

February 12, 2020

Via email

Mr. Sean Stewart, J.D.
Planning & Development
County of Santa Barbara
123 East Anapamu Street
Santa Barbara, CA 93101

Subject: 607 Sand Point Road (Tim and Allison Coleman)

Dear Mr. Stewart:

On December 19, 2019, Coastal Commission staff sent to you its CEQA review early consultation comment letter concerning the single-family residence proposed at 607 Sand Point Road. Among other things, the letter sought additional information on alternatives to the proposed project design. Because the project is proceeding on the basis of a Negative Declaration, we recognize that an alternatives analysis would not be required under CEQA. In view of the Commission's request, we have prepared this letter to demonstrate that the proposed project has been sited and designed to meet all Coastal Act, Local Coastal Program (LCP), and Coastal Commission Sea Level Rise (SLR) Guidance standards, and is the feasible, least environmentally damaging alternative for development at the project site.

Site Characteristics and Engineering Review

As background, the proposed project site is located on a sand spit between the ocean and the tidally-influenced El Estero (Carpinteria Salt Marsh). The property faces the southwest which limits direct exposure of waves from the west through the south. The site gradually slopes up from Sand Point Road to the existing residence and continues to raise around the residence to the sand dunes and patio area between the residence and rock revetments. An existing rock revetment is situated on the subject property, which is part of a larger rock revetment extending from 539 to 845 Sand Point Road. The shoreline, revetment, most residences, and Sand Point Road have a northwest to southeasterly orientation extending towards Sand Point, and the existing revetment currently protects the property against wave attack and inundation. The proposed new residence would be constructed approximately 9 feet further landward than the existing residence. Specifically, the existing residence is 69'-10" from the centerline of the seaward rock revetment. The new proposed residence is approximately 79'-6" from the centerline of the seaward rock revetment. The finished floor elevation of the existing residence is 13.95 feet at a majority of the living area and the finished (habitable) floor elevation of the proposed residence is 18.17 feet at the lowest point.

A Coastal Hazards Analysis, dated February 2020 was prepared by Streamline West Engineering (hereinafter Coastal Hazards Analysis) to provide an evaluation of coastal hazards for the site including the determination of design water levels, storm/wave events, and projected sea level rise that was used to inform and adapt the design of the proposed site improvements. For this project, the report analyzed low and medium-high SLR projections, and the extreme H++ projection was also evaluated for worst case planning, in conformance with the Commission's SLR Guidance. The analysis shows design storm and flood

levels both with the existing revetment in place and with no revetment. This report was peer-reviewed by a technical expert selected by the County (GeoDynamics, Inc.), all peer review comments were addressed, and the report was approved by the peer-reviewer.

The report concludes that, overall, ocean side run-up will dictate the design of the improvements if the revetment is removed. With the revetment in place, run-up from the ocean for even the most extreme events is anticipated to be dissipated prior to reaching the proposed improvements and flooding from the lagoon after SLR would create the highest water levels at the improvements (see Coastal Hazards Analysis, pg. 18). Without the revetment, the projected run-up after 75 years is not predicted to extend up into the inhabited level for the low risk and medium-high risk aversion scenario combined with a 100 year storm (14.1' for 100 year storm + low risk and 17.9' for 100 year storm+ med high risk), but run-up could extend to the uninhabitable lower level. The extreme SLR scenario combined with a 500 year storm would result in runup that breaches the inhabited level by approximately 0.5'. (See Coastal Hazards Analysis, pgs. 16-20). These findings align with the FEMA FIS and FIRM which shows higher run-up and BFE along the shoreline that is restricted by the revetment with a lower flood hazard zone around the residences behind the revetment.

Additionally, as described in the Coastal Hazards Analysis, the potential for SLR impacts to the proposed improvements and associated access during normal water and tide levels was also evaluated. The report found that neither mean sea level nor monthly high tides (mean higher high water, MHHW) would affect either the upper habitable level or lower level of the house until the very end of the structure's design life and only for the most extreme SLR projections. MSL is not anticipated to reach the uninhabited, lower level (9.7') for either the low or medium high risk aversion projections but could be impacted near the end of the structure's design life (~2085) if the extreme aversion were to occur. Tides reaching MHHW levels do not impact the upper, inhabited level of the structure for either the low or medium-high risk aversions but would just start to impact the upper level at the very end (2090) of the structure's design life if the extreme risk aversion were to occur (0.05% probability). (See Coastal Hazards Analysis, pgs. 16-20) Several siting and adaptive design measures, as well as other project-related considerations (for example site access and utility locations), were evaluated for the project given these findings and are described below, as well as provided in the Coastal Hazards Analysis.

Proposed Project

The proposed project meets all Coastal Act, LCP, and Coastal Commission SLR Guidance standards, including the 2018 updated SLR Policy Guidance and the 2018 updated Draft SLR Adaptation Guidance for Residential Development. The residence has been sited and designed based on site constraints, including the geotechnical analysis to avoid risks due to coastal hazards, takes into consideration all County required setbacks and height restrictions, and is similar in bulk and scale to the surrounding residential development. The siting and adaptive design strategies implemented include: 1) minimizing the footprint of the proposed new residence, 2) moving the location of the proposed house away from the shoreline, 3) raising the house to minimize hazards over the expected duration of the project by reducing wave impacts and storm surge, even under the worst case scenario (existing revetment removed), and 4) implementing other adaptive design features to address risks from potential future hazards (including pile/caisson foundation system, utility location and design, and uninhabited lower level breakaway wall design). Several of these siting and design features are provided as example "accommodation" adaptation strategies in the Commission's SLR Guidance.

Footprint

The proposed residence is comparable in size to the existing residence. The existing footprint of the house is approximately 4,275 square feet (gross) plus 925 square feet of decking. The new house footprint is approximately 4,412 square feet (gross) with 1,436 square feet of decking and stairs.

Setback

The proposed residence is set back in a more landward location than the existing residence and set back from the shoreline. The existing residence is 69'-10" from the centerline of the seaward rock revetment and the proposed residence is approximately 79'-6" from the centerline of the seaward rock revetment, a setback of approximately 9 feet. The proposed residence will be set back from the El Estero by approximately 105'-5" and will not encroach within the 100 foot El Estero wetland buffer.

A portion of the seaward side of the property is occupied by the revetment. The proposed setback would allow sufficient physical space if, in the future, the revetment were to be located further landward, as well as potential landward migration of the beach, and potential lateral public access. Since the house itself is proposed to be sited in a further landward location, the proposed project will place no burden on public access and therefore lacks the requisite nexus and rough proportionality to support a lateral access requirement.¹

Elevation

The proposed residence would be elevated in conformance with FEMA requirements and Commission SLR Guidance as an adaptive design measure. The finished floor elevation of the existing residence is 13.95 feet at a majority of the living area and the finished (habitable) floor elevation of the proposed residence is 18.17 feet at the lowest point. As recommended by the Commission's SLR Guidance, the Coastal Hazards Analysis analyzed medium-high risk aversion scenario, as well as the extreme H++ projection for worst-case scenario planning. As noted above, the report determined that, without the revetment in place, the projected run-up after the 75 year design life is not predicted to extend up into the inhabited level for the medium-high risk aversion SLR projections combined with a 100 year storm (17.9' for 100 year storm+ med high risk), but run-up could extend to the uninhabitable lower level. The extreme SLR scenario combined with a 500 year storm would result in runup that breaches the inhabited level by approximately 0.5'. The project has been elevated to accommodate the recommended medium-high projection as required and other design features as noted below have been added in consideration of the extreme scenario. The SLR Guidance does not mandate that residential structures be designed to avoid the extreme H++ risk aversion scenario or avoid any potential at all to be threatened from sea level rise over the project's expected life. Rather, the SLR Guidance recommends the scenario-based analysis to examine the consequences of a range of situations and to evaluate design constraints, as well as adaptation options to avoid resource impacts and minimize risks to life and property over time.

Additionally, the project site is located within a "Coastal High Hazard Area" pursuant to the County's Floodplain Management Ordinance and Flood Hazard Overlay. According to Santa Barbara County Flood Control, the proposed site improvements are located within the Repetitive Loss Zone and should have a base flood elevation (BFE) of 13.6 feet (NAVD88). Additional Flood Control requirements require 2 feet of freeboard applied at the site. Applying this freeboard and the BFE for the site gives an elevation of 15.6

¹ Nollan v. California Coastal Commission (1987) 483 U.S. 825 and Dolan vs. City of Tigard (1994) 512 U.S.374

feet as the minimum required site elevation. The elevations of the structural members and finished floor are being raised above FEMA's Base Flood Elevation for the site to further improve the resistance to potential future sea level rise. The proposed elevation of 18.17 feet (NAVD88) well exceeds the flood control requirements.

Adaptive Design Features

The project has also incorporated adaptive design and specialized features to accommodate any risks from potential future hazards including a pile/caisson foundation system, mechanical vault location, and lower level (uninhabited) breakaway wall design.

First, structural elements (including entry, decks and stairways) will be supported on piles or caissons extended deep enough to allow temporary localized scour without impacting the stability of the structure. The pile design has considered loadings from waves and/or storm surges after SLR and worst case, eroded conditions. The structural design was also evaluated in order to minimize the number of piers by maximizing the span lengths between piers to further increase the open space within the lower level. Further reduction of piers was found to be impractical because of the trapezoidal shape of the site and resulting irregular floor plan. Although the rear deck stairs were initially intended to be all wood framed, in response to the County Coastal Engineer peer review regarding the stability of construction of the rear deck stairs and hot tub, solid concrete slab walls were proposed to support the rear deck stairs and the hot tub. However, after Coastal Commission staff commented that this design would not allow for enough flow-through and the structure could act like a seawall in the future, the concrete support walls were modified into a square pier design to allow the water to flow under, over, and around the staircases. Additionally, a number of stairs below the design storm surge elevation were removed, the hot tub is proposed to be elevated to the deck level, and the deck level was elevated up 12" to match the first floor elevation.

Next, the number of watertight mechanical vault areas on the uninhabited lower level have been minimized. Originally, three mechanical vaults were proposed in the uninhabited lower level. The three vault locations were designed so that air handlers could be located in watertight spaces below the building, local to the areas of the house they were servicing. However, in response to Coastal Commission staff comments that these three areas without breakaway walls could in the future act like a seawall, the utilities were consolidated into one understory vault to safely convey all utility connections from the road into the residence. With the combination of height constraints imposed by the HOA and County and the raised first floor elevation to be above the BFE, one vault is necessary because there is little attic space remaining between the ceiling plane and roof rafters above the first floor rooms in which to locate and service light fixtures, duct work, and mechanical equipment such as air handlers. In order to minimize the number of vaults on the ground level, the HVAC system was redesigned to include short and long air handlers that can fit in areas with very low headroom. The one remaining vault (413 square feet (gross), 321 square feet (net interior space)) will house equipment such as the boiler, water softener and filtration system, backup batteries, and hot tub equipment, as well as serve as the conduit to transfer the underground utilities up into the finished space of the house. Potential impacts to the shoreline have been minimized by siting the vault in the most landward location, orienting the vault perpendicular to the water to minimize obstruction during flood events, and reducing the vault size by the maximum extent feasible. As described in the Coastal Hazards Analysis, these design modifications to reduce the support piers and vault within the lower level down to the minimum needed, will allow a majority of the storm surge in the

future to flow unimpeded which will significantly reduce impacts to the shoreline and adjoining coastal environment.

Additionally, breakaway walls will be used beneath the inhabited level to minimize loadings and allow storm wave surges to pass beneath the structure even after 75 years of medium to high risk (0.5% probability) sea level rise. Breakaway walls have been designed in accordance with County Flood Control recommendations. (See Coastal Hazards Analysis, Attachment G for Flood Control recommended conditions of approval and design and elevation requirements).

Lastly, if the more extreme SLR projections were to occur, an increased frequency of flooding along Sand Point Road and at the lower, uninhabited level of the residence could occur during the end of the improvement's design life. Future adaptation measures could include vacating the lower level garage, raising the road to reduce impacts to access, and maintaining the sand supply. These long-term adaptation strategies would require community and/or regionally coordinated infrastructure improvements that will be subject to planning considerations and local government approval.

Siting and Design Alternatives

After a careful siting and design process, the applicant chose the proposed project, described above, because it would minimize hazards in order to meet all Coastal Act, LCP, and Coastal Commission SLR Guidance standards. The siting and design alternatives initially evaluated are described below.

Full Interior and Exterior Renovation

A full interior and exterior renovation was initially considered and would include a full replacement of all interior and exterior finishes and materials. The renovation work would have been considered a substantial improvement and require that the project meet or exceed the current FEMA Finish Floor Elevation (FFE) requirements and other State and County requirements. Portions of the existing structure's living space are nearly 5 feet below the anticipated 2018 FEMA flood elevation requirements, and the entire existing structure is at least 2.5 feet below these elevations. This alternative was dismissed because the expected redesign goals would not be possible without elevating the residence.

Raise and Renovate Existing Residence

The alternative of raising and renovating the existing residence to meet FEMA and other State and County requirements was also evaluated. However, numerous structural challenges were found due to the multiple split level floor plan, irregular footprint, and the fact that the existing house has undergone several improvements since the 1960's. Per the structural report prepared for the project, "the building would need to be cut into roughly 8 separate sections, with each section being raised independently before being re-connected." The structure of the house is made up of both concrete caissons and wood piles, which would need to be extended with retrofit steel jackets. The two-story portion of the house (over the garage) would trigger a full lateral analysis and this portion of the structure would need to be upgraded to current building code requirements. Given the physical challenges of raising the house, the construction costs associated with this work would be substantial. In addition to extensive costs and structural challenges, due extent of improvements, the existing house would need to be modified to conform to all current code requirements. This alternative was dismissed as infeasible from a code, cost and design perspective.

Site Proposed New Residence Further Landward (towards El Estero) than Proposed Site

The proposed new residence is set back from the revetment approximately 9 feet further than the existing residence, which meets the stringline requirements of the Homeowner's Association and conforms with the recommendations in the Coastal Hazards Analysis (there is no County required formal stringline policy). The alternative of siting the residence in a more landward orientation was considered to determine whether moving the house more landward would provide a safer location to minimize coastal hazard risks. However, for this site, siting the residence in a more landward location (more than 9') towards the El Estero would push the residence onto lower elevations and towards the marsh, as the grade drops from the residential site towards the marsh based on the Coastal Hazards Analysis (pgs. 16-19). Since the site is located between open ocean on one side and a tidally influenced lagoon on the other side beyond Sand Point Road, the water levels at the site could be influenced by either the ocean and/or the El Estero. The El Estero water levels are driven by upstream storm drainage, tides, ocean storm surge, and wave set up at the entrance of the marsh which will tend to flood and dissipate from the site at much lower velocities as water levels in the lagoon rise during a storm/flood event and extend towards the site. As sea level rise continues, the potential for flooding of the site from the marsh site increases. (See Coastal Hazards Analysis, Table 10 showing the 100 year storm surge elevations (NAVD88) at the project site for the marsh side including SLR over the design life of improvements; See Figures 12 and 13 for depictions of various run-up and water levels with and without the seawall for the ocean and lagoon sides of the property). Therefore, this alternative was not further evaluated. The Commission's Draft Residential Sea Level Rise Guidance, March 2018 (pg. 20) acknowledges that a greater setback distance does not necessarily result in a safer location and acknowledges that design-based approaches, such as elevation, as proposed for this project and described below, may be appropriate in certain circumstances. In this situation, moving the structure further back beyond the high point of the property would not reduce the structure's exposure since the storm surge will not be significantly reduced after passing over the high point. Additionally, for this property, a larger setback would also be out of character with the surrounding community and, importantly, would not serve to further minimize coastal resource impacts. Further, meeting the current zoning side yard setbacks, in addition to moving the building site further landward, has required the residential footprint to be minimized. As noted herein and identified in the Coastal Hazards Analysis, since the structure has been elevated with a flow-through lower level and the span lengths between piers have been maximized, reducing the structure size further or moving the structure to an even more landward location towards the El Estero would not be expected to reduce future shoreline impacts.

Applicant's Proposed Conditions to Address Risks

Further, as recommended by the Commission's SLR Guidance, although the proposed residence has been sited and designed to ensure structural stability relative to the medium-high sea level rise projection to avoid hazard risks, the applicant has proposed project conditions to ensure risks are disclosed to future property owners, to assume risks of developing in a hazardous area, and to waive liability. The applicant is proposing conditions requiring recordation of a deed restriction imposing conditions of the County coastal development permit, a condition agreeing to no future additional shoreline protective device on the property for the residence, a condition regarding public rights, and a condition agreeing to comply with recommendations in the Coastal Hazards Analysis, dated February 2020, prepared by Streamline West Engineering.

Conclusion

This analysis and evaluation of alternatives demonstrates that the proposed project meets the requirements of the applicable Coastal Act and LUP policies, as well as the recommendations in the Commission's SLR Guidance. As determined by the peer-reviewed Coastal Hazards Analysis, the project siting and adaptative design would minimize risks from the recommended SLR scenario over the 75 year design life without relying on existing or new shoreline protective structures. Siting and design alternatives, including locating the residence further landward, reducing its size and footprint, and other options, were evaluated to determine the alternative that would minimize shoreline and flooding hazard risks for as long as possible without additional shoreline armoring, and would not preclude removal or landward relocations of the existing rock revetment. The conclusion is that there are no feasible siting and design alternatives that would further minimize risks at the site. The existing revetment currently protects the property against wave attack and inundation; however, the project has been designed to not rely on the existing protection provided by the revetment. Further, several conditions of approval proposed by the applicant (noted above) further serve to address coastal hazard risks. Thus, the project would not cause or contribute to flood hazards or lead to an expenditure of public funds for flood control works. The project would neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area in conformance the applicable Coastal Act and LUP policies.

In short, the project, as designed, modified, and now proposed represents the feasible, least environmentally damaging alternative.

Sincerely,



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