CALIFORNIA COASTAL COMMISSION
NORTH CENTRAL COAST DISTRICT OFFICE
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105
PHONE: (415) 904-5260
FAX: (415) 904-5400
WEB: WWW.COASTAL.CA.GOV

February 23, 2015

Dennis Aguirre
San Mateo County
Planning and Building Department
455 County Center
Redwood City, CA 94063

RE: PLN2014-00133 (McGriff) – 115 West Point Avenue, Princeton, San Mateo County

Dear Mr. Aguirre,

Thank you for returning my February 9, 2015 call regarding San Mateo County Planning Case No. PLN2014-00133. We received County staff's report on February 9, 2015 for the proposed addition to a single-family residence located at 115 West Point Avenue, Princeton-by-the Sea, which is an unincorporated area of San Mateo County. The proposed project entails construction of a 3,973 square-foot addition to an existing 1,888 square-foot residence on a 10,500 square-foot legal parcel. The addition includes a 660 square-foot attached two-car garage. The proposed project would also remove two trees. We appreciate the opportunity to provide you with our comments and ask that you share them with the Planning Commission.

Tsunami Hazard
The Coastal Commission's Senior Coastal Engineer, Dr. Lesley Ewing, reviewed the December 12, 2014 report (*Tsunami Runup and Force Analysis for 114 West Point Avenue, El Granada*[1]) prepared by David Skelly of GeoSoils, Inc. which is Attachment C to the County staff report. The purpose of the report was to determine the potential for tsunami impacts at the subject property. We have concerns regarding the analysis and our comments are provided below.

Component 9 (Hazards) of the County's LCP defines hazardous areas to include land that is subject to dangers from tsunamis and flooding, among other things. The proposed project must be consistent with the criteria in LCP Sections 6324.6 (Hazards to Public Safety Criteria), and 6326.2 (Tsunami Inundation Area Criteria). LCP Policies 9.10 and 9.11 require measures necessary to safely site new development to avoid and minimize hazards within hazard areas. LCP Policy 9.10 requires site specific geotechnical investigations in order to determine appropriate mitigation measures for the remedy of such hazards as may exist for structures of human occupancy. The project site is within a Tsunami Inundation Hazard Area as shown on the Natural Hazards Map in the Natural Hazards Chapter of the San Mateo County General Plan and the California Geological Survey (CGS) tsunami inundation maps and thus, the tsunami

[1] We note that the staff report indicates the proposed project site is on property located at 115 West Point Avenue, Princeton, although the GeoSoils, Inc. report says 114 West Point Avenue, El Granada. This should be clarified.

inundation area criteria apply to the location of the proposed project. The intent of Section 6326.2 is to prohibit certain types of development within tsunami hazard areas as well as to restrict residential structures and resort developments in these areas unless they meet certain criteria based upon maximum probable tsunami estimates which use the best available science, understanding of tsunami characteristics, and potential risks of hazards from said forces, so that risks to human life and properties are minimized.

The proposed project located at 115 West Point Avenue geographically falls within the tsunami run-up area shown on the site-specific tsunami run-up elevation map generated by CalOES in April 2014 for properties located on Princeton Avenue. A copy of the map annotated with the subject project location is attached. The map shows the existing breakwater (on the base map) and provides evidence that the areas inland of the shoreline could be subject to tsunami run-up, even with the presence of the constructed breakwater. The project site is shown to be exposed to a possible tsunami run-up of 23 to 26 feet (7 to 8 meters). Also, as shown by the CalOES map for tsunami wave run-up, the run-up from a large tsunami is expected to increase with inland distance, so that the area inland of the proposed project could have run-up of 26 to 29.5 feet (8 to 9 meters). It is also important to note that the run-up elevation seaward of the breakwater is only about 6.5 to 10 feet (2 to 3 meters).

The results of the current GeoSoils, Inc. tsunami analysis is that if the tsunami bore reaches the site the bore will be less than 1 foot in height and that there is no significant tsunami hazard at the proposed project site thereby no mitigation measures are required. The Pillar Point Harbor breakwater was modeled by GeoSoils, Inc. as impermeable; however it is a porous, rubble-mound, structure. [2]

GeoSoils, Inc. has modeled the tsunami as a 30 second wave for determining the wave run-up; under this assumption, the tsunami would overtop the breakwater for approximately 15 seconds, and the overflow water would travel through the harbor area as a bore, or a broken wave and then retreat. However, tsunamis are often referred to as long waves that have periods represented by minutes, rather than seconds. A large tsunami bore would flow into the harbor through the harbor entrance, through the permeable breakwater and over the breakwater for possibly a 10 to 15-minute time period. Water would fill the harbor and then flow overland into parts of the community. Eventually, the water would recede, but the conditions following 10 to 15 minutes of flow into the harbor would be significantly different from those for a 10 to 15-second flow from a wave with similar height.

The LCP also requires that development within coastal high hazard areas subject to high velocity waters from tsunamis meet the requirements of Section 6825.3 which include that the structure

---

[2] The greatest damages to coastal communities in California from the 2011 Tohoku tsunami resulted in confined harbor areas when very strong currents resulted from the large volumes of water that surged in and out of the harbor over 18 to 15 minute periods. These harbors experienced significant damage, despite the presence of protective structures.

be in compliance with applicable construction standards and building regulations. Staff suggests that the development be designed to be consistent with the building standards outlined in IP Section 6825.3. New development projects which include a residential component have recently been approved by the Commission for the Princeton shoreline area with a requirement that all habitable portions of the new development be located above the run-up elevation and meet the requirements of LCP Section 6825.3 for coastal high hazard areas. The GeoSoils, Inc. analysis for the current project provides no information about the elevation of the project site or of the proposed renovation or addition. Commission staff recommends that the attached CalOES tsunami run-up map be used to inform the analysis since the entire site is located within the run-up area. Commission staff also recommends that the residential portions be located above the tsunami run-up elevation consistent with the requirements of LCP Sections 6326.2 and 6324.6.

The GeoSoils, Inc. analysis of run-up inland of the breakwater is based upon the assumption that the run-up will decrease by 1 foot in elevation for every 25 feet of horizontal travel. This "rule-of-thumb" has little substantiation within the coastal research community and is not appropriate to use in this type of wave analysis.

The State of California recognizes civil engineering expertise through the examination and issuance of a Professional Engineering license; however as of yet, there is no official recognition of any coastal engineering expertise or tsunami engineering expertise. Tsunami modeling is a specialty field within coastal engineering. There are engineers who have spent a number years refining and modeling tsunami inundation, and while Commission staff are familiar with the work of some of these engineers, Staff cannot know everyone who has done such analysis. There are no objective criteria for being professionally capable of modeling tsunami run-up. The Applicant's coastal engineering consultant states in the GeoSoils, Inc. report (on page 7 of Attachment C) that he is "…recognized by the California Coastal Commission as professionally capable of producing this type of tsunami runup analysis." For clarification purposes, it is important for the County to understand that the Coastal Commission has not recognized any individuals as being professionally capable of producing tsunami run-up analysis.[3]

Based upon our review of materials contained in the County's staff report, Commission staff recommends that the County consider reevaluation of the project in light of the CalOES tsunami run-up map results for consistency with LCP Section 6326.2.

Geologic Hazards

LCP Policy 9.3c requires a geologic report prepared by a certified Engineering Geologist for all proposed development in designated geologic hazard areas. The Coastal Commission's Senior Geologist, Dr. Mark Johnsson, reviewed the September 12, 2014 letter report prepared by Christina M. Tipp, David F. Hoexter, and Richard Woodard of Romig Engineers, Inc. which is

[3] The California Coastal Commission does recognize the need for professional expertise in many aspects of project development; however, the Commission does not recognize individuals for professional capability with respect to tsunami run-up analysis.

Attachment B to the County staff report. The purpose of the document was to report on the evaluation of the geologic feasibility at the site of the proposed project. The report does not include a description of any conducted subsurface investigations as the geologic hazard evaluation is based "solely on review of available documents." The report identifies potential hazards at the site that include fault surface rupture and tsunamis; however it does not contain sufficient information to determine whether or not an unmapped fault splay from the Seal Cove Fault (which is part of the San Gregorio Fault system located nearby) could exist at the property, the nature of the subsurface materials (important for determining bearing capacity and liquefaction potential), potential tsunami run-up elevations, or seismic design parameters. Staff suggests that the requirements contained in Condition No. 14 including a design-level geotechnical investigation with a subsurface investigation (e.g., borings and fault trenching) be conducted prior to issuance of the CDP.

Sensitive Species and Habitat
The certified LCP Sensitive Habitats Component contains policies to ensure the protection of biological resources, specifically sensitive habitats. A preliminary wetland delineation was conducted for the site on December 19, 2013 (i.e., outside of the growing season). Staff recommends that a final delineation be conducted at a time when vegetation on the property can more easily be identified along with seasonal wetland hydrology, i.e., during the growing season. We also suggest that the analysis of the project's consistency with LCP policies for the protection of sensitive habitats include a discussion of whether or not there are sensitive species that use Pillar Point Marsh, which is located southeasterly of the project site, could be found on the subject site and incorporate any mitigation measures as necessary.

We did not receive a project referral form from the County for this project. This is the first opportunity Coastal Commission staff has had to review the proposal and provide you with our comments. As a reminder, we respectfully request that County staff coordinate with Commission staff early in the permit review process so as to ensure our timely participation/review. We convey these comments with the hope that they will be useful in the future when County staff is evaluating the subject project and other similar, proposed, development projects for the Princeton shoreline area.

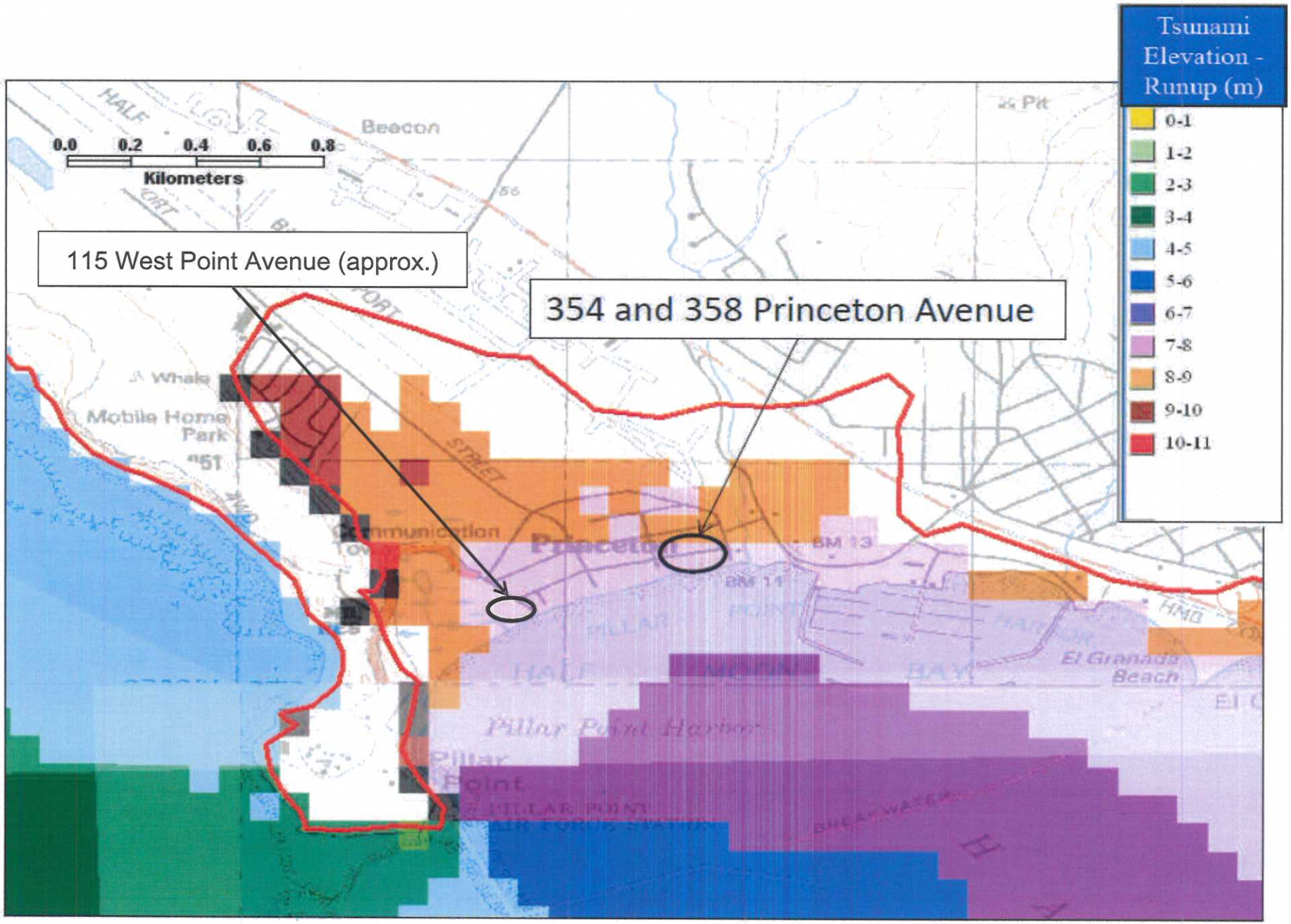
Please feel free to contact me regarding these comments. You can reach me by telephone at 415-904-5260; in writing at the address listed in the letter head; or via e-mail at rananda@coastal.ca.gov.

Sincerely,

Renée T. Ananda
Coastal Program Analyst

Attachment

CC: Camille Leung, San Mateo County


Tsunami Elevation - Runup (m)
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
0.0 0.2 0.4 0.6 0.8
Kilometers
115 West Point Avenue (approx.)
354 and 358 Princeton Avenue
Beacon
Mobile Home Park
Princeton
El Granada Beach
Pillar Point Harbor
Pillar Point
HALF MOON BAY