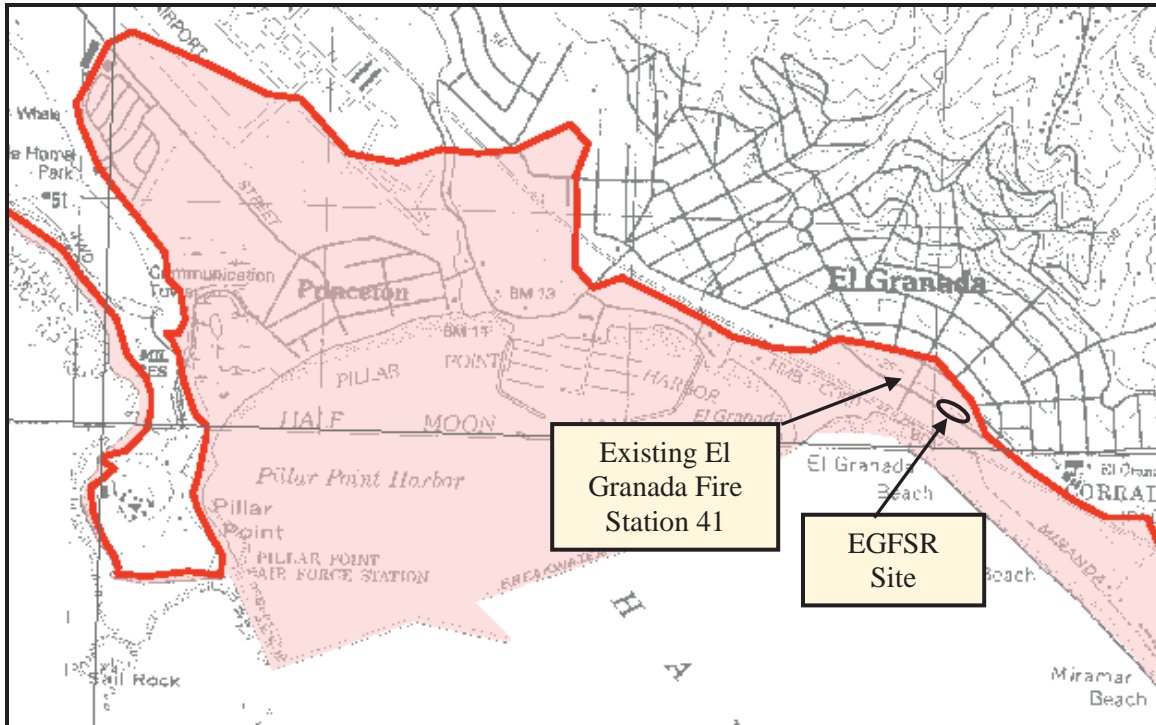


Figure 13: Tsunami hazard map for San Mateo County, Montara Mountain Quadrangle (State of California, 2009)

The maps show the tsunami inundation line and the inundated inland areas. These are defined based on the aggregated maximum tsunami runup from a group of extreme tsunami events modeled using the MOST model with a Mean High Water tide condition. These events are listed in the maps, and the event that results in the maximum runup may vary depending on the quadrangle. Table 4 shows the events modeled for San Mateo County.

Table 4: Events modeled for San Mateo County (State of California, 2009)

Sources (M = moment magnitude used in modeled event)		Areas of Inundation Map Coverage and Sources Used	
		San Francisco Bay	Pescadero
Local Sources	Point Reyes Thrust Fault	X	
	Rodgers Creek-Hayward Faults	X	
	San Gregorio Fault	X	
Distant Sources	Cascadia Subduction Zone-full rupture (M9.0)	X	
	Central Aleutians Subduction Zone #1 (M8.9)	X	X
	Central Aleutians Subduction Zone #2 (M8.9)	X	
	Central Aleutians Subduction Zone #3 (M9.2)	X	X
	Chile North Subduction Zone (M9.4)	X	
	1960 Chile Earthquake (M9.3)	X	
	1964 Alaska Earthquake (M9.2)	X	X
	Japan Subduction Zone #2 (M8.8)	X	
	Kuril Islands Subduction Zone #2 (M8.8)	X	
	Kuril Islands Subduction Zone #3 (M8.8)	X	
Kuril Islands Subduction Zone #4 (M8.8)	X		
Marianas Subduction Zone (M8.6)	X	X	



The most recent tsunami of 2010 Chile and 2011 Tohoku, Japan, are not specifically part of the suite of events that compose the tsunami hazard map for San Mateo County. However, events of similar or even more conservative characteristics are included. Thus, the specific inclusion of these events is not expected to incur significant changes to the inundation extent in this map.

The events presented in Table 4 are consistent with the study of Borrero et al. (2006) in terms of the location of the sources, earthquake magnitudes, and historic events of relevance. Table 5 presents a comparison of earthquake magnitudes between the events modeled by Borrero et al. (2006) and those in the Cal EMA map of interest. From the similarities in magnitudes and event names observed in Table 5 it is inferred that the events share similar rupture characteristics (length, width, slip, etc.). One distant source and one local source that were not modeled in Borrero et al. (2006) that are present in Table 4 are the Marianas Subduction Zone (western Pacific) and the Point Reyes Thrust Fault (northern California). The return period associated to the events shown in Table 4 is not available from the Cal EMA maps and, to M&N's knowledge, is information that has not been published.

Given the similarities evident in Table 5, it is reasonable to assume that the same event that Borrero et al. (2006) found to generate the greatest runup in San Francisco Bay, the Aleutian III event, is the same event that pushes the inundation line inland the farthest on the Cal EMA map for San Mateo County. For this event, the mapped area would be associated with a minimum return period in the 350 – 800 year range (most likely in the upper end of this range). Nevertheless, because the inland limit of inundation is defined in a maximum of maximums approach, the composite return period associated with the map can be higher than that of the Aleutian III event alone. Dr. Patrick Lynett from the USC Tsunami Research Center provided feedback on the return period associated with the Cal EMA maps, indicating that ongoing probabilistic modelling has shown that the inundation line has a return period in the range of 1,000 years.

Table 5: Comparison of events modeled by Borrero et al. (2006) and events modeled for Cal EMA tsunami hazard map for San Mateo County

Type	Borrero et al. (2006)		Cal EMA Map for San Mateo County, Montara Mountain	
	Event	M _w	Event	M _w
Historical Event	Alaska 1964	9.26	1964 Alaska Earthquake	9.2
	Chile 1960	9.26	1960 Chile Earthquake	9.3
Hypothetical Distant Source	Aleutian I	8.78	Central Aleutians Subduction Zone #1	8.9
	Aleutian II	8.78	Central Aleutians Subduction Zone #2	8.9
	Aleutian III	9.15	Central Aleutians Subduction Zone #3	9.2
	Cascadia III	9.2	Cascadia Subduction Zone-full rupture	9.0
	Chile North	9.35	Chile North Subduction Zone	9.4
	Japan II	8.72	Japan Subduction Zone #2	8.8
	Kuril II	8.72	Kuril Islands Subduction Zone #2	8.8
	Kuril III	8.72	Kuril Islands Subduction Zone #3	8.8
Hypothetical Local Source	Kuril IV	8.72	Kuril Islands Subduction Zone #4	8.8
	San Gregorio	7.1	Point Reyes Thrust Fault	NA
	Hayward-Rodgers Creek	6.61	Rodgers Creek-Hayward Fault	NA



3.2.5 SAFRR Tsunami Scenario

The Science Application for Risk Reduction (SAFRR) tsunami study was conducted in order to evaluate a single hypothetical, yet plausible far-field tsunami event numerically modeled to map inundation along the coast of California for emergency, mitigation, and evacuation purposes. The work was carried out by the United States Geological Survey (USGS) in collaboration with NOAA, the California Geological Survey (CGS), and the California Office of Emergency Services (Cal OES). The study was published in 2013 (Ross et al. 2013).

Defined by the USGS Tsunami Source Working Group, the scenario is set in the Semidi subduction sector off the Pacific coast of the Alaska Peninsula, with a moment magnitude (M_w) of 9.1 and a rupture length of 360 km. This geographical setting was selected based on the knowledge that tsunamis originating from this region of Alaska (e.g., 1946 and 1964 events) pose the greatest threat to the California coastline. The tectonic source properties were chosen to resemble those of the 2011 Tohoku tsunami in Japan. The scenario was set to occur on the 50th anniversary of the 1964 Alaskan earthquake at high tide (MHW plus 0.2 m or 0.66 ft).

The SAFRR tsunami scenario does not entirely replicate one of the Aleutian scenarios modeled by Borrero et al. (2006) or USC. The Aleutian I event, while similar in source location, has an M_w = 8.78 and a rupture length 500 km. The Aleutian III event has a slightly greater M_w than the SAFRR scenario, but a much longer rupture length of 700 km.

The SAFRR tsunami scenario inundation line does not extend as far inland as Cal-EMA's inundation line in the El Granada area, as shown in Figure 14. The inundation extent of the SAFRR scenario reaches elevations of around 15 to 22 ft (NAVD88), leaving a distance of about 90 ft from the farthest inland reach of the inundation to the southern boundary of the EGFSR site. The inundation associated with the SAFRR scenario at El Granada is estimated to have a return period between 200 and 250 years.

3.2.6 Discussion

The literature review indicates that deterministic studies have been the primary means to assess tsunami hazard in the San Francisco Bay area and the rest of the California coastline. These studies have relied on validated numerical models to simulate historical and hypothetical events of far field and near field sources (earthquakes and landslides) to define the extent of inland inundation for emergency purposes. Far field tsunamis generated by subduction earthquakes, primarily from the Alaska – Aleutian Islands zone, have been consistently found to pose the greatest threat.

The modeling performed to develop the 2009 tsunami hazard maps is still relevant today, despite the occurrence of post-2009 events, because of the comprehensive suite of events that were modeled. In addition, these events were modeled with the state-of-the-art MOST model which incorporated bathymetry and topography datasets that are generally representative of the existing conditions. Therefore, the Cal EMA tsunami hazard maps are reliable and conservative in the “emergency planning framework” for which they were designed.



Figure 14: SAFRR and Cal-EMA inundation lines in El Granada

The mapped inland inundation shown on the Cal-EMA map has a very small probability associated with it (500-yr return period or even smaller than that) which is significantly smaller than say a typical 100-year return period (1% annual chance) event typically required for flood hazard analysis under FEMA guidance. Similarly, the inundation extent associated with the SAFRR scenario has a return period between 200 and 250 years which is closer to but still smaller than FEMA requirements. This scenario was also modeled using state-of-the-art techniques and recent ground elevations, making it also a reliable, accurate, and conservative reference which was also intended to be used for emergency purposes.

The SAFRR scenario shows the EGFSR site outside the inundation limit. Therefore, it is reasonable to conclude that tsunami events with return periods of 100 years and less will not cause inundation at this site. To validate this conclusion, extrapolation was conducted as part of this assessment to estimate the runup elevation for the 100 year return period event. Table 6 shows the runup values and corresponding return periods used, as obtained from the literature review, including the resulting 100-year return period range. Figure 15 presents the extrapolation of these points from which the 100-year return period range was obtained.



Table 6: Range of runup elevations at the EGFSR Site

	Lower Range		Upper Range		EGFSR Site (ft, NAVD88)
	Return Period (years)	Runup El. (ft, NAVD88)	Return Period (years)	Runup El. (ft, NAVD88)	
Cal EMA	350	35.0	1000	44.0	25 - 44
SAFRR	200	18.0	250	22.0	
100-yr	100	9.0	100	10.7	
MHHW	1	2.5	1	3.0	

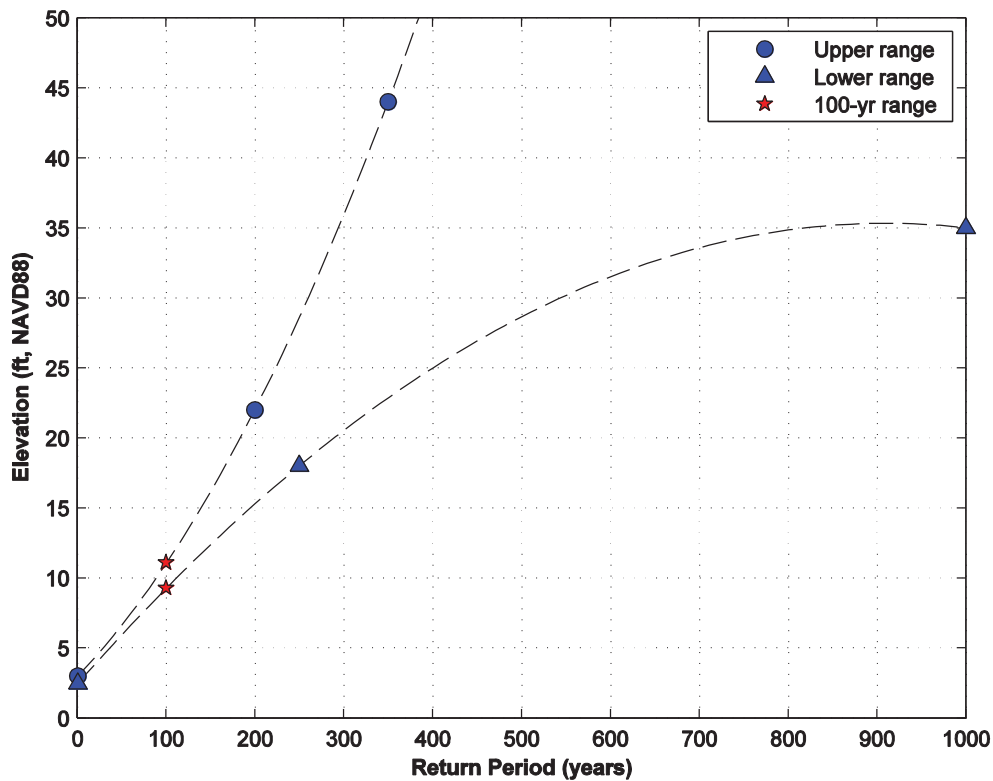


Figure 15: Extrapolation of available tsunami runup to estimate 100-year runup elevation

For illustrative purposes, the information presented in Table 6 was overlaid along a transect shown on Figure 16. This transect was laid out to capture the farthest inland area inundated by the SAFRR scenario in the relocation site vicinity, as well as the portion of the relocation site shown as inundated in the Cal-EMA map. Results of this analysis are shown on Figure 17. The figure shows the extent of inundation estimated for the SAFRR and Cal-EMA efforts, as well as for the relocation site (see yellow stars). The important observation from Figure 17 is that the seaward limit of the EGFSR site is higher than, and inland of, the estimated 100-year return period tsunami inundation zone as well as the SAFRR inundation zone.

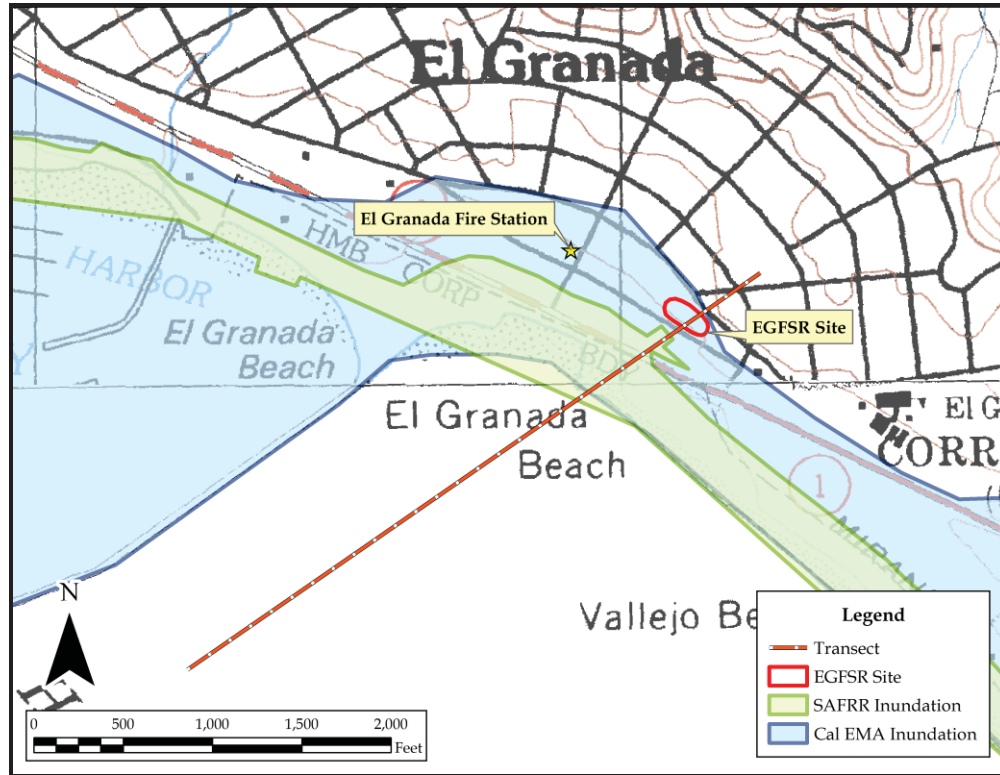


Figure 16: Transect utilized for illustration of runup elevations (Figure 17)

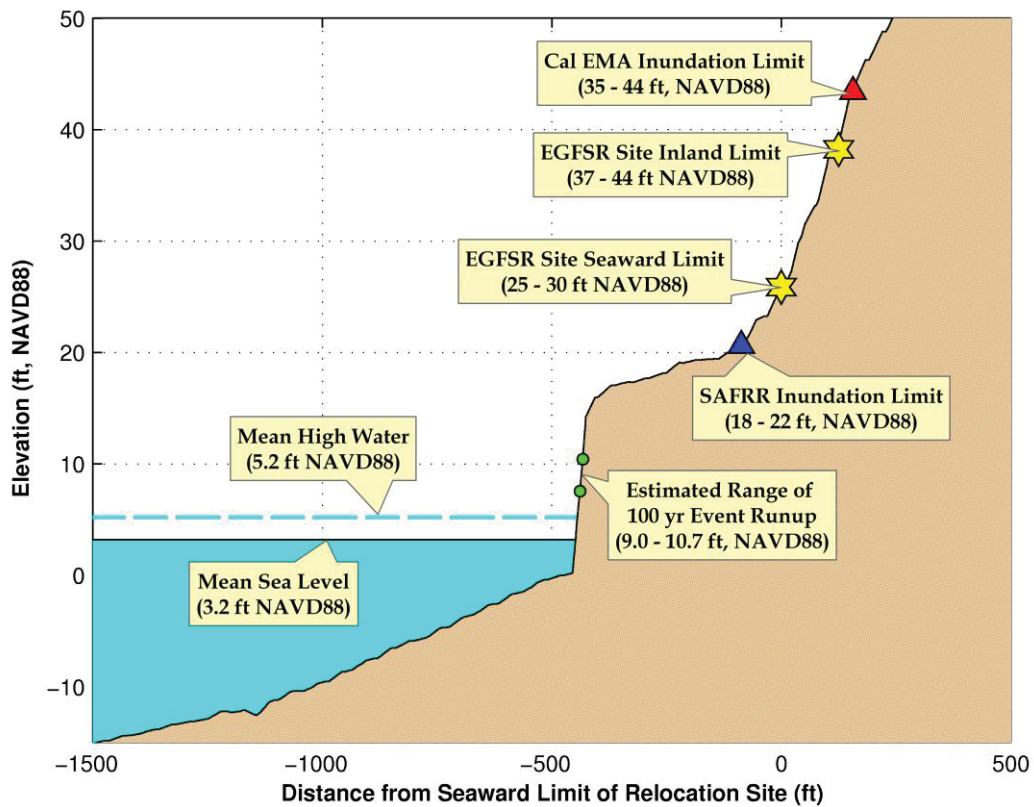


Figure 17: Available and estimated tsunami runup elevations at the EGFSR site



3.3 Probabilistic Analysis of Tsunami Occurrence

The previous sections have provided an indication of the probability of occurrence and return period associated with the inundation extents shown in the Cal EMA and SAFRR tsunami hazard maps. Both of these maps assume the tsunami event(s) occur at a tide level equal to or higher than Mean High Water (MHW). The analysis presented in the following was carried out to estimate the likelihood of a tsunami event occurring under these conditions, which in turn affects the estimated probability of occurrence of the Cal EMA and SAFRR maps as a whole.

Tide levels are an important aspect of tsunami hazard evaluation because a higher tide level in combination with a tsunami wave can result in a higher flood elevation, and thereby a wider flooding extent. Studies conducted for emergency planning purposes, such as the Cal EMA and SAFRR studies adopt a fixed high water level (MHW) in order to produce conservative estimates of potential inundation areas. In reality, the wave period of tsunamis will be on the order of minutes, while variations in tide level occurs over a number of hours. This means that while it is not implausible that the highest wave associated with a tsunami could occur right at the peak of the highest tide, it has a lower probability than the tsunami occurring at an average water level (for example mean tide level).

The analysis is based on the concept applied by M&N for Treasure Island to determine extreme water levels including tsunami contribution. The concept can be divided into three main components: selection of water level record, identification of tsunami events and their contribution to water levels, and selection of a random process to determine the occurrence of those tsunami events.

NOAA Station 9419750 at Crescent City provides a record of measured water levels. The record extends from 1933 to 2015 in hourly intervals. Despite its location near the Oregon border, Crescent City is a location historically affected by tsunamis and, in general, known for experiencing more pronounced tsunami effects than the rest of the California coast. Therefore, by using this record of water levels, a level of conservatism is added to the analysis.

A search in the U.S. National Geophysical Data Center World Data Service for Geophysics (NGDC/WDS) Global Historical Tsunami Database for tsunami events causing runup in Crescent City was conducted to define the tsunami events. The database returned 38 events between 1933 and 2015 that were definite tsunami events.

Each of those events was analyzed in the measured record of water levels and the residual determined as the maximum residual within a 6 hour window (3 hours prior to and 3 hours after the time of the event). Then, extreme value analysis of the residuals was conducted, following the methodology outlined in Goda (2000). A set of extreme values were identified using the peak-over-threshold method, with a threshold defined as the 99.5 percentile value. The method identifies events using the threshold and then selects a single maximum for each event.

Figure 18 shows the results of the extreme analysis of residuals at Crescent City and Table 7 presents the residuals of selected return events as obtained from the best-fit curve. It is noted that this analysis was also conducted for San Francisco Bay and the results were very similar.

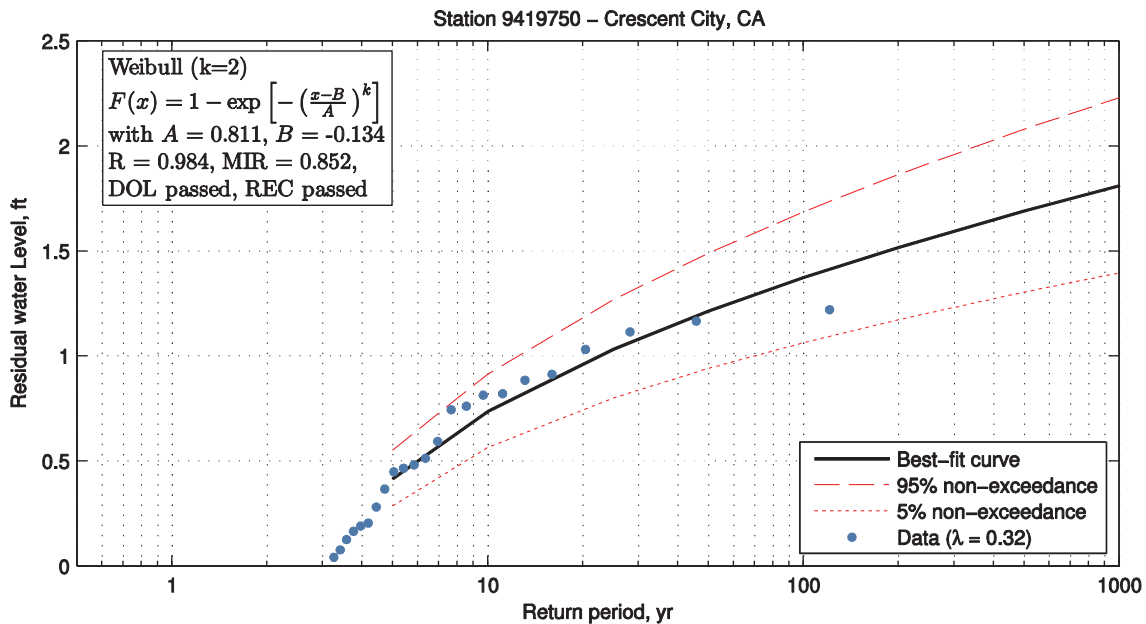


Figure 18: Extreme analysis results of residuals caused by tsunami events

Table 7: Selected extreme values included in simulation

Return Period of Tsunami Event (years)	Expected Residual Water Level (ft)
5	0.42
10	0.74
25	1.03
50	1.21
100	1.37
250	1.55
500	1.69
1,000	1.81

A 1,000-year long time series of astronomical water levels was generated for the simulation, using tidal constituents calculated from the measured record at Crescent City.

The events shown in Table were determined to occur at any time in a year of the simulation by using a random number generator that follows the Poisson distribution. The Poisson distribution gives the probability of a given number of events to occur in a fixed time span if the average rate at which the events occur is known. Since this average rate (return period) is known for selected events from the extreme analysis, this approach allows the random selection process to be weighted so that smaller return periods have a greater likelihood of occurrence than longer return periods. However, as the simulation progresses, the chance for the larger events to occur increases.

At any given time an event occurs, the residual associated with that event was added to the astronomical water level. It is possible to have more than one event occur at the same time; their residuals are simply superimposed on the tide.



For the purpose of analyzing the simulation results it was estimated, using the information in Table 2, that MHW is 2.0 ft above MSL in the Half Moon Bay area. The probability of a tsunami occurring at a tide level equal to or higher than MHW was calculated as the mean of ten (1,000 year) simulations, which were found to yield similar results (which is in turn indicative of good convergence using 1,000 years as the simulation length). The results are presented in Table 8. These results illustrate how the likelihood of occurrence of a given return period event can be lower when factoring in tide levels; for example, the annual probability of a 100-year tsunami occurring at a tide level equal to or higher than MHW was found to be 0.15% which is approximately equivalent to the annual probability of a 650-year return period event. It can therefore be concluded that the probability of a tsunami capable of affecting the EGFSR site is very low.

Table 8: Results from simulation of water levels and random tsunami events

Return Period of Tsunami Event (years)	Probability of Occurrence in a Year at a Tide Level Equal to or Greater than MHW (2 ft above MSL), %
5	3.60
10	1.62
25	0.83
50	0.25
100	0.15
250	0.07
500	0.03
1,000	0.02

4.0 SUMMARY

Key findings of this tsunami study for the EGFSR site are summarized below:

1. The California coastline is vulnerable to tsunamis. Historically, far field tsunamis of seismic origin have caused the greatest impact; in particular, tsunamis originating in the Alaska – Aleutian Island subduction zone.
2. As of the completion of this report, two references define the tsunami inundation potential at El Granada: the Cal-EMA tsunami inundation maps and the SAFRR tsunami inundation map. Both use state-of-the-art modeling techniques, high resolution near the coastline, and recent ground elevations. The maps define only the inundation caused by tsunami events, without providing information about flow depth or return period. This is because the maps were created for emergency and mitigation purposes and not to provide a regulatory design guideline as is the case of FEMA flood maps.
3. The 2009 Cal-EMA tsunami inundation map is the result of modeling a suite of historical and hypothetical tsunami events at Mean High Water (MHW). The extent of inundation shown on the map is an aggregate of maximum runup from several events, with the farthest landward inundation being subject to tsunamis that have return periods as high as 1,000 years. According to this map, the EGFSR site is close to the upland limit of



inundation, which implies that it would be inundated primarily when these low probability events occur.

4. The SAFRR scenario is a single, hypothetical tsunami event with a source in the Alaska – Aleutian Island subduction zone. Even though it was modeled at high tide (MHW plus 0.66 ft), the inundation from this scenario, which corresponds to a 200 – 250 year return period, does not reach the EGFSR site nor does it reach the existing firestation 41 site.
5. Extrapolation of the available tsunami runup elevations resulted in a 100-year tsunami runup elevation range of 8 to 10 ft (NAVD88). The EGFSR site is at elevations ranging from 25 to 44 ft, with most of the proposed facility at about 32 ft; therefore, the 100-year event is not expected to cause flooding of the site.
6. Results of a probabilistic analysis of historical tsunami events indicate that the risk of occurrence of a large tsunami event at MHW (2 ft above Mean Sea Level) or higher is low. A 100-year return period tsunami event occurring at MHW, for example, was found to have a probability of occurrence in a given year of 0.15% which is equivalent to a 650-year return period event. Based on these results, it is reasonable to infer that the probability of a tsunami capable of affecting the EGFSR site is significantly lower than 1 in a 100 years.
7. The low-probability, far-field tsunamis that the EGFSR are vulnerable to travel over great distances over the Pacific Ocean before they arrive at the site, which typically takes over 4 hours from the time that a seismic activity occurs. Given that the fire station is proposed to be occupied by first responders and able support staff, the risk of a tsunami causing life safety concerns could be considered to below. The building itself could be designed to sustain loads associated with a tsunami; guidance from ASCE that is forthcoming will include design criteria for buildings subject to tsunamis.
8. The section of the Local Coastal Plan (LCP) relevant to tsunami hazards, *Section 6326.2: Tsunami Inundation Area Criteria*, is not clear about the level of probability to be used in the evaluation. In other words, is the intent of the language to show events with return periods as large as the Cal-EMA maps? It would be instructive to review other sections that deal with similar low probability geologic events, including earthquakes and landslides, to achieve consistency for such design criteria. For example, seismic design criteria for non-essential buildings per the California Building Code allows the use of a 10% probability of occurrence over 50-years, which equates to about a 475-yr return period. If a parallel to this is drawn for tsunamis, the maximum inland extent of inundation would be lower than this design criteria.
9. We concur with Commission staff's recommendation that the project consider the implications of the Cal-EMA study for siting and design of the fire station. Specifically, design elements addressing location of bunk rooms for personnel relative to inundation and designing structures consistent with standards for coastal high hazard areas outlined in LCP Section 6825.3. This study used LiDAR elevational data and approximate inundation depths by comparing the Cal-EMA map to the LiDAR data to complete the assessment. To assist in siting and design of building structures within the proposed site, additional analyses may be warranted to estimate inundation depths and resultant tsunami forces. The analysis could take the form of a detailed site-specific tsunami study that would result in design criteria.



10. It would also be instructive to comment on the potential vulnerability of this facility to sea level rise over a typical lifespan (assumed to be 50 to 100 years for the relocated firestation). Comparing the lowest existing site elevation of 25 ft to the elevation reached by a typical design tsunami event of 8 to 10 ft, as shown in this analysis, there is about 15 feet of freeboard at this location. Assuming the most conservative projection of sea level rise of 5.5 ft by 2100, per the National Academy of Sciences 2012 report, there is sufficient allowance such that a design tsunami event would not result in inundation of the site. Even for tsunamis in the 200 to 250-yr return period (such as the SAFRR scenario), where the runup could be in the 18 to 20-ft range, there is sufficient allowance for the future.

Thank you for giving us the opportunity to provide our services on this important local project. Should you have any questions or comments, please contact me at your convenience.

Sincerely,

MOFFATT & NICHOL

Arturo Jimenez, P.E.
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Vice President



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The following Attachments are available at:
<http://planning.smcgov.org/fire-station-41-el-granada-replacement-project>:

ATTACHMENT J

Fire Station Relocation Study
Prepared by Citigate Associates, LLC
Date: February 19, 2014

ATTACHMENT K

Initial Study, Draft Environmental Impact Report (EIR), Final EIR