COLEMAN PROPERTY
607 Sand Point Road
Carpinteria, California

Coastal Hazards Analysis



Introduction and Site Description

The owners of the property at 607 Sand Point Road, Allison and Timothy Coleman, are proposing to redevelop the site by removing and replacing the existing residence. The property is a waterfront property on the California Coast of the Pacific Ocean located across from the Carpinteria Salt Marsh (also known as the El Estero Lagoon) near Sand Point. See the red arrow on the Project Vicinity Map, Figure 1 and site photographs in Figure 2.

Figure 1 - Project Vicinity Map



Source: US Dep. of the Interior, US Geological Survey
Carpinteria Quadrangle, 2015

Due to the exposure of the site to waterfront hazards, the following evaluation of sea level rise and coastal hazards was performed to evaluate the potential for coastal hazard impacts in relation to the appropriate design of the proposed residence. The site has an existing seawall along the ocean side of the property that consists of two separate rock revetments, the first built in 1964 and the second added around 1983. See Attachment A for the design plans for the addition of the second revetment.

The existing residence is a 1.5 story structure set back approximately 30 feet to the northeast of the center of the most landward rock revetment with Sand Point Road and then the Salt Marsh beyond the residence. The shoreline, revetments, most residences and Sand Point Road have a northwest to southwesterly orientation extending towards Sand Point. The site slopes gradually up from Sand Point Road to the existing residence and continues to raise around the residence to the sand area and patio between the residence and rock revetments. See Attachment B for a survey of the site using the North American Vertical Datum of 1988 (NAVD88). See Table 1 for existing elevations across the site and Figure 2 for site photographs on the ocean side of the existing residence.

Table 1 - Existing Site Elevations (NAVD88)

Location	Elevation (Ft, NAVD88)
Sand Point Road	7.6
Driveway at Residence	9.1
Ocean Side Patio	11.3
Existing Residence (Upper Level)	13.95
Seawalls (Top of Rock Revetment)	15.4 to 17.4

Figure 2 - Existing Site Photographs



The proposed residence is to be a two story structure with the lower level being uninhabited space for garage, storage and mechanical equipment while the upper level will provide the inhabited, living space. The lower level mechanical equipment will be protected by elevating them above the floor within a water tight vault. Compared to the existing residence, the proposed structure is being set back further from the existing seawall and shoreline to help minimize or avoid hazards over the expected duration of the project. The design of the new structure is being adapted to resist impacts from coastal hazards which will reduce potential impacts to the environment and improve the safety of the residence and adjoining properties. See the Coastal Design Considerations section of this report for the adaptation measures being implemented and Attachment B for the proposed improvement plans. The following provides the evaluation of coastal hazards identified for the site including the determination of design water levels, storm/wave events and projected sea level rise (SLR) that was used to inform and adapt the design of the proposed improvements.

Design Stillwater Elevations and Sea Level Rise

Current Water (Tide) Levels: The water levels at the site are dependent upon astronomical tides, wave setup, storm surge and other climatological variations like sea level rise. In order to evaluate the site both the typical and extreme water levels were reviewed using data from the National Oceanic and Atmospheric Administration (NOAA) tide station and NOAA Tidal Bench Mark at Santa Barbara (9411340). See Attachment C. For the Santa Barbara Station the following typical and predicted tide levels were identified and converted to the North American Vertical Datum of 1988 which was used as the vertical control for the topographic survey of the site.

Table 2 - NOAA Tide Data, Santa Barbara (9411340)

Tidal Level[1]	Elevation (NAVD88, Ft)
Highest Observed[2]	7.54
Highest Tide[3]	7.14
MHHW	5.31
MHW	4.55
MTL	2.72
MSL	2.70
MLW	0.89
NAVD88	0.00
MLLW	-0.09
Lowest Observed	-2.98

1 Tide levels converted to North American Vertical Datum of 1988.

2 Highest Observed Water Level

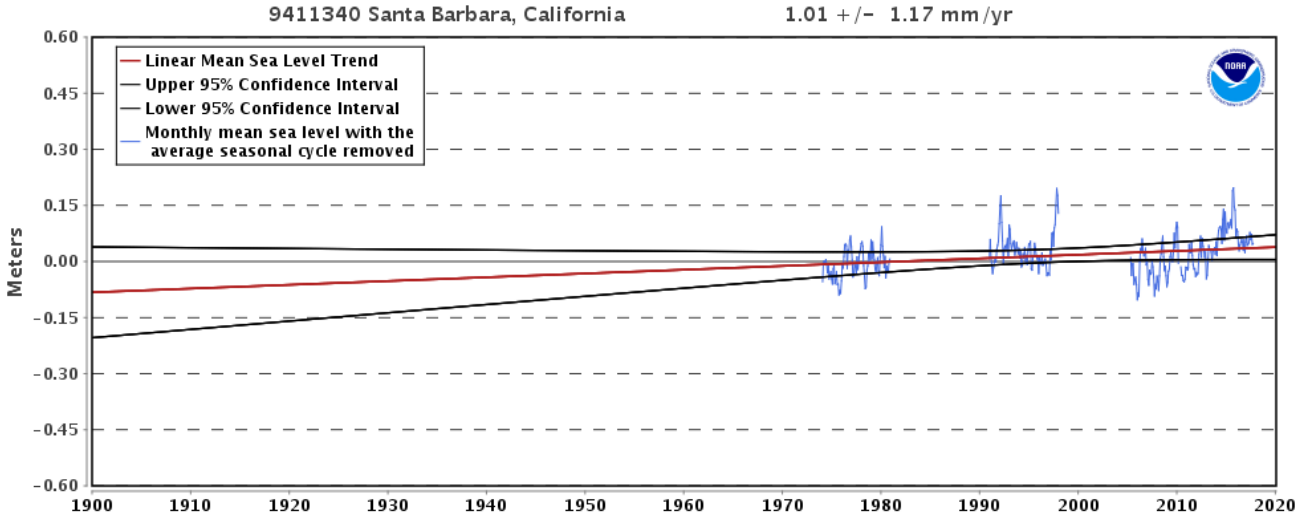
3 Highest Astronomical Tide

Since the period of record for this station is too short to accurately establish 50 or 100 year events, the highest observed water level (7.54 feet) for the station is currently the best estimate of the 100 year event and will be used to evaluate the proposed improvements.

Sea Level Rise: Due to ongoing observation of long-term mean tide level increases (sea level rise), a concern regarding continued sea level rise (SLR) has developed. See the Figure 3 for the Mean Sea Level Trend for the Santa Barbara tide station. The graph shows a steady increase in sea level with a trend of 1.01 millimeters per year which is equivalent to 0.33 feet per century. However, concern for accelerated sea level rise has been stated by climatologists and oceanographers due to continued warming of the atmosphere which could increase this trend (increase rate of SLR per year). Because of the significant implications of sea level rise, various agencies have evaluated the potential for future sea level rise and developed various probability scenerios. For California the Ocean Protection Council (OPC) has recently (2018) released an updated Sea-Level Rise Guidance. The OPC guidance identifies various SLR projections based on potential emission rates and various risk aversion levels. Since the California Coastal Commission

is in the process of adopting the OPC's findings as the standard for SLR projections, the OPC SLR projections will be used to evaluate the site.

Figure 3 - Mean Sea Level Trend, Santa Barbara (9411340)



Since continued sea level rise will result in a tendency for increased wave run-up levels and other coastal impacts, the affects of SLR through the 75 year projected life of the proposed improvements needs to be considered. See Attachment D for the projected SLR for the Santa Barbara County for various risk tolerance scenarios. For projects with a shorter life span, minimal consequences, flexibility to adapt and/or lower economic burden (like an unpaved coastal trail), the low risk aversion projections may be appropriate to apply. The low risk aversion is fairly risk tolerant with a 17% chance of being exceeded but will not adequately address high impact, low probability events. For longer lasting projects with less adaptive capacity and medium to high consequences if SLR is underestimated (like coastal housing developments), the more precautionary, more risk-averse medium-high SLR projections are recommended. The medium-high projection has a 1-in-200 chance (0.5%) chance of occurring which means that the likelihood for SLR to meet or exceed this value is low. For high consequence projects with long design lives, little capacity to adapt, result in irreversible destruction and/or have considerable public health, public safety or environmental impacts, the extreme (H++) should be considered. Although estimating the probability of this scenario is not possible at this time, some scientist believe that this extreme SLR projection is plausible and should be considered during the evaluation of the worst-case scenario.

For this coastal housing development, the low and medium-high risk aversion projections will be used to evaluate the design of proposed waterfront improvements and the extreme H++ projections will be considered for worst case planning. See Table 3 for the projected design (100 year) water levels for the site for each of the SLR scenarios.

Table 3 - Sea Level Rise Projections & Design Water Levels (100 Year Event in Feet,NAVD88)

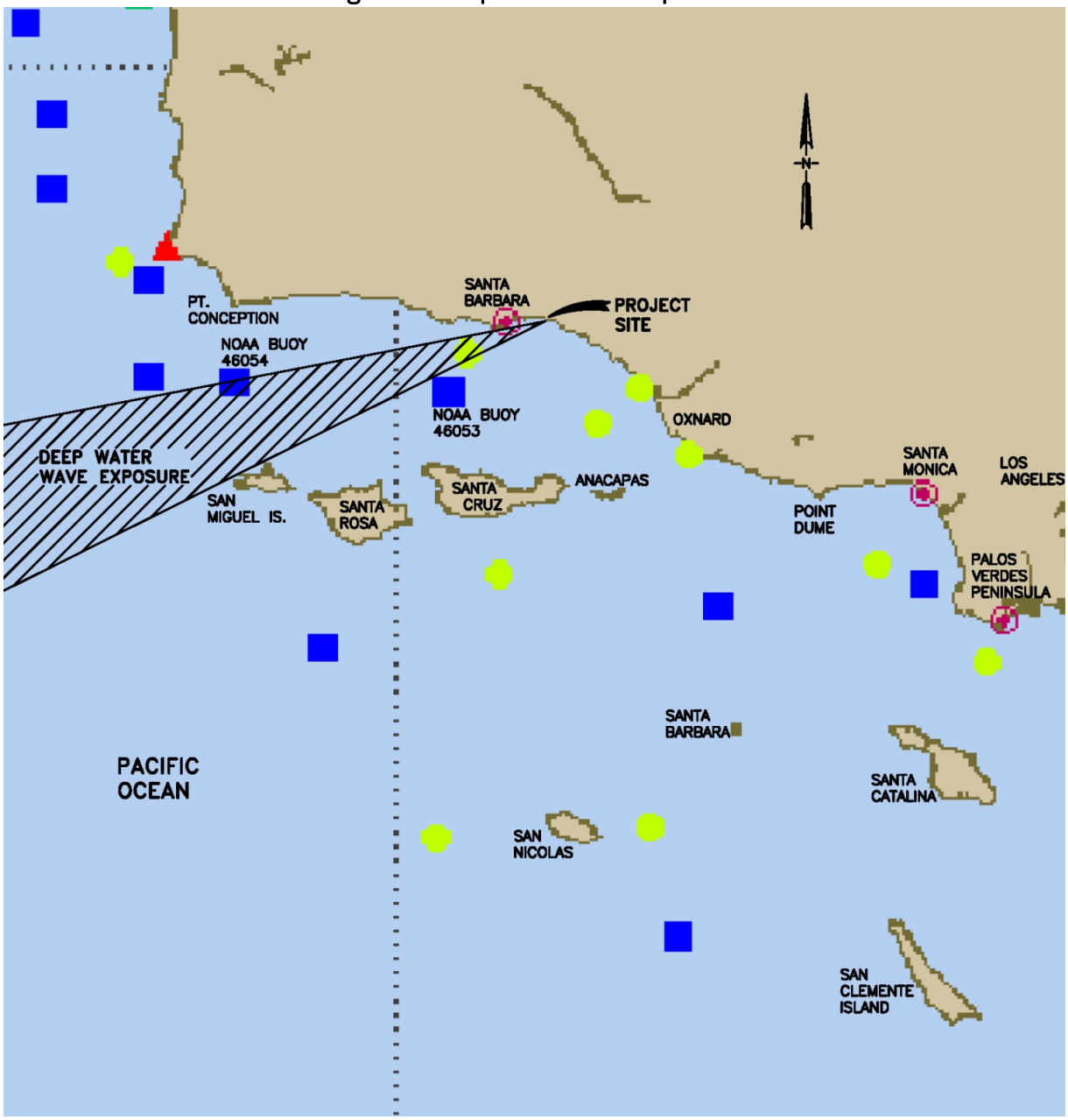
Year	Sea Level Rise			Oceanside Water Level		
	Low Risk Aversion	Medium-High Risk Aversion	Extreme (H++) Risk Aversion	Low Risk Aversion	Medium-High Risk Aversion	Extreme (H++) Risk Aversion
Current	0	0	0	7.5	7.5	7.5
2030	0.4	0.7	1	7.9	8.2	8.5
2040	0.7	1.1	1.6	8.2	8.6	9.1
2050	1.0	1.8	2.5	8.5	9.3	10.0
2060	1.3	2.5	3.6	8.8	10.0	11.1
2070	1.7	3.3	4.9	9.2	10.8	12.4
2080	2.1	4.3	6.3	9.6	11.8	13.8
2090	2.6	5.3	7.9	10.1	12.8	15.4
2094	**2.8**	**5.7**	**8.5**	**10.3**	**13.2**	**16.0**
2100	3.1	6.6	9.8	10.6	14.1	17.3

Note: All values are for high emissions scenarios.

Wave Exposure & Design Wave Heights

The coastline at the Coleman property faces southwest, which limits the direct exposure at the site to waves from the west through the south. Waves at the site are generated by local winds and deep water swells. The design wave will likely be dictated by deep-water swells, since the magnitude (height and period) of these waves is much greater than those locally generated by winds. The orientation of this portion of the coast results in the site being sheltered from large, deep-water storm waves that often reach Southern California from the northwest. Additional island shadowing is provided by the presence of the Channel Islands (San Miguel, Santa Rosa, Santa Cruz and Anacapa) to the south and southwest of the site as well as Santa Catalina and San Clemente further south. As a result, deep water wave exposure at the site is limited to a corridor from the west-southwest as shown on Figure 4.

Figure 4: Deep Water Wave Exposure



In order to establish design wave heights for the site, the wave climatology for the area was evaluated. Historical wave data for the area was obtained from the NOAA Buoys 46053 and 46054, which are located within the larger exposure to the west-southwest of the site. Figure 5 shows the locations of these Buoys. See Figures 5 and 6 for a graph of the historical significant wave heights for these buoys.

Figure 5: Graph of Significant Wave Heights for Buoy 46053

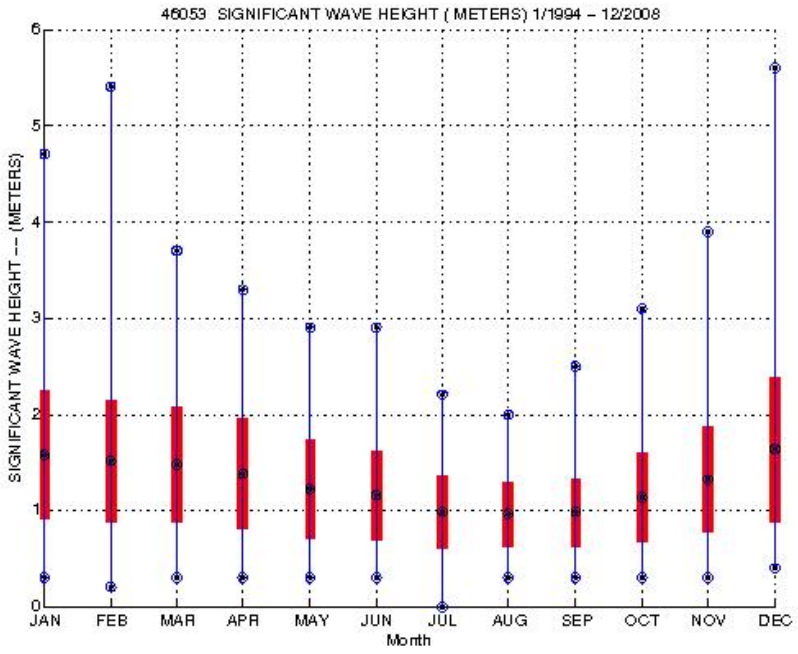
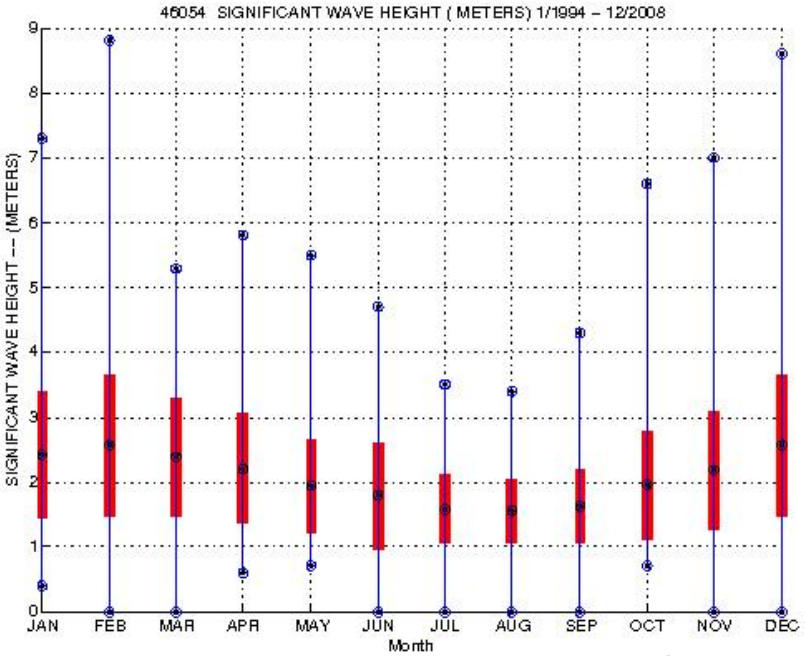


Figure 6: Graph of Significant Wave Heights for Buoy 46054



The graphs show that extreme high wave heights (circled diamond symbols) for the area can reach 5.6 meters (18.4 feet) at Buoy 46053 and 8.8 meters (28.9 feet) at the more exposed Buoy 46054. Since Buoy 46054 is located further west near Point Conception and is more exposed to larger winter waves from the north, Buoy 46053 has been determined to more closely represent the wave exposure at the Coleman property. Therefore, the wave climatology from Buoy 46053 will be used to evaluate the site.

In order to evaluate the improvements for the varying wave conditions that occur at the site, various wave conditions will be assessed. The first condition to evaluate is a small, long wave that would break closer to

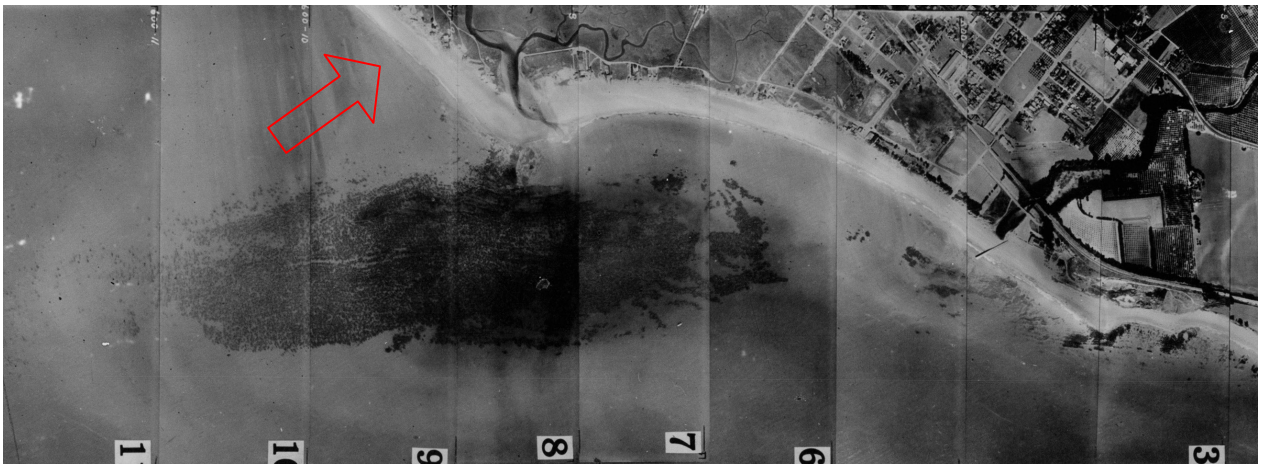
the improvements since the wave breaking depth is a function of wave height with larger waves breaking in deeper water. Since turbulence and forces are greatest during wave breaking, it is important to evaluate the impacts of smaller waves that break closer to the structure. The second wave condition is a larger, long storm wave that will break in deeper water. The third wave condition is an extreme wave condition that will only occur if the unlikely extreme sea level rise projection occurs and allows even larger storm waves to propagate closer to shore before breaking. See Tables 5 and 6 for the various wave conditions evaluated.

Design Beach Profile

The near shore profile exposed to ocean waves at the site currently consists of sandy areas and rock revetments extending to a sandy beach along the shoreline (see the Site Topographic Map in Attachment B). The existing residence is positioned about 30 feet behind the center of the nearest revetment with sandy areas, rock gardens, a driveway and Sand Point Road along the back of the property before it drops off into the lagoon beyond the road. The offshore profile extending away from the shoreline into deep ocean waters consists of a reduced near shore slope that flattens into a shallow near shore basin due to the submerged reef that is just under a 1000 yards offshore of the site. The offshore reef can be seen in the image shown in Figure 1, the aerials in Figure 7, the nautical chart in Attachment E and the Coastal Profiling Survey Lines in Figure 9.

In order to develop a design beach profile for the site, historical data was combined with an evaluation of the potential for the profile to change over the design life of the improvements. The evaluation included research regarding the stability of the existing shoreline in the area. It was found that the area has experienced significant erosion since the construction of the Santa Barbara Harbor in the 1920's. The Beach Erosion and Pier Study prepared by Bailard and Jenkins in 1982 indicated that erosion in the Sand Point area occurred primarily during two different time periods, between 1938 and 1942 and between 1961 and 1973. According to the study, these periods correlated with lapses in dredging at Santa Barbara Harbor which cut-off the predominant source of sediment transport towards Sand Point. Flood control projects during this era are also suspected to have reduced sediment inputs to this shoreline. Review of aerials dating back to 1935 revealed significantly wider beaches and no seawalls (rock revetment) along the subject site. Aerials from the 1970's reveal narrower beaches and construction of the initial seawall (rock revetment) with little or no beach beyond (ocean side) the seawall. This condition appears to be consistent through the end of the 20th Century with the shoreline remaining relatively stable with some areas of accretion (wider beaches) in the area. See the Aerials in Figure 7.

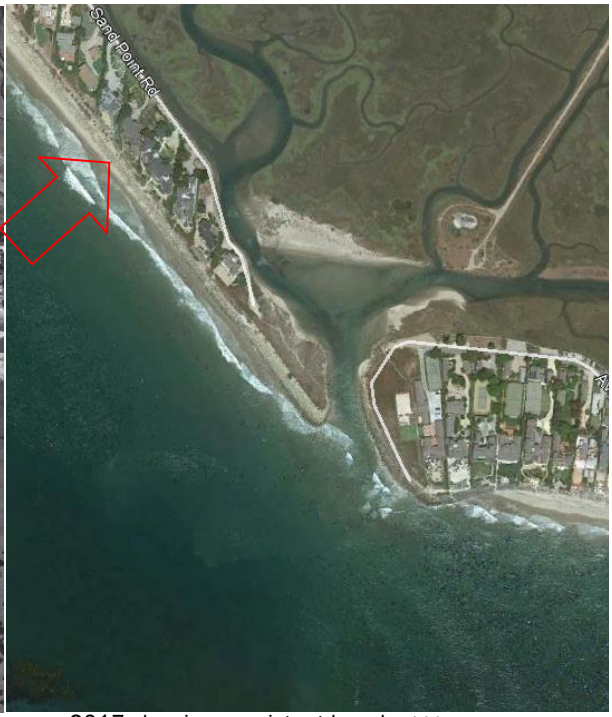
Figure 7: Historical Aerial Photographs



1935 showing wider beach extending to offshore reef



1973 showing narrower beach and initial seawall (rock revetment)

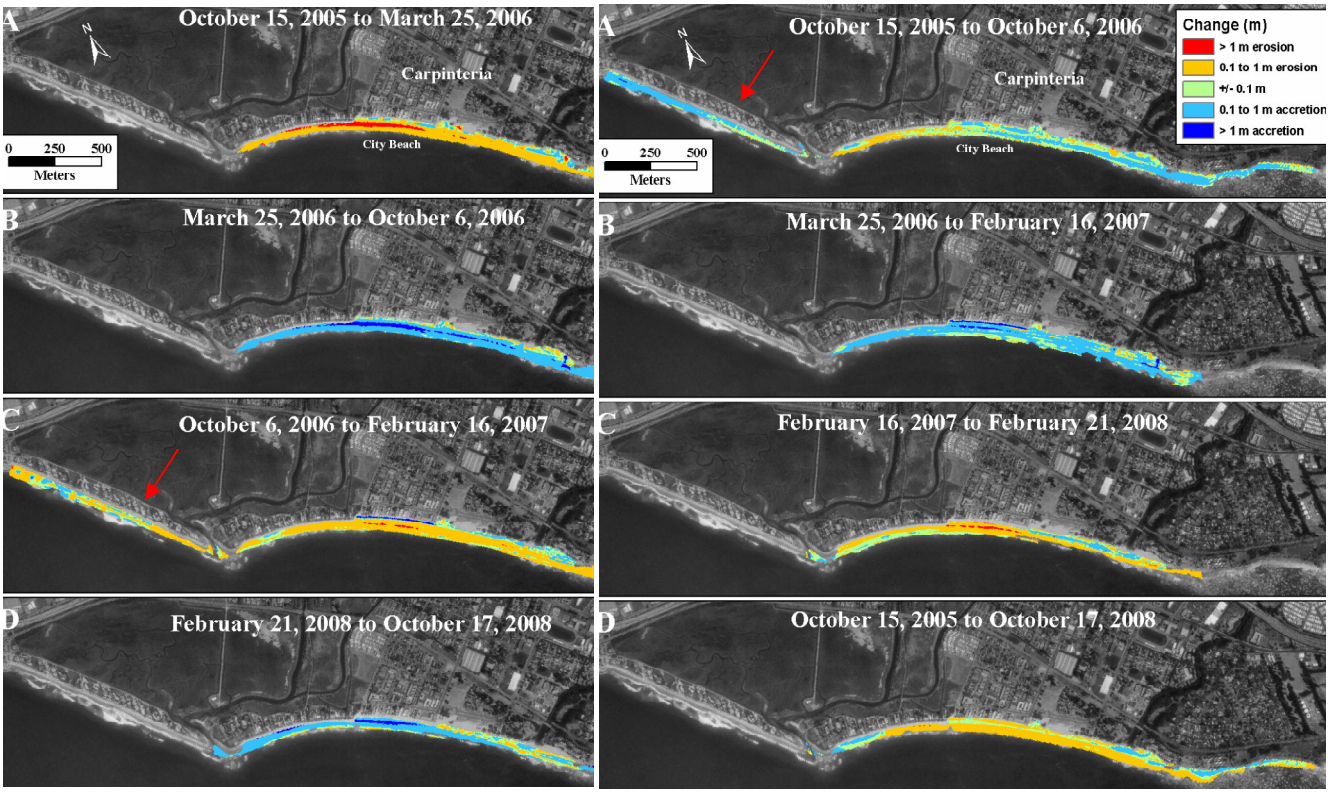


2017 showing consistent beach width

Evaluation of the site reveals that the stabilized profile is likely associated with the offshore reef immediately seaward of Sand Point. This reef causes larger storm waves to break further offshore which reduces sediment transport and results in deposition behind the reef and the formation of Sand Point. The presence of the reef and Sand Point immediately down drift of the site appears to be a contributing factor in the apparent stability of the existing beach profile at the site over the past couple decades. Therefore, continued erosion of the shoreline is not currently anticipated as long as the natural sediment sources to the shoreline are restored and/or maintained, the existing revetments are maintained and the ocean level remains stable. If sea level rise continues, larger waves will break closer to the shoreline increasing wave run-up elevations which will impact sediment transport dynamics and erosion rates, particularly if the existing revetment is removed.

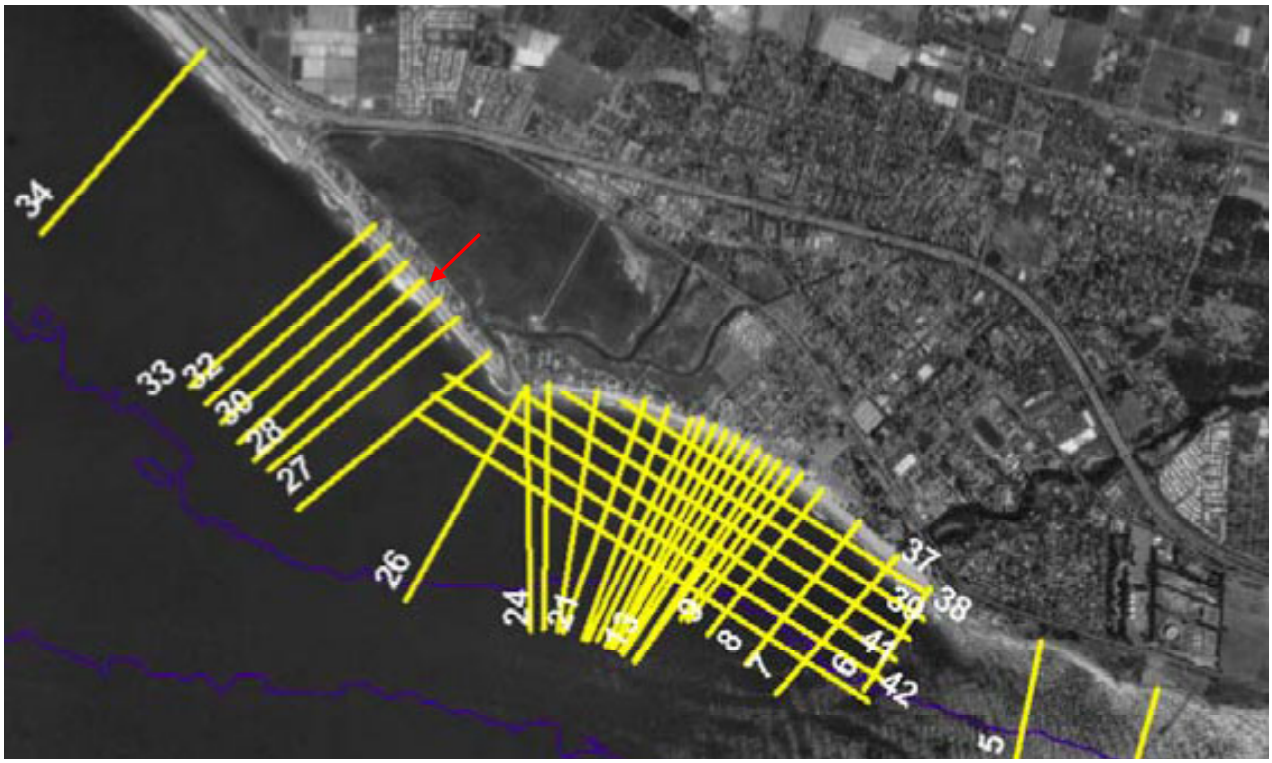
Beach recession is the temporary offshore movement of sand bars along the shoreline during the more intense winter storms. The sand bars then move back closer to the shoreline during the typically calmer summer wave climate. Sediment transport and the associated beach recession in the area surrounding the site is reduced due to the offshore islands shadowing (partially blocking/reducing the magnitude) of waves from the south and southwest as well as Santa Barbara Point sheltering the site from the largest storm waves that typically come from the north. Sediment transport, beach erosion and beach recession are further reduced at the site and Sand Point area due to the presence of the offshore reef about 1000 yards from the shoreline. The reef not only causes larger waves to break and or shoal further offshore but also helps to stabilize the shoreline by reducing the offshore migration and loss of near shore sediments into deep water during storm events. The findings of the Coastal Processes Study of Santa Barbara and Ventura Counties, California (USGS, 2009) appears to concur with these findings. Vertical change from seasonal surveys at the Carpinteria study site (which includes the subject site) shows minor recession during the more stormy winter months with slightly higher rates of accretion (increase in elevation/sedimentation) during the calmer summer and early fall. The report concludes that the shoreline remained relatively stable during the study period. See the red arrows in Figure 8.

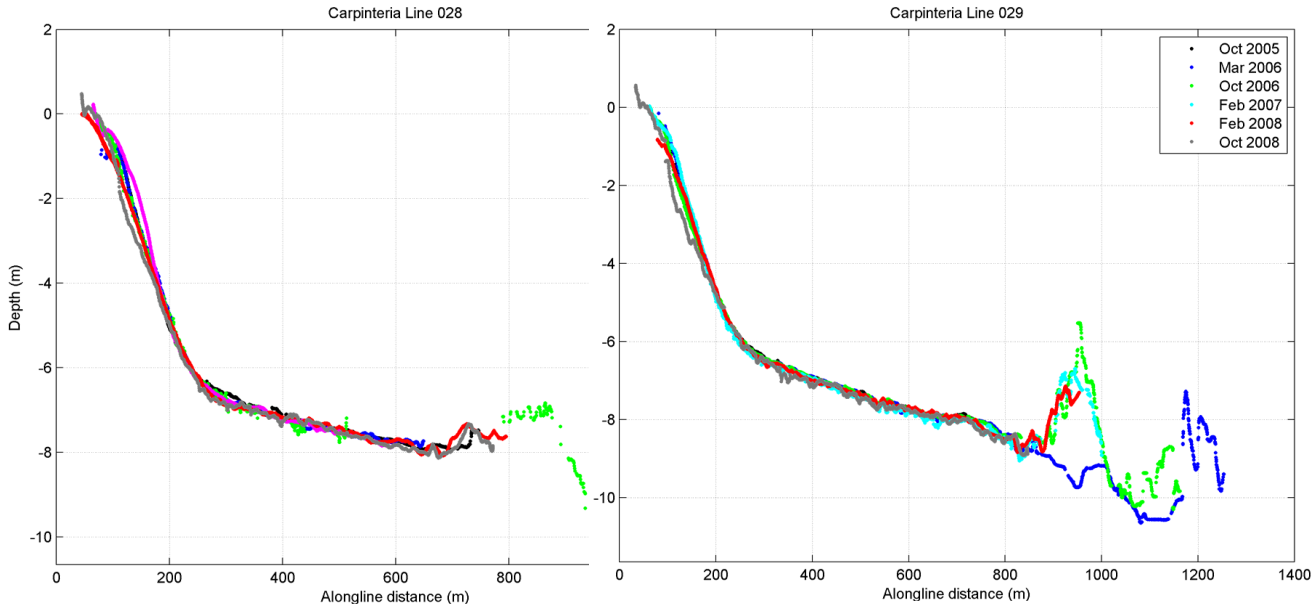
Figure 8: Vertical change from annual surveys at Carpinteria study site.



Since neither beach erosion nor long term beach recession are currently anticipated, it appears that the offshore slope should remain relatively consistent along the property as long as the seawall remains in place and sea levels remain stable. See Attachment B for the site topography that shows the near and above water grades and slopes across the site. See Figures 9 for the survey lines near the property that were used to help establish the existing design beach profile offshore of the site survey. See Table 4 for the data used and Figure 10 for a depiction of the existing offshore profile established for the site.

Figure 9: Carpinteria Coastal Profiling System Survey Lines 28 & 29 (USGS, 2009).





Wave height is directly correlated to the depth at which waves break which creates turbulence, sediment transport and dissipates wave energy. The currently observed increase in ocean levels can result in larger waves breaking closer to shore as well as larger waves passing over the reef offshore of Sand Point and the Coleman property. Increases in wave energy result in increased sediment transport that can result in erosion if more sediment is transported (moved) away from an area than into the area. The reef offshore of Sand Point, breaks larger waves away from shoreline causing reduced sediment transport and helps to stabilize the shoreline in the area around the site. As sea levels rise and larger waves approach the

shoreline, the potential for erosion to affect the profile at the site will increase, particularly if the existing seawall (rock revetments) are not maintained or are removed.

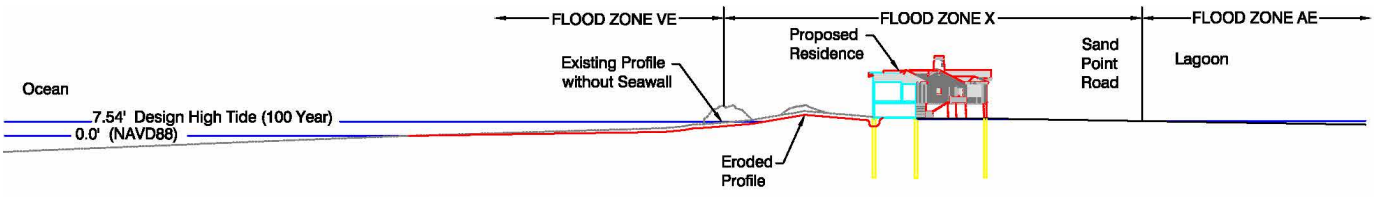
In order to evaluate the worst case scenario for the site including an increased potential for erosion with sea level rise, two design beach profiles are being evaluated. The first will be an existing profile with and without the revetments present to establish baseline conditions and the second will be a potential future profile assuming beach erosion due to sea level rise combined with the removal of the seawall. In this situation (SLR combined with seawall removal) the existing beach would be anticipated to be eroded with more of the beach sand being moved into the deeper water between the shoreline and the reef as well as possibly pushed into the wetland beyond the property if the less likely and higher rates of SLR were to occur. The movement of the sediments/sand offshore would be reduced by the presence of the reef which would tend to flatten and reduce the slope of the shoreline. If the seawall were removed, it is anticipated that increasing water levels and wave energy due to SLR could result in over two feet of beach erosion at the site. See Figure 10 for both the existing and eroded design beach profiles to be used during the wave run-up evaluation.

Table 4 - Existing Profile Measurements

Distance from Structure (Ft)	Elevation (Ft, NAVD88)	Source	Description
0	10.0	Site Topo	Back Beach
11.9	11.0	Site Topo	Back Beach
23.6	12.0	Site Topo	Back Beach
36.0	16.2	Site Topo	Top Rev 1
48.9	11.0	Site Topo	Between Toe1
63.6	8.3	Site Topo	Between Toe2
73.9	16.2	Site Topo	Top Rev 2
94.8	6	Site Topo	Beach
100.2	5	Site Topo	Beach
111.2	4	Site Topo	Beach
246.0	0	2007*	Beach
315.0	-2.6	2007*	Beach
656	-16.4	2007*	Offshore
918.4	-21.6	2007*	Offshore
1383.9	-23.3	2007*	Offshore
2197.6	-26.4	2007*	Offshore
2651.7	-23.9	2007*	Offshore
3248.7	-22.6	2007*	Offshore
3654.0	-29.5	2007*	Offshore
4220.8	-30.5	2007*	Offshore

*2007 elevations from USGS Coastal Processes Study of Santa Barbara and Ventura (2009).

Figure 10: Design Beach Profiles



Wave Run-up

Wave run-up is the extent (height) that a wave surges up a shoreline. It is a function of the wave properties (height, length & period) as well as the roughness, shape and slope of the shoreline and offshore profile. In order to estimate the wave run-up for the Coleman property, the USACE's Coastal Engineering Manual (CEM)[4] approach presented by Hunt (1959) was used. Hunt empirically determined run-up for regular, breaking waves as a function of beach slope, incident wave height, and wave steepness based on laboratory data. An irregular wave approach (Mase, 1989) and USACE's Shore Protection Manual approach were also considered, but were found to give excessively large and smaller run-up values, respectively, which did not correlate with site observations. Therefore, the CEM approach was determined to provide the best values for run-up at the site.

CEM (Hunt) Method

Hunt's formula given in non-dimensional form (Battjes 1974) is

$R/H_0 = \xi_0$ for $0.1 < \xi_0 < 2.3$.

The formula was developed for uniform, smooth, impermeable slopes, where ξ_0 is the surf similarity parameter.

$\xi_0 = (\text{Tan}\beta)(H_0/L_0)^{-1/2}$

Since the existing slope of the shoreline is not linear and varies through the design beach profile, a composite slope (average slope) needs to be determined that starts at the breaking depth of the wave being evaluated. See Table 5. The run-up levels computed and associated wave conditions are provided in Table 6.

Table 5: Composite Slopes for Design Conditions

SLR, Design Wave & Profile	Slope (Ft/Ft)
No SLR, 100 Year (14.2') & Existing	0.053
No SLR, 500 Year (17.0') & Existing	0.050
Low Risk SLR, 100 Year (14.5') & Eroded	0.048
Med-High SLR, 100 Year (14.5') & Eroded	0.050
Extreme SLR, 100 Year (15.5) & Eroded	0.060
Extreme SLR, 500 Year (18.0) & Eroded	0.051

Table 6: Wave Run-up Levels for Existing Profile (Ft, NAVD88)

Description (Storm Event/SLR Projection)	100 Year No SLR	500 Year No SLR
Wave Breaking Depth (ft) =	14.2	17.5
Design Beach Profile	Existing	Existing
Tan β = Beach Slope = Rise/Run =	0.053	0.050
H_0' = Deep Water Wave Height (ft) =	18.4	22.8
T_0 = Wave Period (Seconds) =	16	17
L_0 = Deep Water Wave Length (ft) =	1313	1482
$\xi_0 = (\text{Tan } \beta)(H_0/L_0)^{-1/2}$ =	0.44	0.40
Run-up, $R = (H_0)(\xi_0)$ (ft) =	**8.2**	**9.2**
Design High Water Elevation =	7.5	8.0
Run-up Elevation at Shoreline =	15.7	17.2
Run-up @ Residence without Seawall =	12.0	13.4
Run-up @ Residence with Seawall =	0	0

If the currently observed sea level rise continues, larger waves will be able to propagate over the offshore reef and break closer to the shoreline. The following Table 7 provides possible storm run-up levels if the various SLR projections were to occur combined with the removal of the seawall and eroded shoreline.

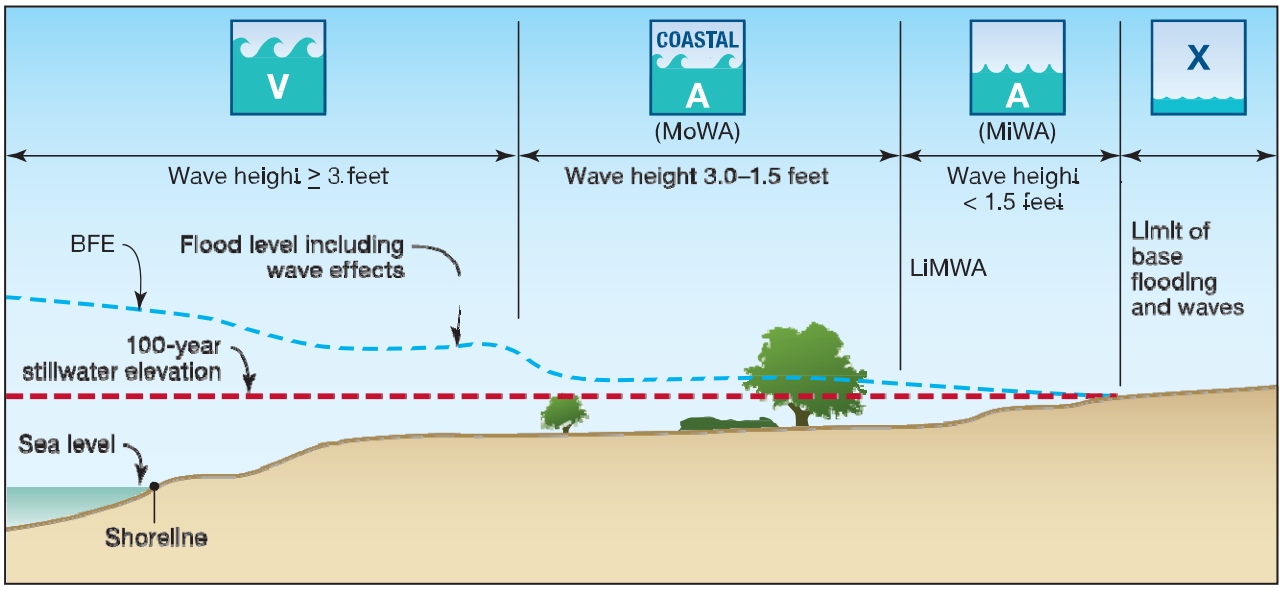
Table 7: Run-up & Storm Surge Elevation (Seawall Removed after Projected Sea Level Rise; Ft, NAVD88)

Description (Storm Event/SLR Projection)	100 Year Low Risk	100 Year Med-High Risk	100 Year Extreme (H++)	500 Year Extreme (H++)
Wave Breaking Depth (ft) =	14.5	15.0	15.5	18.00
Design Beach Profile	Eroded	Eroded	Eroded	Eroded
Tan β = Beach Slope = Rise/Run =	0.048	0.050	0.060	0.051
H_0' = Deep Water Wave Height (ft) =	18.9	19.5	20.2	23.4
T_0 = Wave Period (Seconds) =	16	17	17	18
L_0 = Deep Water Wave Length (ft) =	1313	1482	1482	1661
$\xi_0 = (\text{Tan } \beta)(H_0/L_0)^{-1/2}$ =	0.40	0.43	0.51	0.43
Run-up, $R = (H_0)(\xi_0)$ (ft) =	**7.5**	**8.5**	**10.3**	**10.0**
Projected High Water Elevation =	10.3	13.2	16.0	17.0
Run-up Elevation @ Shoreline =	17.8	21.7	26.3	27.0
Storm Surge @ Residence =	**14.1**	**17.9**	**22.6**	**23.3**

FEMA Flood Insurance Study

In order to evaluate the flood risks along the Pacific shoreline, the Federal Emergency Management Agency (FEMA) has conducted extensive Flood Insurance Studies (FIS) which utilized historical data to validate, compute and model flood levels and impacts. Two important parameters were determined by the FIS: the Base Flood Elevation (BFE) and the Advisory Flood Hazard Zones (AFHZ). The BFE is the coastal water surface elevation that could occur for a given storm event (50 year, 100 year, 500 year, etc.) and includes the increase in elevation due to wave effects (wave crest height or run-up height whichever is greater). The BFE does not account for increases in water levels associated with sea level rise. The AFHZ provides information regarding the level of flooding hazards that could occur within the zone including increased wave action. See Figure 11 for a depiction of these parameters. At this time, an updated FIS has been completed for the Santa Barbara County and is in the process of being adopted. The information and values from the updated FIS are being used to evaluate and design the proposed improvements at the site.

Figure 11 - Typical shoreline-perpendicular transect showing stillwater and wave crest elevations and associated flood zones



Source: FEMA P-55, p. 3-57

FEMA utilizes the findings of the FIS to establish Flood Insurance Rate Maps (FIRM) which depict the BFE and AFHZ for a given area. See the preliminary FIRM for the site in Attachment F. Review of the property reveals that it is within Zone X (Area of Minimal Flood Hazard) with Zone VE beyond the rock revetments along the oceanfront and Zone AE beyond the other side of the property and Sand Point Road where grades drop back down into the salt marsh (El Estero Lagoon). See Figure 10 for the various flood zones across the Coleman property. Both the VE and AE zones are considered Special Flood Hazard Areas that are subject to flooding by the 1% annual chance flood (100 year event). Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves and have base flood elevations derived from coastal analyses which are shown as static elevations applied throughout the zone. The AE zone corresponds to the 1% annual chance floodplains with base flood elevations derived from hydraulic analyses. The X zone is an area of minimal flood hazard above the 1% annual chance floodplain. According to the Santa Barbara County Flood Control Water Agency (Flood Control), the site improvements are outside the VE Zone but within the Repetitive Loss Zone and

should have a BFE of 13.6 feet (NAVD88) per County Resolution 92-138. See Attachment G for Flood Control's recommended conditions of approval for the project and the Building Design Requirements and Elevations.

In order to validate the computed wave run-up elevations for the site, the total water levels computed by the FEMA FIS for the coastal transect adjoining the site (#102) to the northwest were reviewed and are shown in Table 8. These total water levels represent the tidal event associated with the annual chance plus the computed storm surge, wave setup and run-up for the transect. See Attachment H for the location of transect #102 and for the total water levels table from the FIS.

Table 8: FEMA FIS Coastal Transect #102

Total Water Level	Elevation (Run-up) (feet, NAVD88)
2% Annual Chance (50 Year Storm)	15.1
1% Annual Chance (100 Year Storm)	15.7
0.2% Annual Chance (500 Year Storm)	17.1

Upon comparison of the computed run-up elevations for transect #102 to the run-up computed for the existing profile of 15.7 feet (100 year) and 17.2 feet (500 year), the values are found to be equal or within 0.1 feet of each other. Therefore, the computed run-up approach and values used and prepared for the Coleman property appear to be consistent with other studies in the area and appropriate for the evaluation of the site.

Run-up, Water Levels and Impacts to Proposed Improvements

Since the residence is set back from the existing beach as well as the presence of the seawall (rock revetments) and sandy area between the beach and residence, the wave run-up elevations along the shoreline will not extend to the proposed residence and associated improvements. See Attachment B for the proposed improvement plans. Run-up from large, deep water storm waves will be dissipated and reduced as the waves break offshore and surge up the beach and across the seawall, back beachand developed area. Since the site is located between the open ocean on one side and a tidally influenced lagoon on the other (beyond Sand Point Road), the water levels at the improvements during storm events could be influenced by either the ocean and/or the lagoon. The ocean side water levels have the potential to be much higher due to larger storm surge including run-up from deep, water waves. See Figure 12 for a depiction of the maximum run-up projections with the existing seawall which will dissipate the wave run-up before it extends to the improvements.

In order to evaluate the worst-case scenario over the life of the improvements, the evaluation of the site includes the removal of the seawall. Without the seawall along the back of the beach, large storm waves will still break off-shore and the remaining broken wave surge will run-up and be dissipated along the existing beach until it crests the berm (terrace of the beach that has formed at the backshore above high water level) that will remain after removal of the seawall. After cresting the berm, the ground surface slopes away and the remaining surge is further dissipated as it drops away and flows across the sand beyond the berm. According to the USACE, the dissipation across a sand slope can be anticipated to be about one foot of vertical wave height dissipated every 25 feet. If the seawall were to be removed and SLR continues, there is the potential for beach erosion to occur as discussed previously. See Tables 6 & 7 for the design (100 year

event) run-up elevations along the ocean side of the property and Figure 13 for a depiction of the predicted wave run-up after 75 years of SLR with the seawall removed and an eroded beach profile. In order to identify when the 100 Year (occurs 1 time every 100 years) storm surge will begin to impact the proposed improvements with continued SLR, an evaluation was performed to project the 100 year storm surge along the ocean over the design life of the improvements with the seawall removed, an eroded beach profile and assuming the wave climatology as provided in Tables 6 & 7. See Table 9.

Table 9 - 100 Year Storm Surge Projections from Ocean with Seawall Removed (Ft, NAVD88)

	100 Yr. Storm Water Elevation Ocean Side (with Seawall Removed)		
Year	Low Risk Aversion	Med-High Risk Aversion	Extreme (H++)
Current	11.3	12.3	14.1
2030	11.7	13.0	15.1
2040	12.0	13.4	15.7
2050	12.3	14.1	16.6
2060	12.6	14.8	17.7
2070	13.0	15.6	19.0
2080	13.4	16.6	20.4
2090	13.9	17.6	22.0
2094	**14.1**	**17.9**	**22.6**
2100	14.4	18.9	23.9

Note: Conservatively assumes end of life wave conditions to determine run-up levels.

As shown in Table 9, storm surge from the ocean could begin to impact the uninhabited, lower level of the improvements (9.7 feet ,NAVD8) immediately if the existing seawall were removed and a 100 year event were to occur. The inhabited, upper level would not be breached by either the Low or Med-High risk SLR projections while the Extreme scenario could begin to breach the upper level after the year 2064 if a 100 year event were to occur with the seawall removed.

The lagoon's water levels are driven by river and upstream storm drain system inflow(s), tides, ocean storm surge and wave setup at the entrance of the lagoon 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 toward the improvements. At this time the 100 year flood event (or FEMA base flood elevation, BFE) of 8 feet remains below the existing improvements. However, as sea level rise continues, the potential for flooding of the site from the lagoon side increases. See Table 10 showing the 100 year storm surge elevations (NAVD88) at the improvements for the lagoon side of the site including SLR over the design life of the improvements. Table 10 also represents the worst case storm surge for the improvements if the seawall were to remain since the structure is anticipated to dissipate the storm surge prior to reaching the proposed improvements. See Figures 12 & 13 for depictions of the various run-up and water levels with and without the seawall for the ocean and lagoon sides of the property.

Table 10 - 100 Year Storm Surge Projections from Lagoon with Sea Level Rise (Ft, NAVD88)

	100 Yr. Storm Water Elevation Lagoon Side		
Year	Low Risk Aversion	Med-High Risk Aversion	Extreme (H++)
Current	8.0	8.0	8.0
2030	8.4	8.7	9.0
2040	8.7	9.1	9.6
2050	9.0	9.8	10.5
2060	9.3	10.5	11.6
2070	9.7	11.3	12.9
2080	10.1	12.3	14.3
2090	10.6	13.3	15.9
2094	**10.8**	**13.7**	**16.5**
2100	11.1	14.6	17.8

Figure 12: Design Storm & Flood Levels (NAVD88) including 75 Years of Sea Level Rise with Seawall

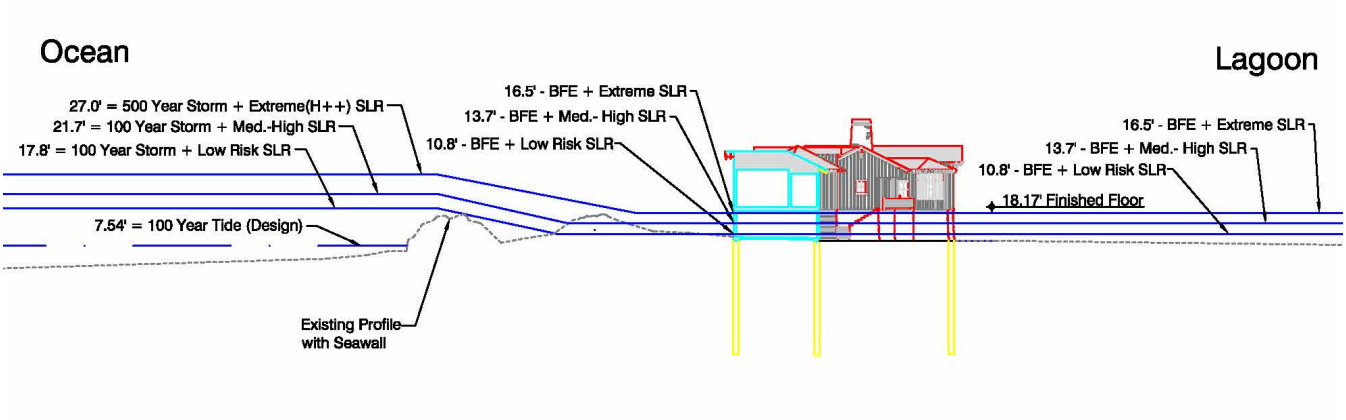
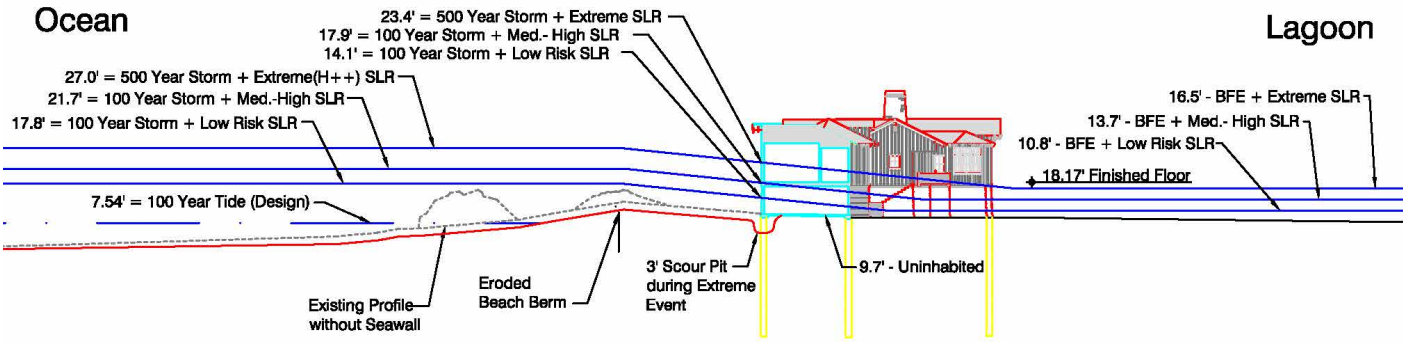


Figure 13: Design Storm & Flood Levels (NAVD88) including 75 Years of Sea Level Rise without Seawall



Upon comparison of Tables 6, 7, 9 and 10 as well as Figures 12 & 13, the ocean side run-up will dictate the design of the improvements if the seawall is removed. With the seawall 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 equalize with flooding from the lagoon. Therefore, with the seawall in place, flooding from the lagoon, that is increased due to the storm surge causing elevated water levels in the estuary, is anticipated create the highest water levels at the improvements as shown in Figure 12. Without the seawalls, the projected run-up after 75 years of the projected sea level rise could extend to the flood resistant lower level of the improvements but is not predicted to extend up into the inhabited upper level for both the low risk and medium-high risk aversion SLR projections. However, the med-high SLR scenario comes within inches of the inhabited level and the extreme SLR would result in run-up that breaches the inhabited level. These findings concur with the FEMA FIS and FIRM which shows higher run-up and BFE along the shoreline that is restricted by the seawall with a lower flood hazard zone around the residences behind the seawall. See the Coastal Design Considerations section that follows for the alternatives evaluated, design measures taken to mitigate these findings and associated recommendations.

An evaluation of the potential impacts of sea level rise on the proposed improvements and associated access during regular, non-storm related conditions was also performed. Table 11 below provides the projected change in Mean Sea Level (MSL) and Mean Higher High Water (MHHW) through the 75 year life of the proposed improvements. MSL represents a daily return period water level while MHHW represents a monthly high water level (occurs 12 times per year). Since the table depicts non-storm related conditions in which rising tides would begin to inundate the site from both the ocean and lagoon, the projected water levels in Table 11 can be expected to be the same whether the existing seawall (rock revetments) is removed or remains in place.

Table 11 - MSL & MHHW Projections with Sea Level Rise (Ft, NAVD88)

	MSL + SLR			MHHW + SLR		
Year	Low Risk Aversion	Medium-High Risk Aversion	Extreme (H++) Risk Aversion	Low Risk Aversion	Medium-High Risk Aversion	Extreme (H++) Risk Aversion
Current	2.7	2.7	2.7	5.3	5.3	5.3
2030	3.1	3.4	3.7	5.7	6.0	6.3
2040	3.4	3.8	4.3	6.0	6.4	6.9
2050	3.7	4.5	5.2	6.3	7.1	7.8
2060	4.0	5.2	6.3	6.6	7.8	8.9
2070	4.4	6.0	7.6	7.0	8.6	10.2
2080	4.8	7.0	9.0	7.4	9.6	11.6
2090	5.3	8.0	10.6	7.9	10.6	13.2
2094	**5.5**	**8.4**	**11.2**	**8.1**	**11.0**	**13.8**
2100	5.8	9.3	12.5	8.4	11.9	15.1

Upon evaluation of the proposed structure with respects to the projected rise in MSL and MLLW, it is found that water levels (MSL) will not reach the upper level during the structures design life for any of the 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 structured 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 structures design life if the extreme risk aversion were to occur.

In order to evaluate the potential impacts to access to the improvements, flooding along Sand Point Road was also evaluated. Since the elevation of the road varies as it extends to the subject property, a significant flood event will be defined as water levels that could begin to impact access to the site. Elevations along the road are at or just below an elevation of 8 feet (NAVD88) with some low points extending to 7.5'. Therefore, a significant flood event for access to the subject property is determined to be an elevation of 8' (NAVD88) which would create minor flooding along most of the access road with water depths reaching six inches in isolated areas. Upon review of Table 11, it is determined that MSL is not anticipated to impact access for the low risk aversion but could begin to become impacted during the end of the improvements design life for the medium-high (2090) and extreme (2073) risk aversions. Tides reaching MHHW levels will begin to impact access sooner with significant flooding projected to begin at the end of the design life (2093) for the low risk aversion and projected in approximately 2063 and 2052 for the mediom-high and extreme risk aversions, respectively. See the Coastal Design Considerations that follows for further discussion of these impacts and associated mitigation measures.

Building Design Requirements & Elevations

According to the FEMA Coastal Construction Manuel, design within flood hazard zones should follow the guidance of Flood Resistant Design and Construction standards provided in ASCE 7 & 24-05. It is recommended that the structural design for this residence follow these guidelines as well as the current County of Santa Barbara Building Code provisions and Flood Control Recommendations. See Attachment G. The California Coastal Commission's Draft Residential Adaptation Policy Guidance was also reviewed and implemented into the design of the improvements. See the Coastal Design Considerations on page 20. The support piles for the structure are to be designed to include both hydrodynamic and hydrostatic forces with a one percent chance of being exceeded in any year (100 year event). See below for the computed wave (hydrodynamic) forces. According the ASCE standards this residence is classified as a Category II structure and is located in a high hazard zone. Therefore, the structure will be constructed in compliance with Section 4 of ASCE 24-05. For this Category and location, it is recommended that perpendicular, lowest supporting horizontal structural members should be one (1) foot above the BFE (14.6 feet, NAVD88) and parallel, lowest supporting horizontal structural members could be positioned at the BFE (13.6 feet, NAVD88). According to County Flood control, the freeboard to be applied at the site is 2 feet. Applying this freeboard to Flood Control's BFE for the site gives an elevation of 15.6 feet which will be the minimum elevation for unprotected, mechanical equipment and living space. Upon review of the proposed elevations for the structure with an minimum upper level elevation of 18.17 feet (NAVD88), the design greatly exceeds these requirements in order to accommodate future Sea Level Rise. Due to the risk of flooding at the site if SLR continues, the lower level (garage and storage) is to be considered uninhabited space and will have break-away and/or vented flood walls designed in accordance with ASCE 24-05 and Flood Controls Recommendations (Attachment G).

Wave Forces

Upon evaluation of the identified water levels and run-up elevations with respect to the proposed improvements, it was determined that wave run-up will extend to the proposed residence, particularly if the rock revetment is not present. Since large storm waves will break off-shore, direct forces from large storm waves breaking on the structure is not anticipated. However, the surging, wave run-up without the seawall could extend to the residence and would exert a load (hydrodynamic load) on the structure. Since the proposed structure is being designed with break-away walls and flood waters are anticipated on both sides of the structure, excessive hydrostatic forces are not anticipated.

The surge or hydrodynamic load that could affect the structure is related to the height and velocity of the surging flood waters at the structure. As indicated in FEMA's Coastal Construction Manual (FEMA P-55), the hydrodynamic load can be determined as follows:

$$F_{dyn} = (C_d \rho (V)^2 A)/2; \text{ where V can range from } d_s \text{ to } (g d_s)^{.5}$$

C_d = Drag Coefficient = 1.2 (round pile)
ρ = Mass density of salt water = 1.99 slugs/ft^3
A = Surface area of obstruction (pile) = (d_s)(pile width)
d_s = stillwater flood depth
g = gravity

The force of the surge will be conservatively computed to the full height of the wave run-up above the eroded grade in front of the structure that could occur at the end of 75 years if SLR continues as predicted. See 12 for the computed hydrodynamic loads using the higher velocity (($g d_s)^{.5}$).

Table 12: Wave Surge Forces on Structure

Run-up Condition	Flood Depth, d_s (Ft)	Load (lbs) per Pile
100 Year Storm with Low Risk SLR	5.64	1,834.5
100 Year Storm with Med-High SLR	9.98	5,652.3

Note: Surge height measured from an eroded grade and assume a pile/caisson diameter of 18".

These values should be used to design the support piles along the ocean side of the structure that could be exposed to wave surge. Since the extreme event which includes very conservatively high, SLR levels that would cause waves to surge well above the inhabited level, it is not practical to design the structure for such extreme levels but will be considered for worst case planning. See the Coastal Design Considerations section for more discussion of the extreme events.

Due to the potential for the design event (Med-High Risk SLR) to extend into the structural beams supporting the upper inhabited level, loads from wave slam should also be considered. According to FEMA P-55, wave slam can be computed as follows.

$$F_s = (\delta_w C_s d_s h w)/2$$

δ_w = unit wight of salt water (64.0 lb/ft^3)
C_s = Slam Coefficient = 2
d_s = stillwater flood depth
h = vertical distance of wave crest above floor joists or beams (Ft)
w = length of floor joist struck by wave (Ft)

The following table provides the wave slam computed for the design event across the most exposed portion of the residence that would be subject to wave slam (southerly office area).

Table 13: Lateral Wave Slam

Run-up Condition	Flood Depth, d_s (Ft)	h	w	Wave Slam (lbs)
100 Year Storm with Med-High SLR	9.9	.94	15.75	9407.5

This load is in addition to the dynamic loadings and should be applied across the exposed portion of the structure and distributed to the associated connections and support piles.

Localized Scour

Waves and water surges (currents) during coastal flood conditions can create turbulence around foundation elements resulting in the potential for localized scour (erosion). Although evidence suggests (according to FEMA P-55) that scour depths can extend from 1 to 1.5 times the diameter of the structural support/element, the USACE Coastal Engineering manual and FEMA P-55 recommend using the more conservative value of 2 times the diameter. Therefore, a scour depth of 3 feet will be anticipated within the design (pile diameter of 1.5 feet). The final structural design will be designed to accommodate the scour depth associated with the final, pile design diameter if greater than 1.5 feet.

Groundwater

Since the site is positioned on a relatively narrow outcropping consisting of sandy soils between the ocean and an inland lagoon, groundwater at the site is anticipated to be tidally driven. Therefore, the projected groundwater level at the subject property can be estimated using mean sea level projections provided in Table 10. Since the proposed structure is positioned near the middle and at the highest elevation along the outcropping, groundwater fluctuations at the structure due to daily changes in the tides would be dampened, lower than the tide during high tides and higher than tide during low tides. Using MSL in Table 10 to approximate groundwater levels at the site, groundwater is not anticipated to impact the lower level of the structure for the low or medium-high risk aversions for sea level rise but could begin to impact the lower level near the end of the structures design life (2090) if the extreme aversion were to occur. See pages 18 and 19 as well as the following Coastal Design Considerations for more discussion of these water levels and their impacts. Due to the potential for groundwater to rise at the site if sea level rise continues, the residence will be located as high as practical and structurally designed to be elevated to accommodate the potential for rising groundwater levels.

Shoreline Impacts

In certain conditions, structures positioned along (parallel to) a shoreline, can disrupt wave transmission, initiate wave breaking and/or increase turbulence which increases the potential for the suspension of sediments that can lead to increased sediment transport and erosion. If these erosional conditions exist across a shoreline, there is a potential for the near shore profile to become more steep which reduces the width of the shoreline depending on a number of other coastal processes including sediment supply, wind and wave climatology, coastal sediment characteristics, etc. If the existing seawall were to be removed and sea levels continue to rise, the existing residences along Sand Point Road, as currently

constructed, could disrupt wave transmission and increase the potential for erosion and impact the shoreline.

In order to address the potential for shoreline impacts, the new residence is being designed with breakaway walls that will allow future storm events to pass under the structure. This will significantly reduce the impact of the structure on the shoreline. An additional coastal mitigation measure identified during the alternatives analysis performed on the proposed improvements was to reduce the number of utility vaults within the lower level. Structural and mechanical design modifications were able to reduce the three utility and mechanical vaults originally proposed down to a single vault. A minimum of one vault will be needed to protect sensitive mechanical equipment & utility penetrations (sewer, water & power) that could impact the surrounding environment if damaged. The orientation of the vault was also reduced in width parallel to the shoreline and angled away from the shoreline both of which will reduce the vaults impact to the shoreline. The structural design was 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,

These design modifications will significantly reduce the structures potential to disrupt future wave transmission or storm surge if the seawall were removed by increasing the open/flow area and reducing the structures (support piers and utility vault) within the lower level down to the minimum needed. Upon evaluation of the remaining piers and single vault that will impede potential future wave transmission or storm surge, it is found that a majority of the storm surge will be allowed to flow unimpeded which will significantly reduce impacts to the shoreline and adjoining environment and improvements. Some localized scour should be expected around the piers and vault if a future storm surge were to cause the lower level walls to breakaway but these affects are only anticipated to be localized around these structures only and not affect the overall shoreline. Since the structure is elevated with a flow-through lower level and impediments to flow have been minimized with only localized scour, reducing the size of the structure would not be expected to reduce overall shoreline impacts.

Tsunami - Generation , Characteristics and Impacts

Tsunami are large waves caused by sudden movement or abrupt disturbance of the ocean due to earthquakes, landslides, large volcanic eruptions or meteorite impact in the ocean. Most tsunami are caused by large earthquakes on the seafloor when slabs of rock or earth move differentially causing displacement and movement of the overlying water. If the disturbance is close to the coastline, the tsunami can impact local areas within minutes. Very large disturbances can cause local devastation and export tsunami destruction thousands of miles away.

Tsunami can occur in the Pacific, where tectonic movement causes the dense oceanic plates to slide under the lighter continental plates. When the plates fracture, they can cause a vertical movement or uplift of the seafloor that displaces the overlying ocean which results in a quick and efficient transfer of energy that creates the tsunami waves. Large earthquakes can cause large areas of the seafloor to be displaced that can cause tsunami waves to propagate at wavelengths corresponding to the area of earth displaced and at wave heights corresponding to the vertical movement. This results in very long waves that can quickly travel long distances across the ocean. The direction of the tsunami waves is a function of the displacements orientation and the geometry of the adjacent shoreline. Since every earthquake is unique, every tsunami has unique wavelengths, wave heights and directionality.

When the long tsunami waves approach the shoreline, friction between the wave and the shallower seafloor along the coast causes the waves to slow down, shorten and increase in height. This can result in the tsunami waves looking like a wall of water approaching the shoreline. Due to their very long length, the time between tsunami wave surges can be up to 60 minutes. Therefore, after one wave surge inundates (floods) inland, it recedes seaward carrying debris with it and exposing the seafloor along the shoreline well beyond what is exposed during low tide events. When the next wave rushes in, it can carry the debris from previous waves with it, increasing impacts along the shoreline and inundated inland areas. The inundation and large surge of water inland can also result in strong and dangerous currents within harbors and bays as well as travel far inland when they enter rivers or other waterways.

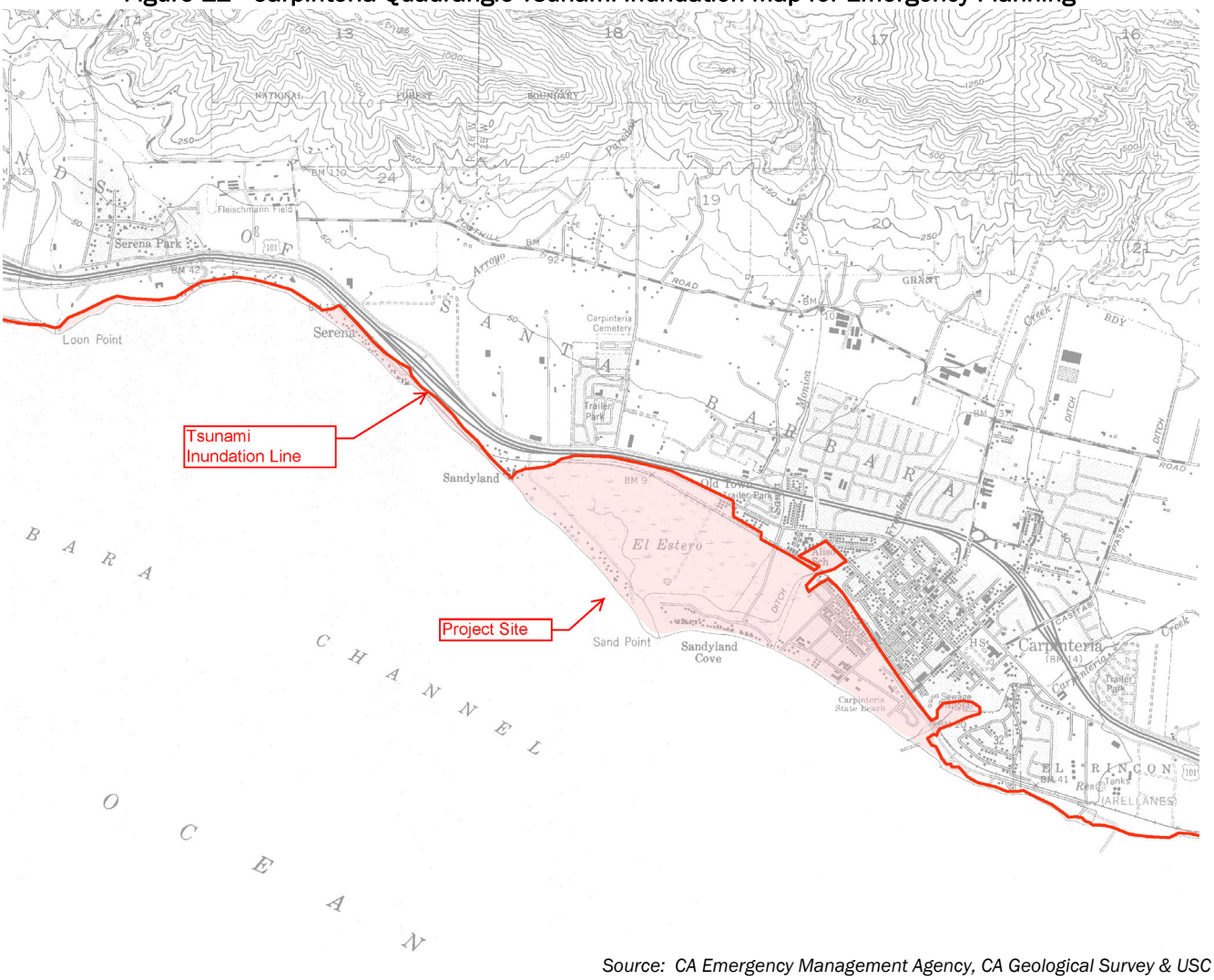
Tsunami along the Southern California Coast and Project Site

Due to the orientation of the coastline, the risk of tsunami from distant sources is low along this portion of Southern California and at the project site with some vulnerability to potential tsunami waves from the Central and South America, particularly for the portions of the shoreline that have a southerly exposure. Distant tsunami sources also allow increased time for warnings and evacuation which lowers the risks associated with these events. Locally generated tsunami pose a greater risk to the project area due to the presence of major faulting throughout the region including the Santa Barbara Channel and west of Point Conception which can result in tsunami occurrences following strong earthquake events. Major faults further off-shore of southern California have also been identified as potential sources of tsunami. For example, the 7 to 7.5 magnitude earthquake that affected the Santa Barbara Channel in 1812 was reported to have run-up of 3 to 4 meters (10 to 13 feet). Local landslide generated tsunami have also been identified as a risk for this area that could result in run-up as high as 6 meters (almost 20 feet).

According to the 2002 Evaluation of Tsunami Risk to Southern California Cities, the potential for tsunami generation from local sources has historically been considered insignificant. The study estimates that the recurrence for offshore earthquake induced tsunami at several hundred to a few thousand years with an even longer recurrence for the less frequent landslide induced tsunami. The County of Santa Barbara's Emergency Management Plan also identifies the threat for local tsunami in California to be considered low due to low recurrence frequencies. The Plan indicates that large, locally generated tsunami in California are estimate to occur once every 100 years.

In order to evaluate the potential impacts of tsunamis along the California coast, the California Emergency Management Agency, California Geological Survey and University of Southern California (USC) prepared Tsunami Inundation Maps for the State of California. The tsunami modeling was performed by the USC Tsunami Research Center using the Method of Splitting Tsunamis (MOST) computational program which allows for wave evolution over variable bathymetry and topography. The map does not represent inundation from a single event. It was created by combining inundation results for an ensemble of source events affecting a given region. For this reason, all of the inundation region in a particular area will not likely be inundated during a single tsunami event. See Figure 12 showing the project area on the Carpinteria Quadrangle Tsunami Inundation Map for Emergency Planning.

Figure 12 - Carpinteria Quadrangle Tsunami Inundation Map for Emergency Planning



Source: CA Emergency Management Agency, CA Geological Survey & USC Tsunami Inundation Map For Emergency Planning, Carpinteria Quadrangle, 2009.

Potential Tsunami Impacts

As shown on Figure 12, the project site is well within the inundation zone and is at risk of impacts depending on the source, size and orientation of the tsunami event. The site's beachfront location increases the potential for tsunami waves to surge into the proposed improvements during larger tsunami wave events. Since non tsunami wave run-up was found to reach the structure, the design of the lower level is for uninhabited space and incorporates breakaway walls which will help to mitigate the impacts of tsunami waves on the residence. However, larger tsunami waves could exceed the height of the lower level and impact the upper, inhabited space. This could result in damage to the structure during an extreme event that could jeopardize the safety of inhabitants if present. In addition to the initial tsunami wave, the location of the site at the entrance and outlet of the El Estero Lagoon and other drainages creates the risk of debris laden flood waters being displaced across the site when the tsunami surge flows back towards the lagoon and ocean. Due to the potential for tsunami to affect the site, it is strongly recommended that occupants evacuate the residence and area during significant tsunami events. It is important for the owner to be aware

of the tsunami risk, monitor seismic and tsunami events closely and have an emergency preparedness and evacuation plan.

The following provides some measures that can be taken by the owner to help protect against tsunami.

- Create a disaster plan: Know where to go to survive a tsunami like an inland location that is elevated. After an earthquake or other disaster, roads may be blocked so plan for multiple evacuation routes and be prepared to walk.
- Assemble a disaster supply kit: Have a kit available at home, in your car, and at work. Put your kit in a backpack and leave it in an easy to reach location.
- Turn off utilities: Teach family members how and when to turn off gas, electricity, and water. Know which radio stations to listen to for official information. Hold earthquake/tsunami drills.
- Emergency contact: Ask an out-of-area relative or friend to serve as the family "contact." After a disaster, it's often easier to call long distance. Make sure everyone knows the name, address, and phone number of the contact person so that they can provide support if the family is separated or in need of outside assistance.
- Take a first aid class: Learn survival skills, talk with your family, friends, and neighbors. Knowledge is your greatest defense against any potential disaster.
- Be familiar with the tsunami warning signs: People living along the coast should consider a coastal earthquake (5.0 or greater) or a sizable rumbling as a warning signal. A noticeable or rapid rise or fall in coastal waters is also a sign that a tsunami is approaching. A loud roaring noise from the ocean can also be an indication that a tsunami is approaching.
- Count the seconds of shaking during an earthquake: Twenty to 30 seconds of severe shaking is a warning sign that a tsunami may follow. Don't wait for officials to issue a warning. Evacuate immediately to higher ground.
- Identify and Listen to your local EAS station(s): The Emergency Alert System will provide information on location of epicenter, magnitude, and when it is safe to return.

In addition to the local EAS, NOAA's National Weather Service's website (tsunami.gov) provides information regarding tsunami warnings, advisories, watches and threats. Additional information regarding Tsunami Awareness and Safety is available in the Tsunami Fact Sheet provided in Attachment I. The City of Carpinteria has also prepared a guide to emergency preparedness and Disaster Survival that can provide guidance while developing a plan for the residence. It can be found on the City's web site: http://www.carpinteria.ca.us/emergency_preparedness/dont_panic_prepare.shtml.
The County of Santa Barbara also has several resources to help prepare for, mitigate and manage emergencies including Tsunami. Information regarding tsunami warning signs and how to react if a tsunami watch or warning are issued can be found at http://awareandprepare.org/aware/tsunami. The County has also developed an Emergency Management Plan for the Santa Barbara Operational Area as well as a Multi jurisdiction Hazard Mitigation Plan. These are tools for to increase public awareness of local hazards including Tsunami and provide information about options and resources available to reduce those risks as well as a response plan to provide support after an emergency has occurred. These resources should be used and referenced during the development of the emergency preparedness and evacuation plan for the proposed improvements.

Site Access and Utilities

Site access is provided by Sand Point Road which extends through an easement across the lagoon side of the property. As sea level rise continues, the potential for increased flooding of the roadway during significant storm events is anticipated. See Table 10 and the associated findings on pages 18 and 19. However, the location of the roadway on the lagoon side of the property significantly reduces the potential for erosion and wave induced scour since it is protected from large ocean waves. Since the roadway could be inundated during flood events, particularly with higher levels of SLR, some minor, localized scour could be expected as flood waters recede but major erosion and damages to the roadway are not anticipated. Mean sea level was not found to create significant flooding (8 feet, NAVD88) along Sand Point Road for the low risk, SLR projection and not until the very end of the structures design life for the medium-high and extreme projections. Tides would periodically begin to affect access sooner but not till the very end of the design life for the low risk SLR projection and somewhat sooner for the higher projections. If SLR continues and appears to be approaching the higher projections, raising the roadway and improving erosion resistance to provide more reliable access during flood events should be considered.

The property is served by public water and sewer service that extend along easements parallel to Sand Point Road. Since they are positioned along the lagoon side of the property, wave run-up and potential erosion are not anticipated to impact these utilities. The design of the stormwater system will incorporate measures to mitigate and clean-out the system as a result of periodic inundation and sediment/sand build-up.

Safely extending the underground utility services (power, water, sewer and other franchises) up into the structure was also evaluated. Since the lower level of the structure is being designed to accommodate potential future inundation and storm surge with breakaway walls, it was determined that these utilities extending up through the lower level needed to be protected from storm surge related damages that could result in safety hazards and/or environmental impacts. In order to avoid these hazards and impacts, the design will incorporate a utility vault (water tight, reinforced concrete enclosure) within the lower level to safely transmit the underground utilities up into the structure. The vault will have a sump pump and also contain other mechanical equipment that will be elevated within the vault to further protect from potential, future flooding. Although the original design alternative proposed three vaults to accommodate the utilities and mechanical equipment, the design was reduced to a single vault during the alternatives analysis in order to minimize the potential for erosion and other impacts if future storm surges were to impact the lower level. See the Coastal Design Considerations for further discussion.

Coastal Design Considerations

As recommended by the California Coastal Commission's Draft Residential Adaptation Policy Guidance, the design of the site improvements were set back from the shoreline (9 feet from the existing residence location) to minimize hazards over the expected duration of the project. Adaptation strategies evaluated and implemented into the design include repositioning the residence away from the shoreline, avoiding adverse stormwater impacts and incorporating flood hazard mitigation into the design of the structure. See below for further discussion of the strategies implemented. The project also utilized site specific geologic, coastal, environmental evaluations and local architectural considerations to inform and adapt the design.

During the initial evaluation of design alternatives for the project, the design team and owners considered whether it would be more beneficial (including more easily permitted/approved) to either remodel the existing residence or to replace the existing residence. If the existing structure were remodeled, it would not be cost effective to raise or reposition the structure to reduce storm impacts and improve safety at the site.

By replacing the residence, the structure could be designed to be flood resistant with breakaway walls on the lower level which will improve safety and reduce the potential for erosion and damages from storm surge on the subject site as well as adjoining properties. Remodeling the existing structure (or leaving as is) creates a barrier to storm surge particularly if sea levels continue to rise that will allow more erosion, damages and divert more water flow towards adjoining properties. Replacing the structure would also allow it to be moved back from the ocean, reducing storm related impacts as well as improving the view corridor along the ocean. Due to these and other findings, it was determined that replacing the structure provided the safest and most environmentally beneficial approach to the project due to the ability to implement numerous adaptation strategies into the new structure.

The adaptation strategies implemented included moving the residence back from the existing location to minimize hazards over the expected duration of the project by reducing wave impacts and storm surge, even under the worst case scenario (existing seawall removed). The relocated position of the residence also places it at the high point of the property which further improves its resistance to sea level rise, storm surge and rising tides/groundwater. Since the property lowers in elevation towards the lagoon, moving the structure further back would not improve its resistance to storm surge and would increase impacts related to rising tides and groundwater. In order to resist erosion during storm events, the residence and associated structural elements (including entry, decks and stairways) will be supported on piles or caissons extended deep enough to allow temporary scour without impacting the stability of the structure. The pile design will also consider loadings from waves and/or storm surges after SLR and worst case, eroded conditions.

The utility penetrations beneath the structure are being minimized and raised to allow flood waters to pass beneath them. This will significantly reduce the potential for erosion on the subject site and adjoining properties. At this time, none of the existing residences along Sand Point Road have implemented flood resistant, adaptation strategies. If the existing structures were to remain and be subject to the proposed residences design storm conditions, they would create barriers to the anticipated storm surge that would redirect and converge flows resulting in increased turbulence, wave forces and erosion that could significantly damage the existing structures and environment.

Due to the identified coastal hazards at the site, the proposed improvements are being designed to be flood resistant so that damages and environmental impacts can be minimized and avoided. 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. As shown by Figures 12 and 13, the inhabited portions of the residence have been elevated to keep the 100 year storm event including removal of the seawall below the inhabited level. 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.

In order to analyze what combinations of tidal conditions, wave conditions and sea level rise could result in impacts to the proposed residence, the projected water levels for the 100 year (1% probability) storm surge, 100 Year lagoon flood, MHHW and MSL were computed. See Tables 9, 10 and 11. Table 11 indicates that neither MSL nor MHHW are anticipated to reach the inhabited upper level while the lower level begins to be breached by the Med-High projection after 2077 while the Extreme SLR could begin to breach the lower level on a monthly basis in ~2067. MSL (daily average sea level). Flooding from a 100 year event with the revetment in place is provided in Table 10. The evaluation found that the upper level is not impacted and the lower level could be breached by 100 year flood water in 2070 for the Low Risk SLR, after 2050 for the Med-high Risk scenario and after 2041 for the Extreme.

Since the site is exposed to potential tsunamis, coastal hazards and flooding, especially in the future if the higher projections for sea level rise occur, the owners should monitor sea level rise and storm trends so that further adaptation measures can be implemented to address changing conditions. The elevated design of the improvements has been developed to accommodate future adaptation needs. For example 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. Additional future adaptation measures could include vacating the lower level (garage/storage areas) and raising Sand Point Road along with the on-site driveway to above flood levels to reduce impacts to access. Maintaining the sand supply to the shoreline and maintaining the existing seawall will also significantly reduce impacts from increasing water levels, wave run-up and potential for erosion if sea level rise continues. Some of the adaptation strategies including raising the road and maintaining the sand supply would require community and/or regionally coordinated infrastructure improvements that will be subject to long-term planning considerations and local government approval.

Although the most extreme (H++) projection for Sea Level Rise is currently very unlikely and determining the probability of it occurring is currently not possible, some scientists believe that this extreme SLR is plausible and should be considered for worst case planning. If such levels of sea level rise were to occur, the subject site would be subject to an increased frequency of flooding and an increased potential for storm event impacts. Given the low lying nature of this property located between the ocean and a tidal lagoon, the likelihood of significantly raising the site including associated improvements to the seawall without impacting adjoining habitats would require costly walls and/or an elevated roadway. Therefore, retreat may become a viable option for this area at some future time if the extreme SLR projections occur.

According to the findings of this study, the proposed improvements will be designed to accommodate the medium to high risk (design) sea level rise projections with some adaptations needed during the end of the residence's design life if more extreme sea level rise occurs. See Table 14 for a summary of the Coastal design parameters to be used in the design of the residence utilizing a 100 Year storm event (1% Probability) and the Medium to High Risk sea level rise projections (0.5% Probability). Since the impacts and resulting adaptation strategies will vary with varying levels of sea level rise, it is highly recommended that the owner monitor the actual rate of sea level rise and plan appropriate strategies to mitigate the impacts that are coordinated with the adjoining properties and regional efforts.

Table 14: Coastal Design Parameters (100 Year Storm & Medium to High Risk SLR)

Coastal Parameter	Design Value	Notes
100 Year Tide (Ft, NAVD88)	7.5	Current Value
Design Sea Level Rise (Ft)	5.7	Projected over 75 Years
Design Tide (Ft, NAVD88)	13.2	For Year 2094
Design Flood (Ft, NAVD88)	13.7	From Lagoon, Year 2094
FEMA BFE	16.0	Zone VE Offshore of Site
Storm Surge Elevation (Ft, NAVD88)	17.9	At Residence without Seawall
Finished Floor	18.17	Inhabited Level
Wave Surge Force (Pounds)	5,652.3	Per 18" Pile
Lateral Wave Slam (Pounds)	9407.5	Across Front of Structure
Scour Depth (Ft)	3 (2xDiameter Min.)	At Each Pile

Note: Design values determined assuming an eroded shoreline profile without the existing seawall.

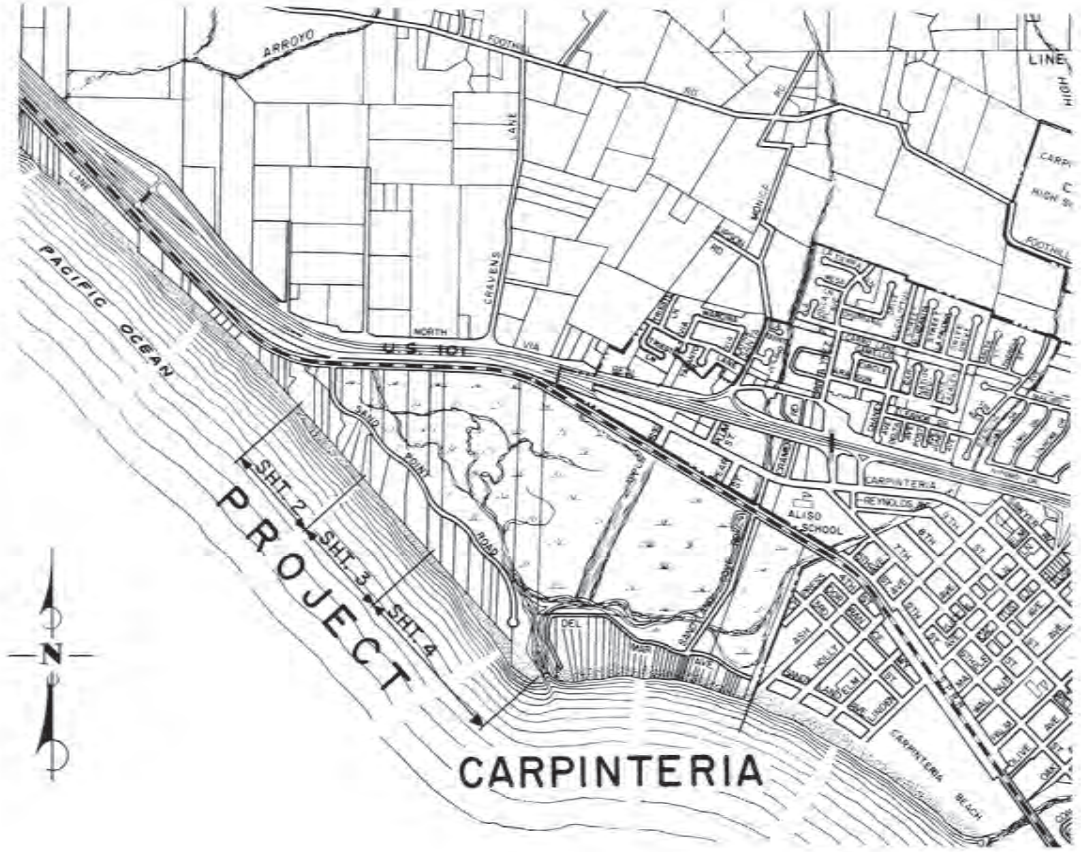
REFERENCES

1. Flick, R.E., 1998. Comparison of California Tides, Storm Surges, and Mean Sea Level During the El Nino Winters of 1982-83 and 1997-98: California Department of Boating and Waterways & Scripps Institute of Oceanography.
2. Committee on Sea Level Rise in California, Oregon, and Washington: Robert A. Dalrymple, Chair, 2012. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future: National Research Council.
3. Unites States Army Corps of Engineers, 1984. Shore Protection Manual: Coastal Engineering Research Center.
4. Unites States Army Corps of Engineers, 2001. Coastal Engineering Manual: Coastal Engineering Research Center.
5. ASCE, 2006. Flood Resistant Design and Construction, ASCE/SEI 24-05.
6. FEMA, 2015, Flood Insurance Study, Santa Barbara County, CA, 06083CV001C.
7. CA Emergency Managment Agency, CA Geological Survey & USC, Tsunami Inundation Map For Emergency Planning, Carpinteria Quadrangle, 2009.
8. FEMA, 2011. Coastal Construction Manual (FEMA P-55).
9. ASCE, 2006. Flood Resistant Design and Construction (ASCE 24-05)
10. OPC, 2018. State of California Sea-Level Rise Guidance: CA Natural Resources Agency
11. USGS, 2009. Coastal Processes Study of Santa Barbara and Ventura Counties, California.

Attachment A

Sandyland Seawall Association
County of Santa Barbara, CA
Project No. F88009 & F88010

Construction Plans for Seawall Improvements
6/24/1983



LOCATION MAP

SCALE : 1" = 1000'

Distance: 1000.39 ft.

0 1000 2000 3000 4000

SANDYLAND SEAWALL ASSOCIATION

COUNTY OF SANTA BARBARA, CALIFORNIA

PROJECT NO. F88009 & F88010

CONSTRUCTION PLANS FOR SEAWALL IMPROVEMENTS

NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THIS PLAN AND THE PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS TO CONSTRUCT THE IMPROVEMENTS INCLUDING ALL IMPORTED EARTH AND ROCK MATERIAL.

2. THE CONTRACTOR SHALL CONTACT THE FOLLOWING AGENCIES TWO WEEKS IN ADVANCE OF ANY WORK AND HE SHALL COORDINATE HIS WORK WITH AND ABIDE BY THE DIRECTION OF SUCH AGENCIES.

   COUNTY OF SANTA BARBARA ..... (805) 966-1611
   PUBLIC WORKS DEPARTMENT

   UTILITY LOCATING SERVICE ..... (800) 422-4133

3. THE LOCATION OF PROPERTY LINES AT STA. 0+00 & STA. 32+47.83 WERE CALCULATED FROM FIELD SURVEY & RECORD DATA. OTHER PROPERTY LINES ARE BASED ON COUNTY TAX ACCESSOR'S MAPS & ARE APPROXIMATE ONLY.

INDEX TO DRAWINGS

1 GENERAL INFORMATION

2 SEAWALL IMPROVEMENTS STA. 0+00 TO STA. 10+65

3 SEAWALL IMPROVEMENTS STA. 10+65 TO STA. 22+40

4 SEAWALL IMPROVEMENTS STA. 22+40 TO STA. 37+97

LOCAL BENCH MARK

PUNCH MARK CROSS TOP OF S.E. BOLT OF R.R. SIGNAL AT SAND POINT RD. EL. 8.77

INITIAL BENCH MARK

CALIFORNIA STATE LANDS COMMISSION, SAND POINT RM2 EL. 7.03
U.S.C. & G.S. DATUM, MEAN SEA LEVEL ADJUSTMENT OF 1929

PREPARED BY:

Penfield & Smith
ENGINEERS INC.

111 E. VICTORIA STREET, SANTA BARBARA, CALIF. 93101 (805) 963-9532

URS/JOHN A. BLUME & ASSOCIATES, ENGINEERS
130 JESSIE ST. (AT NEW MONTGOMERY) SAN FRANCISCO, CA 94105

W.O. 6665 (21-20)

COUNTY OF SANTA BARBARA • DEPARTMENT OF PUBLIC WORKS • ENGINEERING AND CONSTRUCTION DIVISION
123 EAST ANAPAMU STREET SANTA BARBARA, CA 93101 (805) 963-7115



DRAWN BY C.E.P.
DESIGNED BY R.N.S.
ARCHITECT
ENGINEER
AGENCY
RECOMMENDED BY
DATE 6/24/83

Penfield & Smith ENGINEERS INC. 331 EAST VICTORIA STREET SANTA BARBARA, CA. 93101 TEL. (805) 963-9532
RCE 32187 6-24-83

APPROVED BOARD OF SUPERVISORS DATE

DIRECTOR OF PUBLIC WORKS DATE

LOCATION SANTA BARBARA COUNTY, CA.
PROJECT SEAWALL IMPROVEMENTS

F88009

DESCRIPTION GENERAL INFORMATION

SHEET No. 1 OF 4 SHEETS

GRAPHIC SCALE IN FEET
0 40 80 120 160

SAND POINT ROAD (PRIVATE)

A.P.NO. 5-46-40 | A.P.NO. 5-46-41 | A.P.NO. 5-46-26 | A.P.NO. 5-46-25 | A.P.NO. 5-46-9 | A.P.NO. 5-46-27 | A.P.NO. 5-46-24 | A.P.NO. 5-46-42 | A.P.NO. 5-46-43

STA. 0+00 BEGIN REDUCED RIGHT BEGIN ROAD TRANSITION

END REDUCED SEAWALL SECTION STA. 1+33 END RD TRANS. BEGIN FULL 60' ROAD SECTION

STA. 2+02 END 16' ROAD SECTION BEGIN REDUCED WIDTH RD SECTION

STA. 4+07 END ROAD TRANSITION BEGIN FULL WIDTH ROAD SECTION

EXIST. BLDG (TYP.)

ACCESS ROAD

PROPERTY LINE (TYP.)

STA. 0+00 @ PROPERTY LINE
BEGIN CONST ALONG PROP LINE
MATCH EXIST SEAWALL & CONST. SEAWALL
TRANSITION TO TYP SEAWALL SECTION
STA. 0+30.00
BEGIN FULL HEIGHT SEAWALL W/REDUCED WIDTH

℄ SEAWALL S 40° 28' 40" E 133.58'

STA. 1+33.53 ℄ POINT

℄ SEAWALL S 40° 28' 40" E 550.00'

BACK OF SPLASHWALL

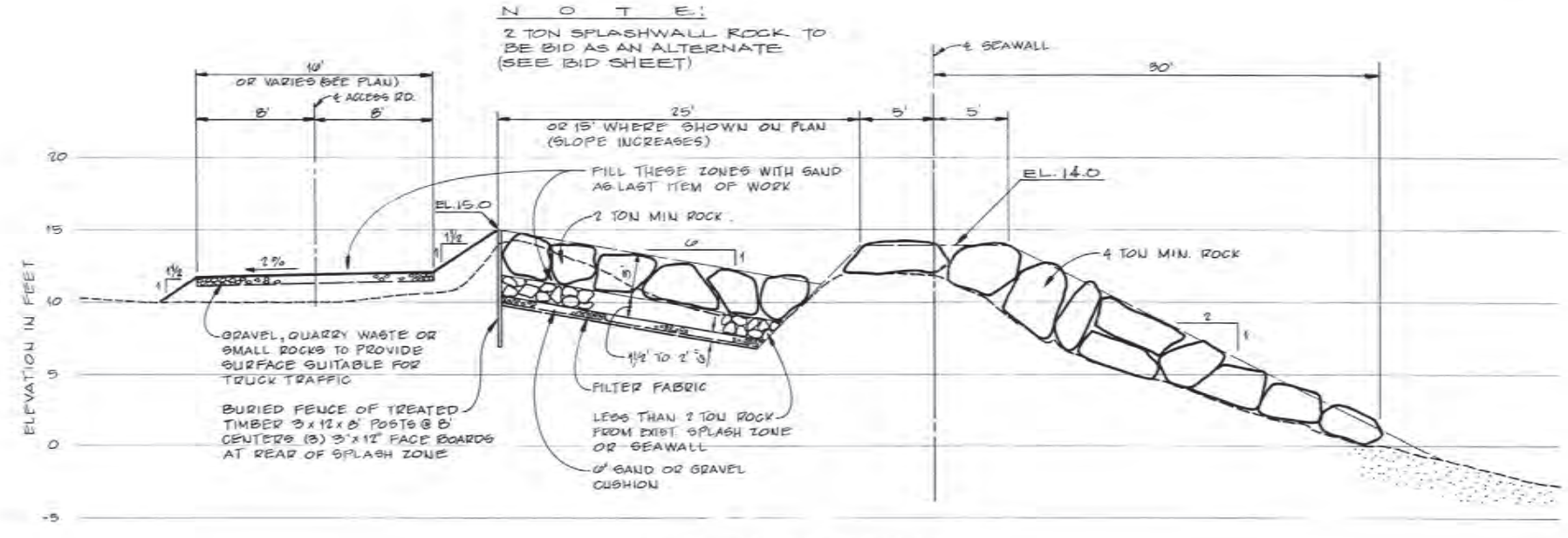
STA. 6+83.53 ℄ POINT

℄ SEAWALL S 42° 28' 40" E

PACIFIC OCEAN

SEE SHEET 3

N O T E:
2 TON SPLASHWALL ROCK TO BE BID AS AN ALTERNATE (SEE BID SHEET)



TYPICAL SEAWALL SECTION
SCALE: 1"=5'

was compiled from photography dated 3-25-83

PACIFIC WESTERN AERIAL SURVEYS
ROBERT C. FREITAS - PHOTOGRAMMETRIC SURVEYOR
635 Olive Street, Santa Barbara, CA 93103
870 E. Santa Clara, Ventura, CA 93001
#235

W.O. 6665 (21-20)

COUNTY OF SANTA BARBARA • DEPARTMENT OF PUBLIC WORKS • ENGINEERING AND CONSTRUCTION DIVISION
125 EAST ANAPAMU STREET SANTA BARBARA, CA 93101 (805) 963-7115

APPROVED
BOARD OF SUPERVISORS DATE
DIRECTOR OF PUBLIC WORKS DATE

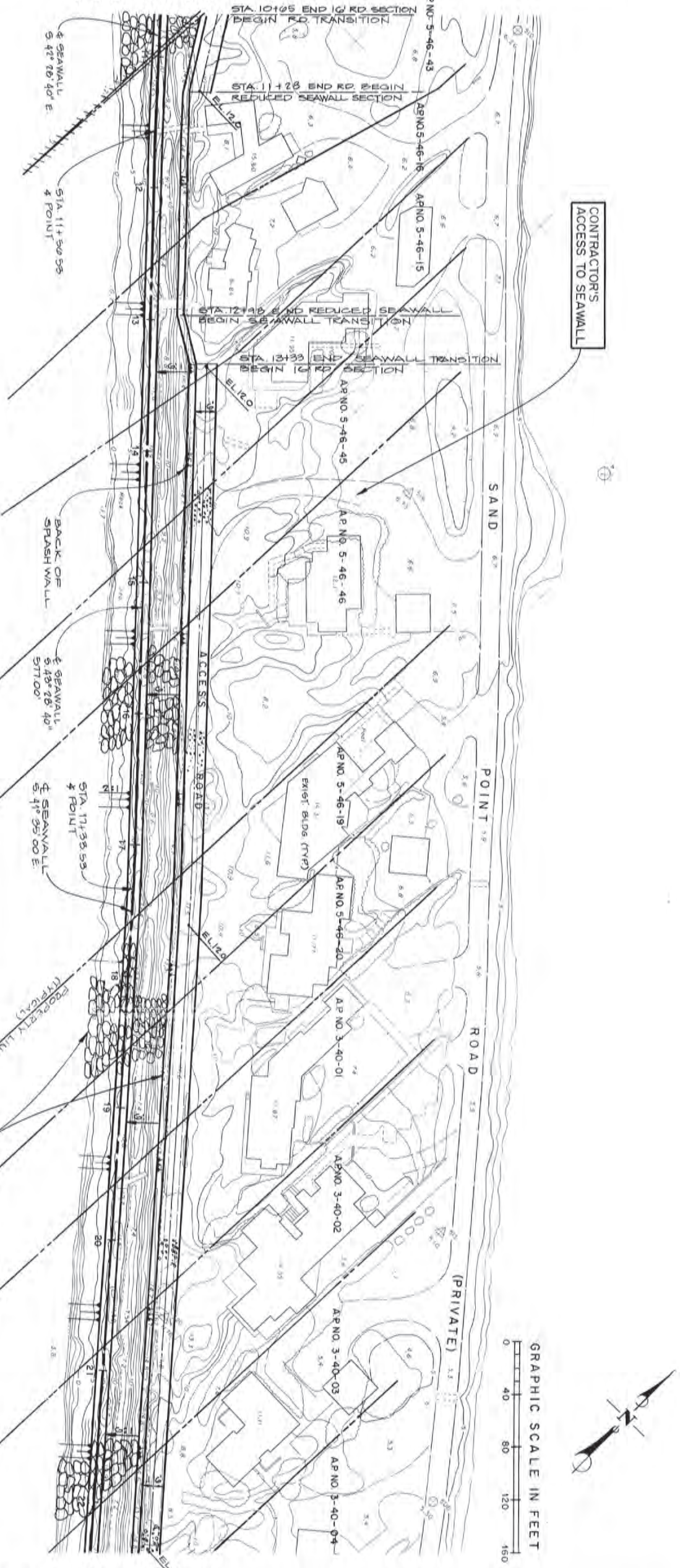
DRAWN BY C.E.P. DATE 6/24/83
DESIGNED BY B.N.S.
ARCHITECT
ENGINEER
APPROVED
RECOMMENDED BY

Penfield & Smith
ENGINEERS INC.
331 EAST VICTORIA STREET
POST OFFICE BOX 489 SANTA BARBARA, CA. 93102
TEL. (805) 963-9532

LOCATION SANTA BARBARA COUNTY, CA.
PROJECT SEAWALL IMPROVEMENTS
F88009
DESCRIPTION FROM STA. 0+00 TO 10+65

SHEET No. 2 OF 4 SHEETS

SEE SHEET 2



SEE SHEET 4

This map was compiled from photography dated 3-25-83.

PACIFIC WESTERN AERIAL SURVEYS
ROBERT C. WEBSTER - PHOTOGRAMMETRIC SURVEYOR
535 Chino Street, Santa Barbara, CA 93103
1041 E. Santa Clara, Ventura, CA 93001

J5235

W.O. 6665 (21-20)

COUNTY OF SANTA BARBARA • DEPARTMENT OF PUBLIC WORKS • ENGINEERING AND CONSTRUCTION DIVISION
123 EAST ANAPAMU STREET
SANTA BARBARA, CA 93101 (805) 963-7115

SHEET No. 3 OF 4 SHEETS

LOCATION: SANTA BARBARA COUNTY, CA.
PROJECT: SEAWALL IMPROVEMENTS

F88009
F88010

DESCRIPTION: FROM STA. 10+65 TO 22+40

APPROVED
BOARD OF SUPERVISORS DATE
DIRECTOR OF PUBLIC WORKS DATE

Penfield & Smith
ENGINEERS INC
111 EAST VICTORIA STREET
POST OFFICE BOX 98 • SANTA BARBARA, CA. 93102
TEL. (805)963-9532
Ronald N. Smithson R.C.E. 32107 6-27-83

DATE 6/24/83
DRAWN BY C.E.P.
DESIGNED BY R.N.S.
ARCHITECT
ENGINEER
APPROVAL
RECOMMENDED BY



SEE SHEET 3

SAND POINT ROAD (PRIVATE)

A.P.NO. 3-40-4 | A.P.NO. 3-40-5 | A.P.NO. 3-40-6 | A.P.NO. 3-40-14 | A.P.NO. 3-40-15 | A.P.NO. 3-40-16 | A.P.NO. 3-40-9 | A.P.NO. 3-40-10

GRAPHIC SCALE IN FEET
0 40 80 120 160

CONTRACTOR'S ACCESS TO SEAWALL

STA. 25+85.4 PT. ON ROAD BEGIN REDUCED SEAWALL SECTION

STA. 20+67 END ACCESS RD

STA. 21+70 BEGIN ACCESS RD

STA. 18+12 BEGIN 4 PT. END REDUCED SEAWALL SECTION

EL 12.0

ACCESS ROAD

RE STA. 32+47.83

CONST. SEAWALL PER TYPICAL SECTION SHT. 2

BACK OF SPLASHWALL

S 41° 35' 05" E

℄ SEAWALL STA. 21+55.53 4 PT.

PROPERTY LINE (TYPICAL)

S 40° 35' 10" E

S 39° 45' 40" E

℄ SEAWALL STA. 31+83.53 ½ PT

PACIFIC OCEAN

Project Site

RE STA. 32+47.83

A.P. NO. 3-40-10

STA. 31+31.68 END CONST

STA. 31+78.66 BC

Δ = 22° 15' 07"
R = 90.00'
L = 34.95'

STA. 31+83.74 PCC

EL 12.0

S 40° 35' 10" E

℄ SEAWALL STA. 33+89.53 ½ PT.

S 39° 43' 00" E

BACK OF SPLASHWALL

CONST. SEAWALL PER TYPICAL SECTION SHT. 2

STA. 36+19.58 PC

STA. 36+82.23 PCC

Δ = 100° 39' 43"
R = 35.00'
L = 61.49'

Δ = 32° 31' 10"
R = 40.00'
L = 22.70'

CONTINUATION

This map was compiled from photography dated 3-25-83

PACIFIC WESTERN AERIAL SURVEYS
ROBERT C. PRESTAP - PHOTOGRAMMETRIC SURVEYOR
629 Olive Street, Santa Barbara, CA 93102
870 E. Santa Clara, Ventura, CA 93001
15E85

W. O. 6665 (21-20)

COUNTY OF SANTA BARBARA • DEPARTMENT OF PUBLIC WORKS • ENGINEERING AND CONSTRUCTION DIVISION
123 EAST ANAPAMU STREET, SANTA BARBARA, CA 93101 (805) 962-7111

APPROVED
BOARD OF SUPERVISORS DATE
DIRECTOR OF PUBLIC WORKS DATE

Penfield & Smith
ENGINEERS AND SURVEYORS
111 EAST VICTORIA STREET
POST OFFICE BOX 99 • SANTA BARBARA, CA. 93102
TEL. (805) 963-9532

DRAWN BY C.E.P.
DESIGNED BY R.N.S.
CHECKED BY
ENGINEER
APPROVAL RECOMMENDED BY
DATE 6/24/83

LOCATION SANTA BARBARA COUNTY, CA.
PROJECT SEAWALL IMPROVEMENTS

F 88009
F 88010

DESCRIPTION FROM STA. 22+40 TO 33+45

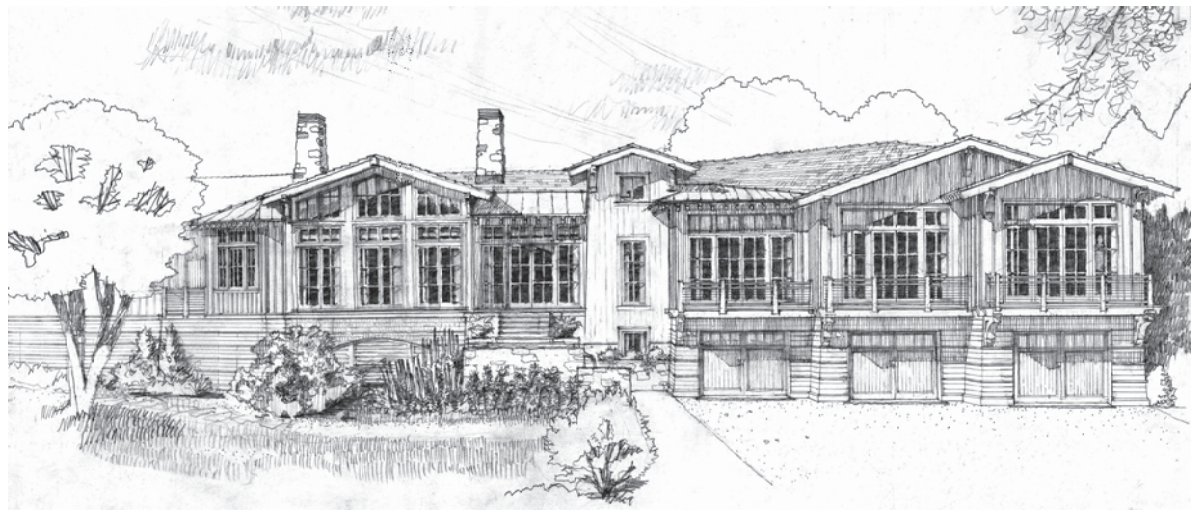
SHEET No. 4 OF 4 SHEETS

Attachment B

Existing Topography
&
Proposed Improvement Plans



CONCEPTUAL 3D PERSPECTIVE VIEW FROM STREET
NOT TO SCALE



CONCEPTUAL HAND-SKETCH PERSPECTIVE VIEW
NOT TO SCALE



CONCEPTUAL 3D PERSPECTIVE VIEW FROM SEA WALL
NOT TO SCALE

ABBREVIATIONS

A.C. asphalt concrete
A.D. area drain
ADJ. adjustable
A.F.F. above finish floor
ASPH. asphalt

BD. board
BLDG. building
BLKG. blocking
B.O. bottom of

CAB. cabinet
CLG. ceiling
CLR. clear
COL. column
CONC. concrete
CONST. construction
COV. cover

DBL. double
D.F. drinking fountain
DET. detail
DIA. diameter
DIM. dimension
DN. down
DS. downspout
D.S.P. dry stand pipe
DW. dishwasher
DWG. drawing

EA. each
EF exhaust fan
ELEV. elevation (building)
EQUIP. equipment
EXIST. existing
EXT. exterior

F.D. floor drain
FIN. finish
FL. floor
F.O. face of
F.O.S. face of stud
FOUND. foundation
FT. foot or feet
FTG. footing

GALV. galvanized
GL. glass
GYP. gypsum

HDR. header
HT. height
H.W. hot water

I.D. inside diameter
INSUL. insulation
INT. interior

LAV. lavatory
LCC lead coated copper
LDR. leader

MAX. maximum
MIN. minimum
MISC. miscellaneous
MOULD. moulding

N.I.C. not in contract
NOM. nominal
NTS not to scale

O.D. outside diameter
OPNG. opening
OPP. opposite

PLYWD. plywood
P.T. pressure treated
PT. paint

R. riser
R.D. roof drain
REF. refrigerator
REINF. reinforcing/reinforced
REQ'D. required
RM. room
R.O. rough opening

SH. shelf
SIM. similar
SPEC. specification
SQ. square
STOR. storage
STRUC. structural
SUSP. suspended

TR. trash
TEL. telephone
TEMP. tempered
T.O. top of
T.O.S. top of slab
TV. television
TYP. typical

U.N.O. unless noted otherwise

V.I.F. verify in field

W. with
W/O without
W.C. water closet
WD. wood
W.I.C. walk-in closet

DEVELOPMENT

Project Description:

The project consists of the demolition and removal of an approximately 3,336 square foot existing split-story main residence with 663 square foot garage and attached decks in entirety. The new, proposed single-story, approximately 4,125 square foot main residence will have a finish floor elevation of 18.2 feet above sea level. An approximately 1,211 square foot garage at the ground floor level is proposed, with an average finish floor elevation of 9.0 feet above sea level. The ground floor level also contains approximately 994 square feet of understory circulation, storage and protected mechanical space, as well as an approximately 93 square foot covered area with outdoor shower. Approximately 1,353 square feet of new balcony, exterior stairs and uncovered deck with a spa and firepit are also proposed. Proposed site improvements include a new driveway, drive court and pedestrian walkways.

Structures to be Demolished: entirety of 3,999 square foot existing residence, garage and attached decks.

AGENCIES

PLANNING & DEVELOPMENT:	County of Santa Barbara Planning and Development 123 East Anapamu Street Santa Barbara, CA 93101-2058 (805) 568-2090
BUILDING & SAFETY:	County of Santa Barbara Planning and Development 123 East Anapamu Street Santa Barbara, CA 93101-2058 (805) 568-3030
FIRE DEPARTMENT:	Carpinteria-Summerland Fire 911 Walnut Avenue Carpinteria, CA 93013 (805) 684-4591

FLOOD SAFETY

This project is located within a Flood Hazard Overlay. Mandatory flood insurance purchase requirements and floodplain management standards apply.

CODE REQUIREMENTS

All work to comply with:
2016 CBC, 2016 CRC, 2016 CEC, 2016 CMC, 2016 CPC state codes

UTILITIES

WATER:	Carpinteria Valley Water District 1301 Santa Ynez Avenue Carpinteria, CA 93013 Phone: (805) 684-2816
ELECTRIC POWER:	Southern California Edison Phone: (800) 655-4555
NATURAL GAS:	Southern California Gas Company Phone: (800) 427-2000
TELEPHONE:	Cox Communications (805) 683-6651

APPROXIMATE AREA CALCULATIONS

RESIDENCE AREAS (NET & GROSS)

Existing first floor square footage of residence to be demolished:

	3,336 sq.ft. (net)	3,548 sq.ft. (gross)

Proposed first floor square footage of new residence:

	4,125 sq.ft. (net)	4,412 sq.ft. (gross)
Total first floor square footage increase:	789 sq.ft. (net)	864 sq.ft. (gross)

GARAGE AREAS (NET & GROSS)

Existing 2-Car Garage:	663 sq.ft. (net)	726 sq.ft. (gross)
Proposed 3-Car Garage:	1,211 sq.ft. (net)	1,304 sq.ft. (gross)
Total Garage square footage increase:	548 sq.ft. (net)	578 sq.ft. (gross)

PROPOSED EXTERIOR STAIRS, DECK & SPA AREAS

Uncovered Deck and Stairs:	1,310 sq.ft. (net)
Spa:	43 sq.ft. (net)
Total square footage:	1,353 sq.ft. (net)

UNDERSTORY AREAS (NET & GROSS)

Non-Habitable Outdoor Furniture Storage:	268 sq.ft. (net)	296 sq.ft. (gross)
Non-Habitable Surfboard Storage:	269 sq.ft. (net)	323 sq.ft. (gross)
Mechanical Vault #1:	121 sq.ft. (net)	192 sq.ft. (gross)
Lower Entry/Stairwell/Storage:	336 sq.ft. (net)	460 sq.ft. (gross)
Covered Area w/ Outdoor Shower:	93 sq.ft. (net)	114 sq.ft. (gross)
Proposed 3-Car Garage:	1,211 sq.ft. (net)	1,304 sq.ft. (gross)
Total square footage:	2,298 sq.ft. (net)	2,689 sq.ft. (gross)

FLOOR AREA RATIO (FOR HOA REFERENCE ONLY)

HOA MAX = 0.25	
Total proposed floor area	4,132 sq.ft. (net)
Buildable area	20,856 sq.ft.
Proposed FAR:	= 0.20

PROJECT TEAM

OWNER:	Tim and Allison Coleman 607 Sand Point Road Carpinteria, CA 93013
ARCHITECT OF RECORD:	Two Trees Architect Daniel Longwill 407 Bryant Circle, Suite A Ojai, CA 93023 (805) 403-6595 danny@twotrees-architect.com
DESIGN ARCHITECT:	Charles Hilton Architects Charles Hilton 170 Mason Street Greenwich, CT 06830 (203) 489-3800 ch@hiltonarchitects.com
GENERAL CONTRACTOR:	TBD
STRUCTURAL ENGINEER:	Ashley & Vance Engineering Paul Belmont 924 Chapala Street, Suite D Santa Barbara, CA 93101 (805) 962-9966 paul@ashleyvance.com
LAND USE CONSULTANT:	Siemens Planning Jennifer Siemens 5210 Carpinteria Avenue #103 Carpinteria, CA 93013 (805) 318-1049 jennifer@siemensplanning.com
CIVIL ENGINEER:	Ashley & Vance Engineering Jason J. Gotsis, P.E. 924 Chapala St. Suite D Santa Barbara, CA 93101 (805) 962-9966 jason@ashleyvance.com
LANDSCAPE ARCHITECT:	Doyle Herman Design Associates James Doyle 125 Greenwich Avenue Greenwich, CT 06830 (203) 869-2900 jd@dhda.com
COASTAL PLANNER:	Dudek Amber Geraghty 621 Chapala Street Santa Barbara, CA 93101 (805) 308-8519 ageraghty@dudek.com
COASTAL ENGINEER:	Streamline West Engineering Greg Reid (503) 577-0493 greg@streamlinewest.com
SURVEYOR:	Prober Land Surveying Jeff Prober 645 Floral Vista Drive Santa Barbara, CA 93109 (805) 452-9690

PROJECT DATA

ADDRESS:	607 Sand Point Road Carpinteria, CA 93013
A.P.N.:	004-098-006
Proposed Max. Building Height:	25.75' Abv. Existing Grade
Zone.:	10-R-1
Parcel Size:	1.2 Acre
Existing Use:	SFD
Proposed Use:	SFD
Existing No. Of Buildings:	1
Existing No. Res. Units:	1
Proposed No. of Buildings:	1
New No. Res. Units:	1 4,412 (gross) sq.ft. total
Existing Parking Spaces:	2
Proposed Parking Spaces:	3
Utilities:	
Water:	Public
Sewer Disposal:	Public
Gas:	Natural Gas
Grading Quantities:	
Cut Quantity: 260 cubic yards	
Fill Quantity: 100 cubic yards	
Net Quantity: 160 cubic yards export	
Impervious Surfaces:	Approx. Existing 5,718 sq.ft. Approx. Proposed 9,328 sq.ft.



N
VICINITY MAP
NOT TO SCALE

SHEET INDEX

GENERAL INDEX
T1 TITLE SHEET / GENERAL INFO
TOPOGRAPHICAL SURVEY
S1.1 SITE SURVEY (TOPO & BOUNDARY)
ARCHITECTURAL DRAWINGS
A0.1 SITE PLAN
A0.2 SITE SECTIONS
C2.1 GRADING AND DRAINAGE PLAN
E1.1 EXISTING FIRST FLOOR PLAN
E1.2 EXISTING SITE SURVEY WITH NEW BUILDING FOOTPRINT OVERLAYED
A1.1 FIRST FLOOR PLAN
A1.2 NON-HABITABLE STORAGE LEVEL PLAN
A1.3 ROOF PLAN
A2.1 FRONT AND REAR EXTERIOR ELEVATIONS
A2.2 SIDE EXTERIOR ELEVATIONS
A3.1 BUILDING & WALL SECTIONS & FINISH CEILING DIAGRAM
LANDSCAPE DRAWINGS
L1.1 LANDSCAPE PLAN
L1.2 PLANTING PLAN
L1.3 PLANT HEIGHT DIAGRAM

Prior to final submission, applications for grading and building permits shall be reviewed by the Project Coastal Engineering Consultant for adequacy relative to threats and impacts from hazards arising from flooding, tsunamis, beach erosion, and ground failure from soil liquefaction. The Project Coastal Engineer's recommendations shall be incorporated into the plans as notes and details and referenced on the project plans. The Project Coastal Engineer shall review, sign, and wet stamp the final building plans.



PERSPECTIVE VIEW - AERIAL
NOT TO SCALE

TWO TREES ARCHITECT

Charles Hilton
ARCHITECTS
170 Mason Street
Greenwich, Connecticut 06830
203 489-3800

TWO TREES ARCHITECT EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF TWO TREES ARCHITECT.

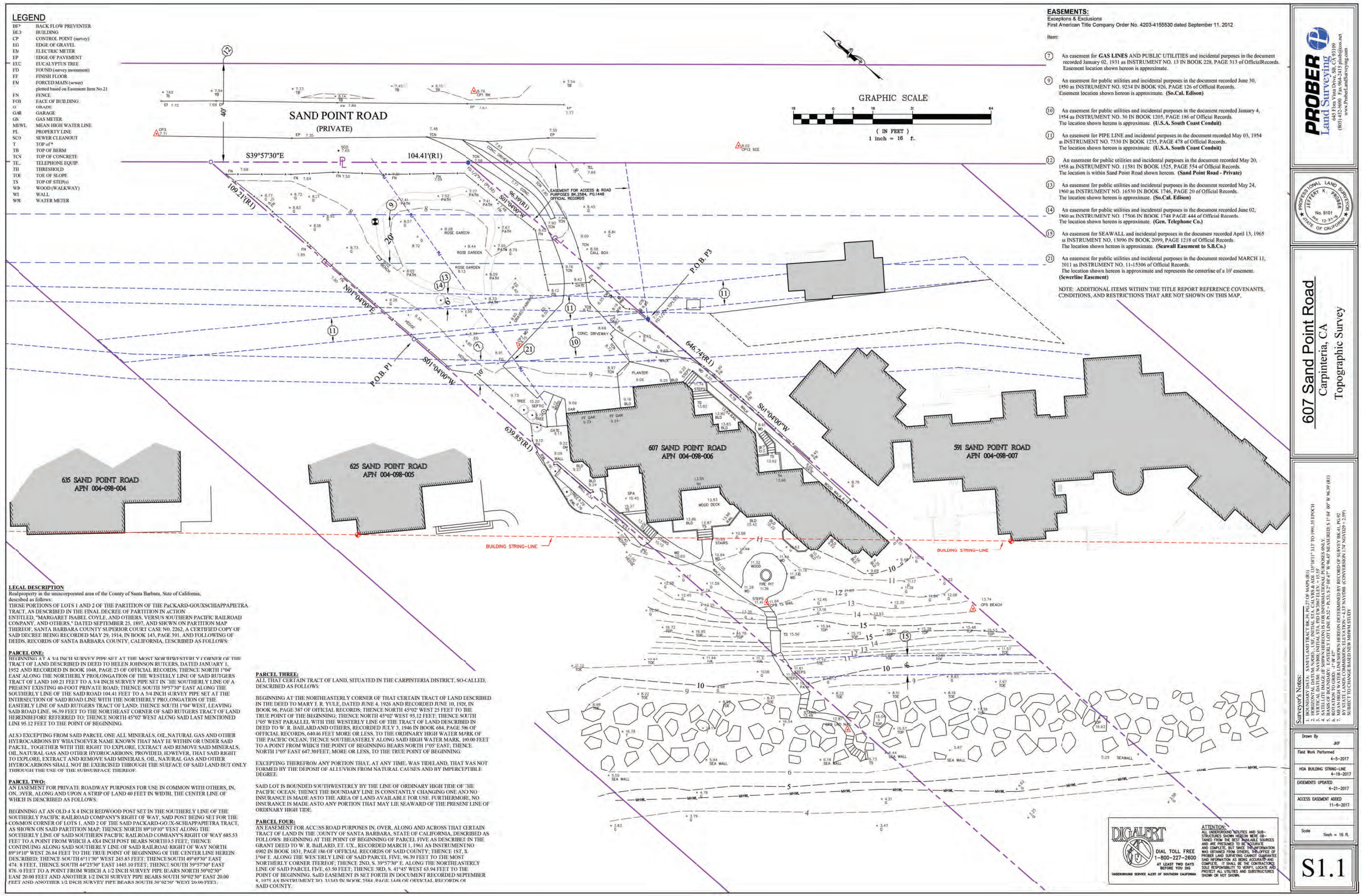
PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT
COLEMAN RESIDENCE
607 Sand Point Road
Carpinteria, CA 93013
004-098-006

JOB NUMBER
1701

DATE ISSUED
10 MAY 2018
27 AUGUST 2018
25 SEPTEMBER 2018
6 NOVEMBER 2018
18 MARCH 2019
1 MAY 2019

SHEET
T1
OF
16



LEGEND

BF°	BACK FLOW PREVENTER
BLD	BUILDING
CP	CONTROL POINT (survey)
EG	EDGE OF GRAVEL
EM	ELECTRIC METER
EP	EDGE OF PAVEMENT
EUC	EUCALYPTUS TREE
FD	FOUND (survey monument)
FF	FINISH FLOOR
FM	FORCED MAIN (sewer) plotted based on Easement Item No.21
FN	FENCE
FOI	FACE OF BUILDING
G	GRADE
GAR	GARAGE
GS	GAS METER
MHWL	MEAN HIGH WATER LINE
PL	PROPERTY LINE
SCO	SEWER CLEANOUT
T	TOP of *
TB	TOP OF BERM
TCN	TOP OF CONCRETE
TE	TELEPHONE EQUIP.
TH	THRESHOLD
TOE	TOE OF SLOPE
TS	TOP OF STEP(s)
WD	WOOD (WALKWAY)
WL	WALL
WM	WATER METER

EASEMENTS:

Exceptions & Exclusions
First American Title Company Order No. 4203-4155530 dated September 11, 2012

Item:

(7) An easement for **GAS LINES** AND PUBLIC UTILITIES and incidental purposes in the document recorded January 02, 1931 as INSTRUMENT NO. 13 IN BOOK 228, PAGE 313 of OfficialRecords. Easement location shown hereon is approximate.

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NOTE: ADDITIONAL ITEMS WITHIN THE TITLE REPORT REFERENCE COVENANTS, CONDITIONS, AND RESTRICTIONS THAT ARE NOT SHOWN ON THIS MAP.

LEGAL DESCRIPTION
Realproperty in the unincorporated area of the County of Santa Barbara, Stte of Califoenia, described as follows:
THOSE PORTIONS OF LOTS 1 AND 2 OF THE PARTITION OF THE PACKARD-GOUXSCHIAPPAPIETRA TRACT, AS DESCRIBED IN THE FINAL DECREE OF PARTITION IN ACTION ENTITLED, "MARGARET ISABEL COYLE, AND OTHERS, VERSUS SOUTHERN PACIFIC RAILROAD COMPANY, AND OTHERS," DATED SEPTEMBER 25, 1897, AND SHOWN ON PARTITION MAP THEREOF, SANTA BARBARA COUNTY SUPERIOR COURT CASE NO. 2262, A CERTIFIED COPY OF SAID DECREE BEING RECORDED MAY 29, 1914, IN BOOK 143, PAGE 391, AND FOLLOWING OF DEEDS, RECORDS OF SANTA BARBARA COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL ONE:
BEGINNING AT A 3/4 INCH SURVEY PIPE SET AT THE MOST NORTHWESTERLY CORNER OF THE TRACT OF LAND DESCRIBED IN DEED TO HELEN JOHNSON RUTGERS, DATED JANUARY 1, 1952 AND RECORDED IN BOOK 1048, PAGE 23 OF OFFICIAL RECORDS; THENCE NORTH 1°04' EAST ALONG THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF SAID RUTGERS TRACT OF LAND 109.21 FEET TO A 3/4 INCH SURVEY PIPE SET IN THE SOUTHERLY LINE OF A PRESENT EXISTING 40-FOOT PRIVATE ROAD; THENCE SOUTH 39°57'30" EAST ALONG THE SOUTHERLY LINE OF THE SAID ROAD 104.41 FEET TO A 3/4 INCH SURVEY PIPE SET AT THE INTERSECTION OF SAID ROAD LINE WITH THE NORTHERLY PRO.ONGATION OF THE EASTERLY LINE OF SAID RUTGERS TRACT OF LAND; THENCE SOUTH 1°04' WEST, LEAVING SAID ROAD LINE, 96.39 FEET TO THE NORTHEAST CORNER OF SAID RUTGERS TRACT OF LAND HEREINBEFORE REFERRED TO; THENCE NORTH 45°02' WEST ALONG SAID LAST MENTIONED LINE 95.12 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPTING FROM SAID PARCEL ONE ALL MINERALS, OIL, NATURAL GAS AND OTHER HYDROCARBONS BY WHATSOEVER NAME KNOWN THAT MAY BE WITHIN OR UNDER SAID PARCEL, TOGETHER WITH THE RIGHT TO EXPLORE, EXTRACT AND REMOVE SAID MINERALS, OIL, NATURAL GAS AND OTHER HYDROCARBONS; PROVIDED, HOWEVER, THAT SAID RIGHT TO EXPLORE, EXTRACT AND REMOVE SAID MINERALS, OIL, NATURAL GAS AND OTHER HYDROCARBONS SHALL NOT BE EXERCISED THROUGH THE SUIFACE OF SAID LAND BUT ONLY THROUGH THE USE OF THE SUBSURFACE THEREOF.

PARCEL TWO:
AN EASEMENT FOR PRIVATE ROADWAY PURPOSES FOR USE IN COMMON WITH OTHERS, IN, ON, OVER, ALONG AND UPON A STRIP OF LAND 40 FEET IN WIDTH, THE CENTER LINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT AN OLD 4 X 4 INCH REDWOOD POST SET IN THE SOUTHERLY LINE OF THE SOUTHERLY PACIFIC RAILROAD COMPANY'S RIGHT OF WAY, SAID POST BEING SET FOR THE COMMON CORNER OF LOTS 1, AND 2 OF THE SAID PACKARD-GO.TX-SCHIAPPAPIETRA TRACT, AS SHOWN ON SAID PARTITION MAP; THENCE NORTH 89°10'10" WEST ALONG THE SOUTHERLY LINE OF SAID SOUTHERN PACIFIC RAILROAD COMIANY'S RIGHT OF WAY 685.53 FEET TO A POINT FROM WHICH A 4X4 INCH POST BEARS NORTH 0.5 FEET; THENCE CONTINUING ALONG SAID SOUTHERLY LINE OF SAID RAILROAD RIGHT OF WAY NORTH 89°10'10" WEST 26.84 FEET TO THE TRUE POINT OF BEGINNING OF THE CENTER LINE HEREIN DESCRIBED; THENCE SOUTH 6°11'50" WEST 245.83 FEET; THENCESOUTH 49°49'50" EAST 474. 8 FEET, THENCE SOUTH 44°23'30" EAST 1445.10 FEET; THENCE SOUTH 39°57'30" EAST 876. 0 FEET TO A POINT FROM WHICH A 1/2 INCH SURVEY PIPE BEARS NORTH 50°02'30" EAST 20.00 FEET AND ANOTHER 1/2 INCH SURVEY PIPE BEARS SOUTH 50°02'30" EAST 20.00 FEET AND ANOTHER 1/2 INCH SURVEY PIPE BEARS SOUTH 36°02'30" WEST 20.00 FEET;

PARCEL THREE:
ALL THAT CERTAIN TRACT OF LAND, SITUATED IN THE CARPINTERIA DISTRICT, SO-CALLED, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEASTERLY CORNER OF THAT CERTAIN TRACT OF LAND DESCRIBED IN THE DEED TO MARY E. R. YULE, DATED JUNE 4, 1926 AND RECORDED JUNE 10, 1926, IN BOOK 96, PAGE 387 OF OFFICIAL RECORDS; THENCE NORTH 45°02' WEST 25 FEET TO THE TRUE POINT OF THE BEGINNING; THENCE NORTH 45°02' WEST 95.12 FEET; THENCE SOUTH 1°05' WEST PARALLEL WITH THE WESTERLY LINE OF THE TRACT OF LAND DESCRIBED IN DEED TO W. R. BAILARD AND OTHERS, RECORDED JULY 3, 1946 IN BOOK 684, PAGE 386 OF OFFICIAL RECORDS, 640.46 FEET MORE OR LESS, TO THE ORDINARY HIGH WATER MARK OF THE PACIFIC OCEAN; THENCE SOUTHEASTERLY ALONG SAID HIGH WATER MARK, 100.00 FEET TO A POINT FROM WHICH THE POINT OF BEGINNING BEARS NORTH 1°05' EAST; THENCE NORTH 1°05' EAST 647.30FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY PORTION THAT, AT ANY TIME, WAS TIDELAND, THAT WAS NOT FORMED BY THE DEPOSIT OF ALLUVION FROM NATURAL CAUSES AND BY IMPERCEPTIBLE DEGREE.

SAID LOT IS BOUNDED SOUTHWESTERLY BY THE LINE OF ORDINARY HIGH TIDE OF THE PACIFIC OCEAN; THENCE THE BOUNDARY LINE IS CONSTANTLY CHANGING ONE AND NO INSURANCE IS MADE ASTO THE AREA OF LAND AVAILABLE FOR USE. FURTHERMORE, NO INSURANCE IS MADE ASTO ANY PORTION THAT MAY LIE SEAWARD OF THE PRESENT LINE OF ORDINARY HIGH TIDE.

PARCEL FOUR:
AN EASEMENT FOR ACC;SS ROAD PURPOSES IN, OVER, ALONG AND ACROSS THAT CERTAIN TRACT OF LAND IN THE :OUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: BEGINNING AT THE POINT OF BEGINNING OF PARCEL FIVE AS DESCRIBE:D IN THE GRANT DEED TO W. R. BAILARD, ET. UX., RECORDED MARCH 1, 1961 AS INSTRUMENTNO 6902 IN BOOK 1831, PAGE 186 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE 1ST, S. 1°04' E. ALONG THE WES:ERLY LINE OF SAID PARCEL FIVE, 96.39 FEET TO THE MOST NORTHERLY CORNER THEREOF; THENCE 2ND, S. 39°57'30" E. ALONG THE NORTHEASTERLY LINE OF SAID PARCEL FIVE, 63.50 FEET; THENCE 3RD, S. 43°45' WEST 63.94 FEET TO THE POINT OF BEGINNING. SAID EASEMENT IS SET FORTH IN DOCUMENT RECORDED SEPTEMBER 9, 1975 AS INSTRUMENT NO. 33343 IN BOOK 3584, PAGE 1448 OF OFFICIAL RECORDS OF SAID COUNTY.

DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ATTENTION:
ALL UNDERGROUND UTILITIES AND SUB-STRUCTURES SHOWN HEREON WERE OBTAINED FROM THE BEST AVAILABLE SOURCES AND ARE PRESUMED TO BE ACCURATE. THE ACCURACY OF SUCH INFORMATION WAS OBTAINED FROM OTHERS, AND OFFICE OF PROBER LAND SURVEYING CANNOT GUARANTEE SAID INFORMATION AS BEING ACCURATE AND COMPLETE. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY, LOCATE AND PROTECT ALL UTILITIES AND SUBSTRUCTURES SHOWN OR NOT SHOWN.

PROBER
Land Surveying
6453 Trim Tab Drive, Ste. C, CA 93109
(805) 452-2626 Fax (805) 452-2636
www.ProberLandSurveying.com

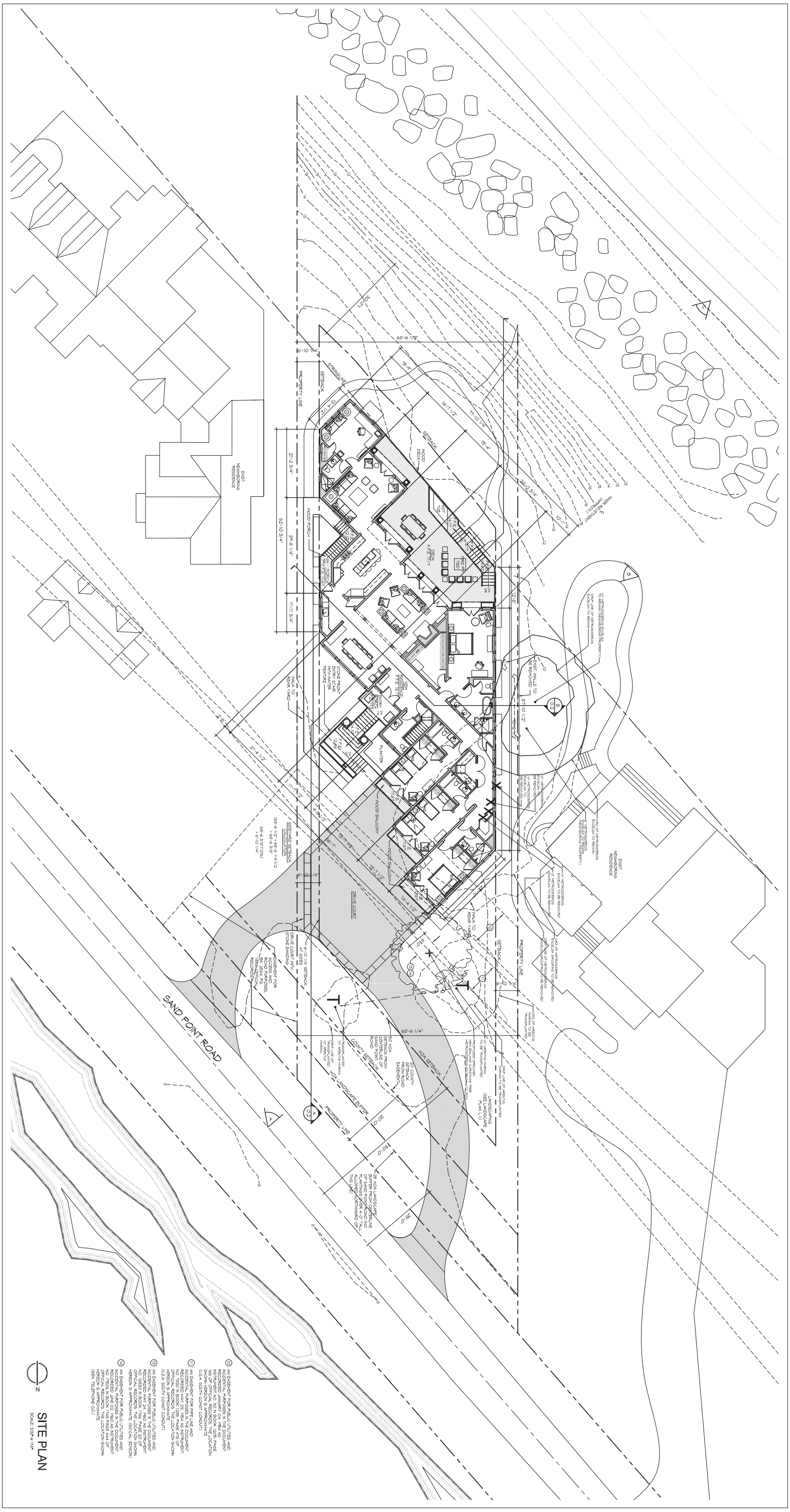
PROFESSIONAL LAND SURVEYOR
JEFFERY K. PROBER
No. 8101
Ex. 12-31-17
STATE OF CALIFORNIA

607 Sand Point Road
Carpinteria, CA
Topographic Survey

Surveyor's Notes:
1. BOUNDARY DATA: SANTA LAND TRACT BK.96 PG.27 OF MAPS (R1)
2. BEARING DATUM NAD83 (2011) EPOCH 2010.00 (CORS STATION: SLO1) ROTATED TO GRID: -1°46'47" (R1) BEARING DATUM IS BETWEEN 2 FOUND MONUMENTS AS SHOWN HEREON (FOR INFORMATIONAL PURPOSES ONLY)
3. SATELLITE DERIVED (GPS) OBSERVATIONS WERE PERFORMED ON 04/04/2017 (R2)
4. ELEVATIONS ARE BASED ON NAVD88 (GEOID12B) DERIVED FROM GPS OBSERVATIONS. ROTATION TO GRID: -1°46'47" (R1)
5. ELEVATIONS ARE BASED ON NAVD88 (GEOID12B) DERIVED FROM GPS OBSERVATIONS. 5.1'(M) ADJUSTMENT TO GRID: -1°46'47" (R1)
6. THE BASIS OF ELEVATION IS BASED ON A BENCHMARK DETERMINED BY RECORD OF SURVEY BK.43, PG.92 BY STATE LANDS COMMISSION; ELEVATION = 4.23' NAVD88. (CONVERSION: [M'NGVD29 + 2.99] = [M'NAVD88 + 0.00])

Drawn By	JKP
Field Work Performed	4-5-2017
HOA BUILDING STRING-LINE	4-19-2017
EASEMENTS UPDATED	4-21-2017
ACCESS EASEMENT ADDED	11-8-2017
Scale	1inch = 16 ft.

S1.1



PROJECT:

COLEMAN RESIDENCE

607 Sand Point Road
Carpinteria, CA 93013
004-098-006

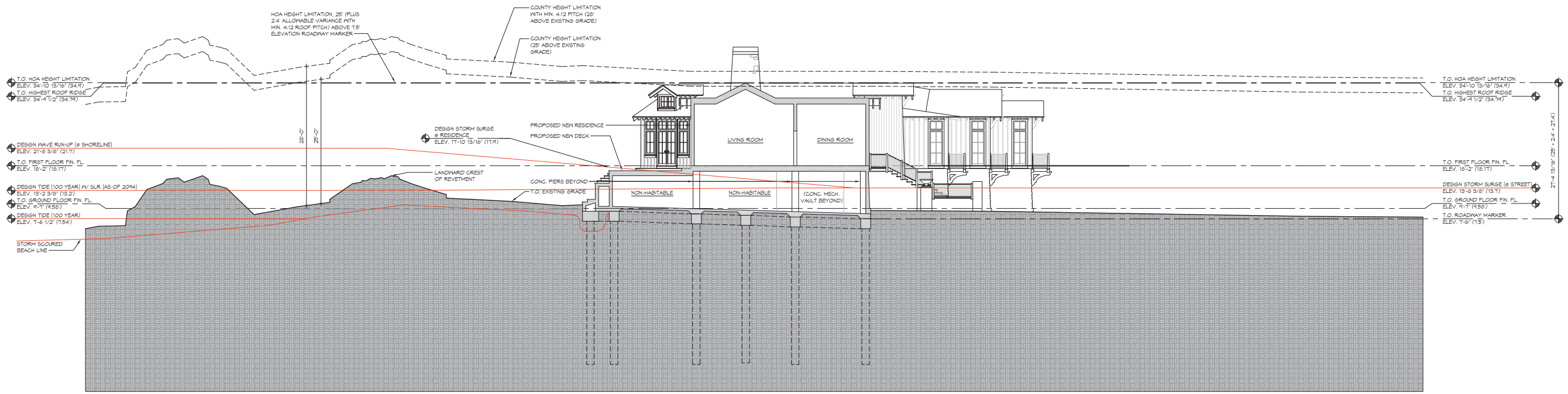
PRELIMINARY
NOT FOR
CONSTRUCTION

THESE PLANS ARE PROTECTED BY REERVETTS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS. USE OF THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF TWO TREES ARCHITECT.

Charles Hilton
ARCHITECTS
Thomas Hilton
Santa Barbara, California 93101
203 486-2680

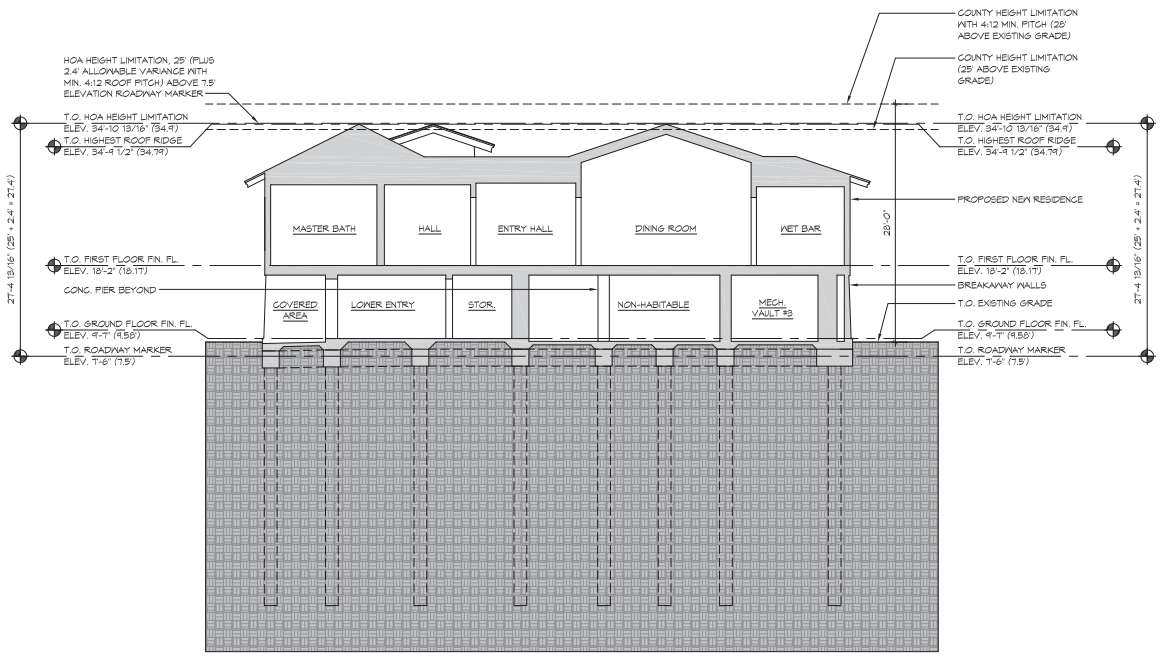
TWO TREES
ARCHITECT

JOB NUMBER:	1701
DATE ISSUED:	10 MAY 2018
	16 JULY 2018
	25 SEPTEMBER 2018
	6 NOVEMBER 2018
	13 FEBRUARY 2019
	18 MARCH 2019
SHEET:	A0.1
OF:	16



SITE SECTION 'A'

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



SITE SECTION 'B'

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

TWO TREES ARCHITECT

Charles Hilton ARCHITECTS
170 Mason Street
Greenwich, Connecticut 06830
203-486-5800

TWO TREES ARCHITECT EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY, WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF TWO TREES ARCHITECT.

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PROJECT:
COLEMAN RESIDENCE
607 Sand Point Road
Carpinteria, CA 93013
004-098-006

JOB NUMBER:
1701

DATE ISSUED:
10 MAY 2018
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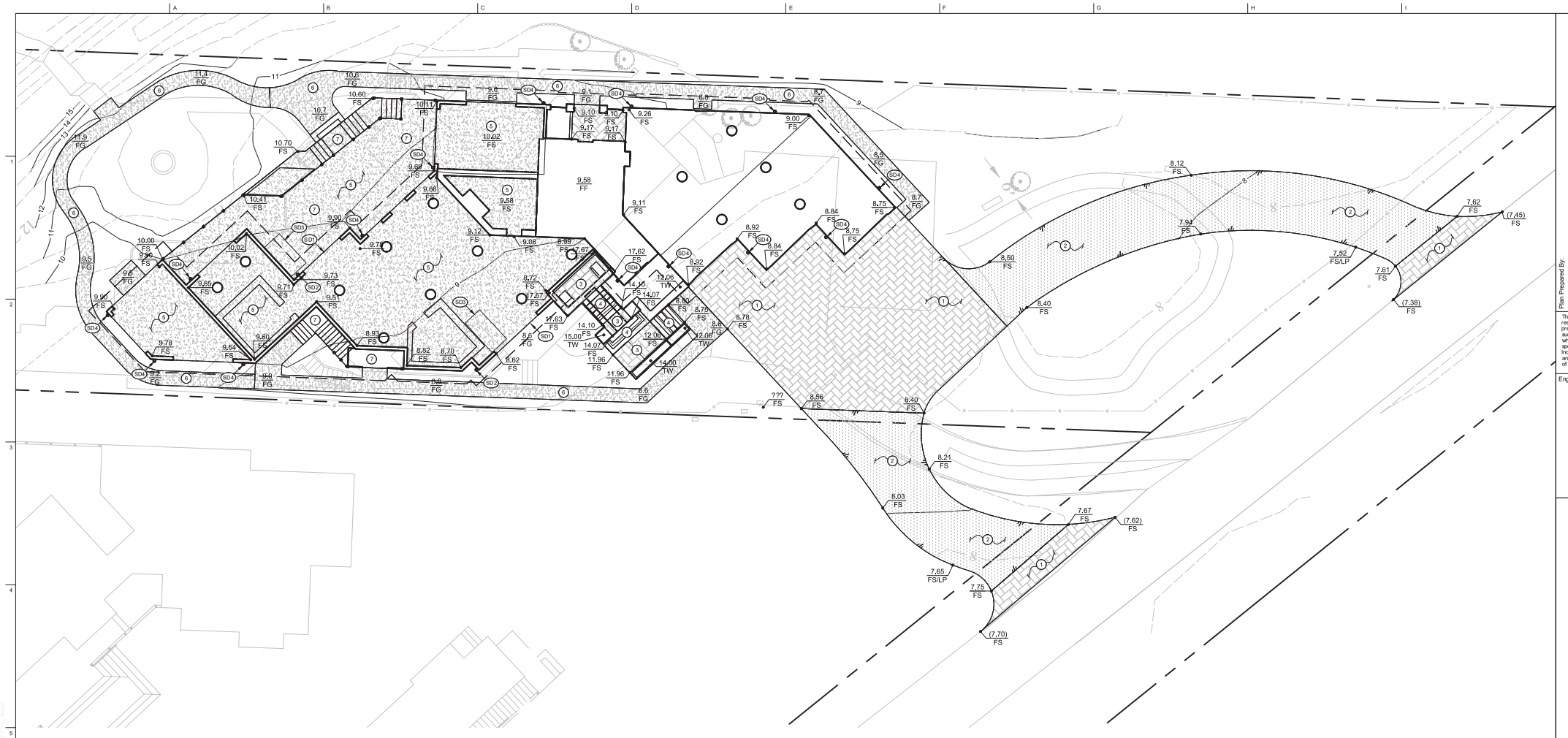
13



SITE CONSTRUCTION NOTES:

1. CONSTRUCT STONE PAVER DRIVEWAY SECTION.
2. CONSTRUCT CHIP SEAL DRIVEWAY SECTION.
3. CONSTRUCT STONE PAVER WALKWAY SECTION.
4. CONSTRUCT CONCRETE STAIRWAY WITH STONE PAVER SURFACE.
5. CONSTRUCT CONCRETE PAD SECTION.
6. CONSTRUCT PERMEABLE GRAVEL WALKWAY.
7. CONSTRUCT WOOD DECK PER ARCHITECTURAL PLANS.

STORM DRAIN CONSTRUCTION NOTES:

SD1 INSTALL GUTTER LEAF DEBRIS COVERS ON GUTTERS TRIBUTARY TO STORAGE TANK.

SD2 INSTALL 1/16-INCH SCREENED COVERS ON DOWNSPOUT INLETS TRIBUTARY TO STORAGE TANK.

SD3 INSTALL 530 GALLON UV STABILIZED PE STORAGE TANK.

SD4 INSTALL DOWNSPOUT OUTLET TO LANDSCAPE.

EARTHWORK INFORMATION

SITE AREA:	1.220 AC
AREA DISTURBED:	0.400 AC
CUT QUANTITY:	260 CUBIC YARDS
FILL QUANTITY:	100 CUBIC YARDS
NET QUANTITY:	160 CUBIC YARDS EXPORT

*NOTE: THE ABOVE QUANTITIES ARE FOR PLANNING AND PERMITTING PURPOSES ONLY. SHRINKAGE; CONSOLIDATION AND SUBSIDENCE FACTORS; LOSSES DUE TO CLEARING AND DEMOLITION OPERATIONS; AND TRENCHING FOR UTILITIES AND FOUNDATIONS ARE NOT INCLUDED. ESTIMATED EARTHWORK QUANTITIES ARE BASED ON THE APPROXIMATE DIFFERENCE BETWEEN EXISTING GRADES AND PROPOSED FINISHED GRADES OR PAVEMENT SUBGRADES, AS INDICATED ON THE PLANS, AND SHOULD VARY ACCORDING TO THESE FACTORS AND LOSSES. THE CONTRACTOR SHALL PERFORM AN EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING A LUMP SUM BID PRICE FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS EARTH MATERIALS.

DIGALERT
DIAL TOLL FREE 811 OR (1-800-227-2600) AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

HORIZONTAL SCALE: 1" = 10'
10 0 10 20

Ashley & Vance ENGINEERING, INC.
1413 Monterey Street
San Luis Obispo, CA 93401
(805) 545-0010 • (323) 744-0010
www.ashleyvance.com
CIVIL • STRUCTURAL

Plan Prepared By

The use of these plans and specifications shall be restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Reproduction or publication by any method, in whole or in part, is prohibited. Title to these plans and specifications remain with Ashley & Vance Engineering, Inc. without prejudice. Visual contact with these plans and specifications shall constitute prima facie evidence of the acceptance of these restrictions.

Engineer of Record:

REGISTERED PROFESSIONAL ENGINEER TIMOTHY G. VANCE No. 63013 CIVIL STATE OF CALIFORNIA
PLANS FOR REVIEW ONLY NOT FOR CONSTRUCTION

COLEMAN RESIDENCE
607 SAND POINT ROAD
CARPINTERIA, CA 93013

Project:

Revisions:

1	
2	
3	
4	
5	

Proj. Engr.:	BRU	Phone Ext.:	121
Proj. Mngr.:	JJG	Phone Ext.:	160
Date:	11/05/2018	Scale:	PER PLAN
A&V Job No.:	171479		

GRADING AND DRAINAGE PLAN

C-2.1



SITE DEMO PLAN

SCALE: 3/32" = 1'-0"

TWO TREES
ARCHITECT

Charles Hilton
ARCHITECTS
170 Mason Street
Greenwich, Connecticut 06830
203 400-5880

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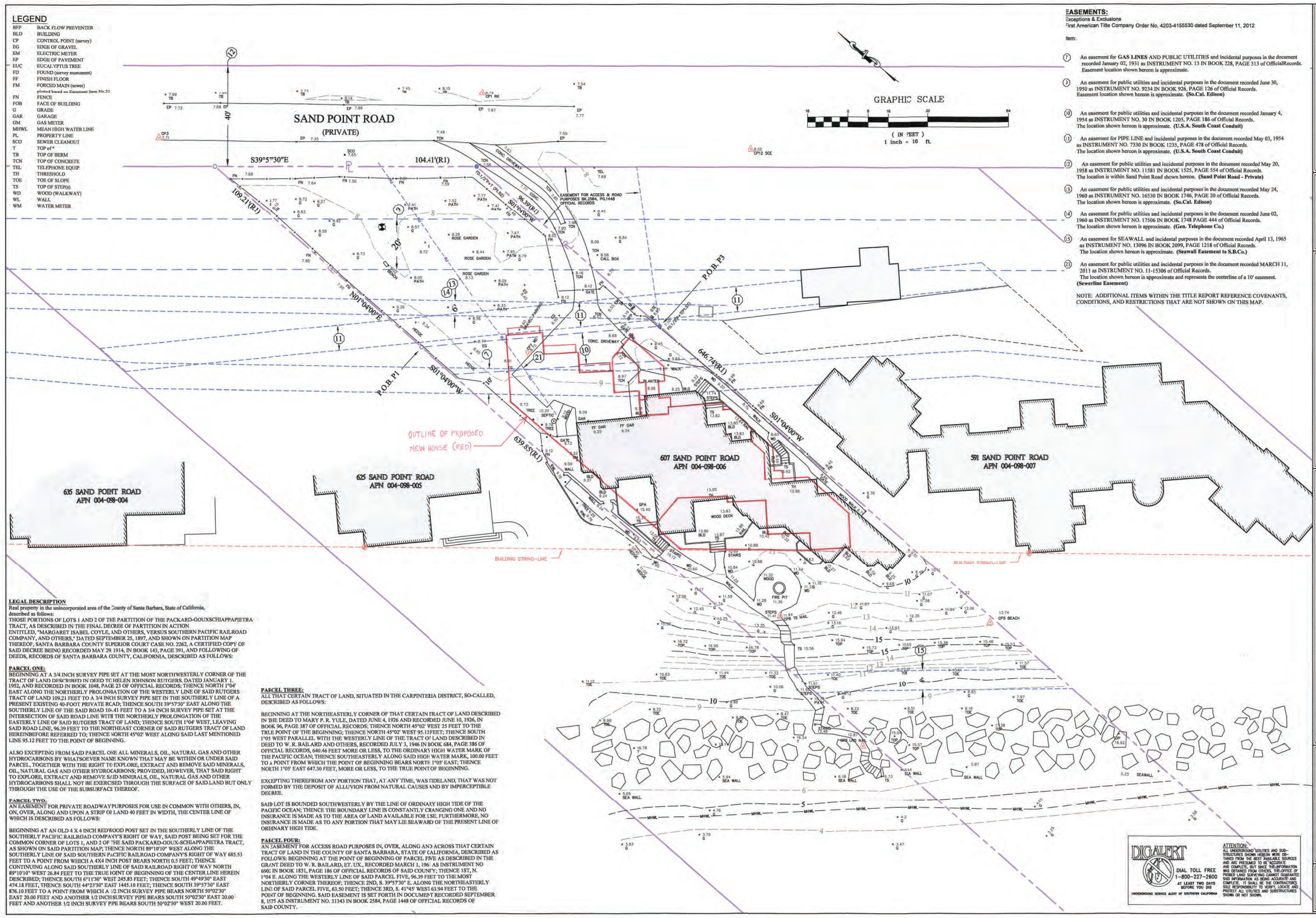

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LEGAL DESCRIPTION
Real property in the unincorporated area of the County of Santa Barbara, State of California, described as follows:
THOSE PORTIONS OF LOTS 1 AND 2 OF THE PARTITION OF THE PACKARD-GOUXSCHIAPPAPIETRA TRACT, AS DESCRIBED IN THE FINAL DECREE OF PARTITION IN ACTION ENTITLED, "MARGARET ISABEL COYLE, AND OTHERS, VERSUS SOUTHERN PACIFIC RAILROAD COMPANY, AND OTHERS," DATED SEPTEMBER 25, 1897, AND SHOWN ON PARTITION MAP THEREOF, SANTA BARBARA COUNTY SUPERIOR COURT CASE NO. 2262, A CERTIFIED COPY OF SAID DECREE BEING RECORDED MAY 29, 1914, IN BOOK 143, PAGE 391, AND FOLLOWING OF DEEDS, RECORDS OF SANTA BARBARA COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL ONE:
BEGINNING AT A 3/4 INCH SURVEY PIPE SET AT THE MOST NORTHWESTERLY CORNER OF THE TRACT OF LAND DESCRIBED IN DEED TO HELEN JOHNSON RUTGERS, DATED JANUARY 1, 1952, AND RECORDED IN BOOK 1048, PAGE 23 OF OFFICIAL RECORDS; THENCE NORTH 1°04' EAST ALONG THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF SAID RUTGERS TRACT OF LAND 109.21 FEET TO A 3/4 INCH SURVEY PIPE SET IN THE SOUTHERLY LINE OF A PRESENT EXISTING 40-FOOT PRIVATE RCAD; THENCE SOUTH 39°57'30" EAST ALONG THE SOUTHERLY LINE OF THE SAID ROAD 10-41 FEET TO A 3/4 INCH SURVEY PIPE SET AT THE INTERSECTION OF SAID ROAD LINE WITH THE NORTHERLY PROLONGATION OF THE EASTERLY LINE OF SAID RUTGERS TRACT OF LAND; THENCE SOUTH 1°04' WEST, LEAVING SAID ROAD LINE, 96.39 FEET TO THE NORTHEAST CORNER OF SAID RUTGERS TRACT OF LAND HEREINBEFORE REFERRED TO; THENCE NORTH 45°02' WEST ALONG SAID LAST MENTIONED LINE 95.12 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPTING FROM SAID PARCEL ONE ALL MINERALS, OIL, NATURAL GAS AND OTHER HYDROCARBONS BY WHATSOEVER NAME KNOWN THAT MAY BE WITHIN OR UNDER SAID PARCEL, TOGETHER WITH THE RIGHT TO EXPLORE, EXTRACT AND REMOVE SAID MINERALS, OIL, NATURAL GAS AND OTHER HYDROCARBONS; PROVIDED, HOWEVER, THAT SAID RIGHT TO EXPLORE, EXTRACT AND REMOVE S.ID MINERALS, OIL, NATURAL GAS AND OTHER HYDROCARBONS SHALL NOT BE EXERCISED THROUGH THE SURFACE OF SAID LAND BUT ONLY THROUGH THE USE OF THE SUBSURFACE THEREOF.

PARCEL TWO:
AN EASEMENT FOR PRIVATE ROADWAY PURPOSES FOR USE IN COMMON WITH OTHERS, IN, ON, OVER, ALONG AND UPON A STRIP OF LAND 40 FEET IN WIDTH, THE CENTER LINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT AN OLD 4 X 4 INCH REDWOOD POST SET IN THE SOUTHERLY LINE OF THE SOUTHERLY PACIFIC RAILROAD COMPANY'S RIGHT OF WAY, SAID POST BEING SET FOR THE COMMON CORNER OF LOTS 1, AND 2 OF THE SAID PACKARD-GOUX-SCHIAPPAPIETRA TRACT, AS SHOWN ON SAID PARTITION MAP; THENCE NORTH 89°19'10" WEST ALONG THE SOUTHERLY LINE OF SAID SOUTHERN PACIFIC RAILROAD COMPANY'S RIGHT OF WAY 685.53 FEET TO A POINT FROM WHICH A 4X4 INCH POST BEARS NORTH 0.5 FEET; THENCE CONTINUING ALONG SAID SOUTHERLY LINE OF SAID RAILROAD RIGHT OF WAY NORTH 89°19'10" WEST 26.84 FEET TO THE TRUE JOINT OF BEGINNING OF THE CENTER LINE HEREIN DESCRIBED; THENCE SOUTH 6°1'30" WEST 245.83 FEET; THENCE SOUTH 49°49'30" EAST 474.18 FEET, THENCE SOUTH 44°23'30" EAST 1445.10 FEET; THENCE SOUTH 39°57'30" EAST 876.10 FEET TO A POINT FROM WHICH A /2 INCH SURVEY PIPE BEARS NORTH 50°02'30" EAST 20.00 FEET AND ANOTHER 1/2 INCH SURVEY PIPE BEARS SOUTH 50°02'30" EAST 20.00 FEET AND ANOTHER 1/2 INCH SURVEY PIPE BEARS SOUTH 50°02'30" WEST 20.00 FEET.

PARCEL THREE:
ALL THAT CERTAIN TRACT OF LAND, SITUATED IN THE CARPINTERIA DISTRICT, SO-CALLED, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEASTERLY CORNER OF THAT CERTAIN TRACT OF LAND DESCRIBED IN THE DEED TO MARY P. R. YULE, DATED JUNE 4, 1926 AND RECORDED JUNE 10, 1926, IN BOOK 96, PAGE 387 OF OFFICIAL RECORDS; THENCE NORTH 45°02' WEST 95.12FEET; THENCE SOUTH 1°05 WEST PARALLEL WITH THE WESTERLY LINE OF THE TRACT OF LAND DESCRIBED IN DEED TO W. R. BAILARD AND OTHERS, RECORDED JULY 3, 1946 IN BOOK 684, PAGE 386 OF OFFICIAL RECORDS, 646.46 FEET MORE OR LESS, TO THE ORDINARY HIGH WATER MARK OF THE PACIFIC OCEAN; THENCE SOUTHEASTERLY ALONG SAID HIGH WATER MARK, 100.00 FEET TO A POINT FROM WHICH THE POINT OF BEGINNING BEARS NORTH 1°05' EAST; THENCE NOUTH 1°05' EAST 647.30 FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY PORTION THAT, AT ANY TIME, WAS TIDELAND, THAT WAS NOT FORMED BY THE DEPOSIT OF ALLUVION FROM NATURAL CAUSES AND BY IMPERCEPTIBLE DEGREE.

SAID LOT IS BOUNDED SOUTHWESTERLY BY THE LINE OF ORDINARY HIGH TIDE OF THE PACIFIC OCEAN; THENCE THE BOUNDARY LINE IS CONSTANTLY CHANGING ONE AND NO INSURANCE IS MADE AS TO THE AREA OF LAND AVAILABLE FOR USE. FURTHERMORE, NO INSURANCE IS MADE AS TO ANY PORTION THAT MAY LIE SEAWARD OF THE PRESENT LINE OF ORDINARY HIGH TIDE.

PARCEL FOUR:
AN EASEMENT FOR ACCESS ROAD PURPOSES IN, OVER, ALONG AND ACROSS THAT CERTAIN TRACT OF LAND IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: BEGINNING AT THE POINT OF BEGINNING OF PARCEL FIVE AS DESCRIBED IN THE GRANT DEED TO W. R. BAILARD, ET. UX., RECORDED MARCH 1, 196 AS INSTRUMENT NO 6902 IN BOOK 1831, PAGE 186 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE 1ST, N. 1°04 E. ALONG THE WESTERLY LINE OF SAID PARCEL FIVE, 96.39 FEET TO THE MOST NORTHERLY CORNER THEREOF; THENCE 2ND, S. 39°57'30" E. ALONG THE NORTHEASTERLY LINE OF SAID PARCEL FIVE, 43.50 FEET; THENCE 3RD, S. 41°45' WEST 63.94 FEET TO THE POINT OF BEGINNING. SAID EASEMENT IS SET FORTH IN DOCUMENT RECORDED SEPTEMBER 8, 1975 AS INSTRUMENT NO. 31343 IN BOOK 2584, PAGE 1448 OF OFFICIAL RECORDS OF SAID COUNTY.

DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ATTENTION:
ALL UNDERGROUND UTILITIES AND SUB-STRUCTURES SHOWN HEREON WERE OBTAINED FROM THE BEST AVAILABLE SOURCES AND ARE BELIEVED TO BE ACCURATE AND COMPLETE, BUT SINCE THIS INFORMATION WAS OBTAINED FROM OTHERS, SUB-URFACE OF UTILITIES CANNOT BE GUARANTEED. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES AND SUBSTRUCTURES PRIOR TO THE START OF ANY CONSTRUCTION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY, LOCATE AND PROTECT ALL UTILITIES AND SUBSTRUCTURES SHOWN OR NOT SHOWN.

PROBER Land Surveying
645 Pinos Vista Drive, Ojai, CA 93023
(805) 646-2811 Fax (805) 646-2811
www.ProberLandSurveying.com

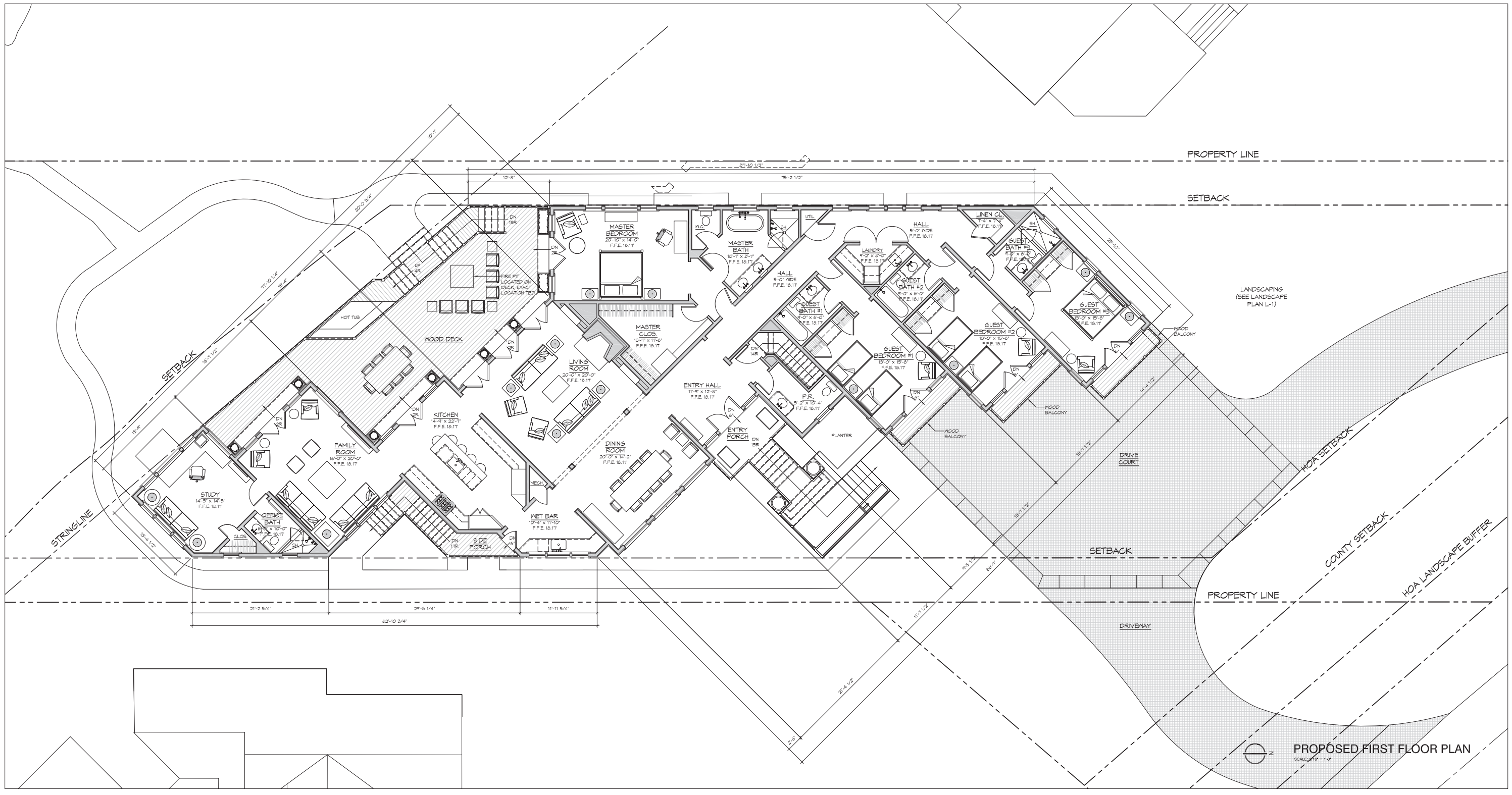
PROFESSIONAL LAND SURVEYOR
JEFFERY K. PROBER
No. 8101
DATE 12-31-18
STATE OF CALIFORNIA

607 Sand Point Road
Carpinteria, CA
Topographic Survey

SURVEYOR'S NOTES:
1. BASIS OF BEARINGS: SANDY LAND TRACT FOR THE N 75°32' OF MAJOR (R1)
2. HORIZONTAL DATUM NAD83, "1997 INITIAL SITA, CA (1997.0 & ADJ. 13°49'11".13' TO 1991.35 EPOCH
3. VERTICAL DATUM NAVD88, "1997 INITIAL SITA, CA (1997.0 & ADJ. 13°49'11".13' TO 1991.35 EPOCH
4. SATELLITE IMAGE (IF SHOWN HEREON) IS FOR INFORMATIONAL PURPOSES ONLY.
5. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES. GRID DISTANCES X 1°34' 49" W 96.39' (R1)
6. ROTATION TO GRID = 1°04' 49"
7. ALL DISTANCES AND ELEVATIONS ESTABLISHED BY RECORD OF SURVEY BK. 85, PG 52.
8. BY STATE LANDS COMMISSION, ELEVATION = 4.33'NAVD88 (CONVERSION: 1'6" NGVD29 = 2.59')
9. SUBJECT TO CHANGE BASED ON FUTURE SURVEYS

Drawn By: JRP
Field Work Performed: 4-5-2017
HOA BUILDING STRING-LINE: 4-19-2017
EASEMENTS UPDATED: 4-21-2017
ACCESS EASEMENT ADDED: 11-4-2017
Scale: 1inch = 16 ft.

E1.2



TWO TREES ARCHITECT

Charles Hilton ARCHITECTS
170 Mason Street
Greenwich, Connecticut 06830
203 486-6800

TWO TREES ARCHITECT EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF TWO TREES ARCHITECT.

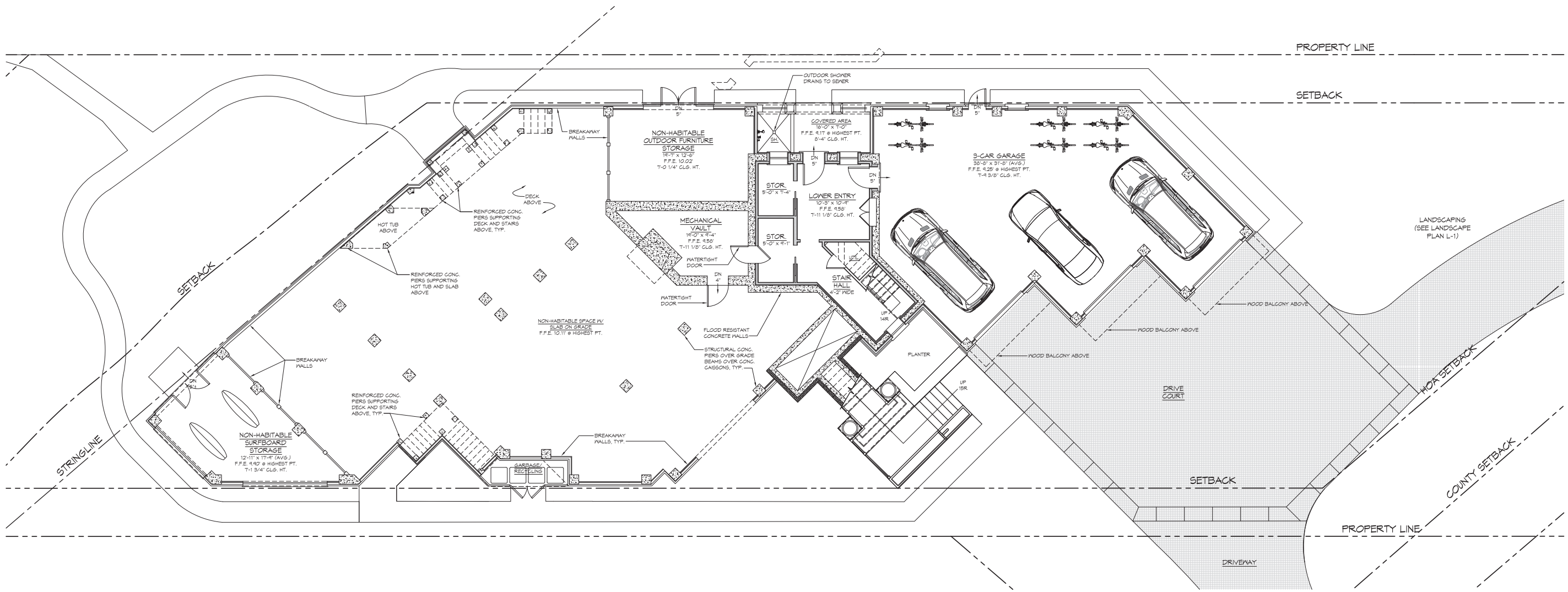
PRELIMINARY NOT FOR CONSTRUCTION

PROJECT:
COLEMAN RESIDENCE
607 Sand Point Road
Carpinteria, CA 93013
004-098-006

JOB NUMBER: 1701

DATE ISSUED:
10 MAY 2018
31 AUGUST 2018
25 SEPTEMBER 2018
6 NOVEMBER 2018
18 MARCH 2019

SHEET: A1.1
OF: 16



N

PROPOSED NON-HABITABLE STORAGE LEVEL PLAN

SCALE: 3/16" = 1'-0"

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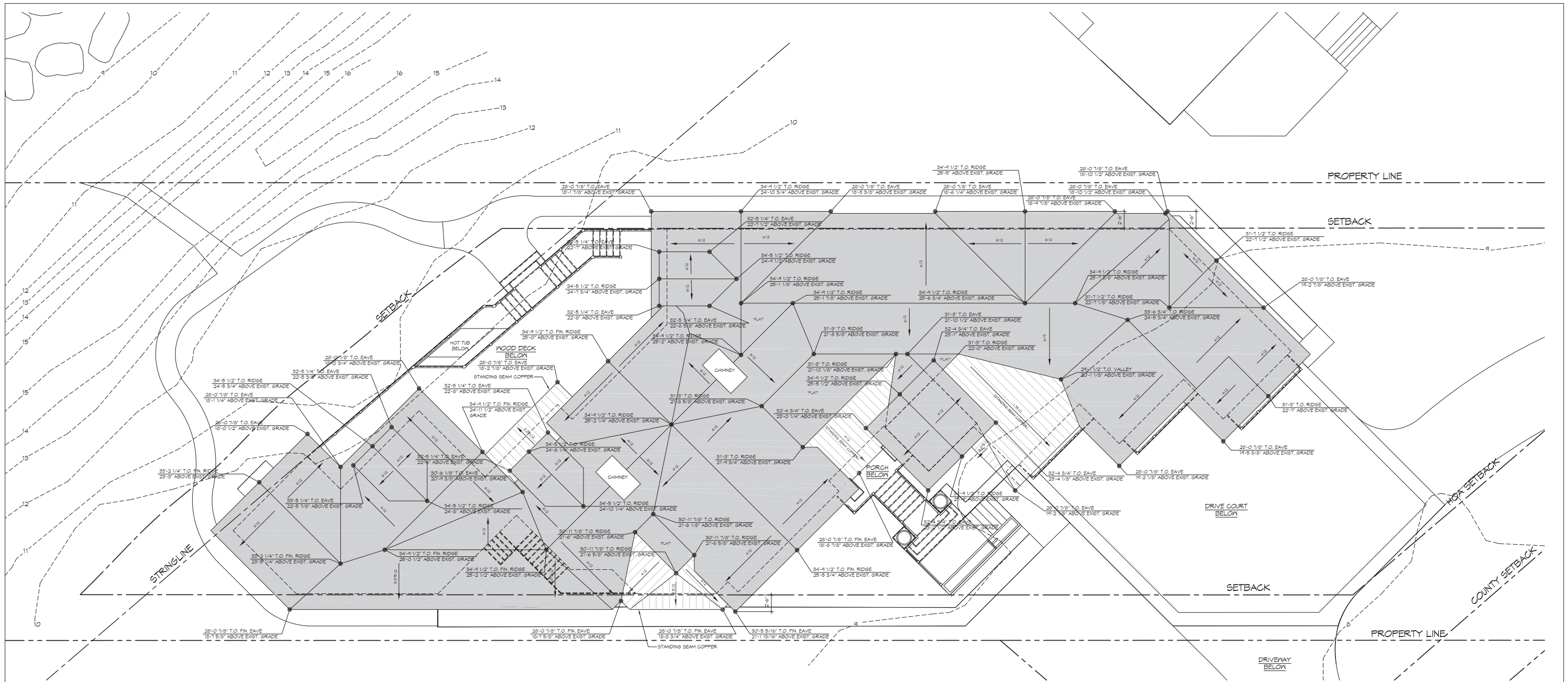

PROPOSED ROOF PLAN

SCALE: 3/16" = 1'-0"

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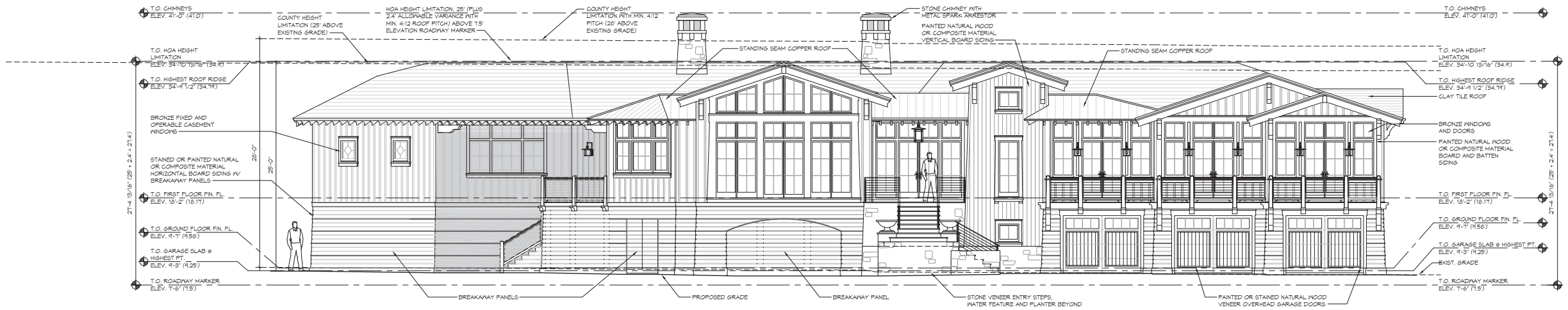
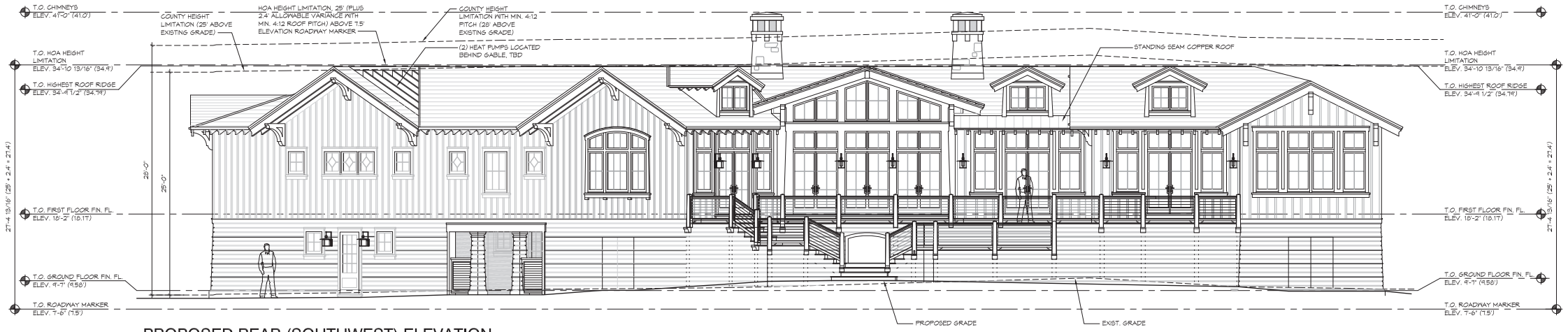


PROPOSED FRONT (NORTHEAST) ELEVATION

SCALE: 3/16" = 1'-0"



PROPOSED REAR (SOUTHWEST) ELEVATION

SCALE: 3/16" = 1'-0"



PAINTED NATURAL WOOD OR COMPOSITE MATERIAL BOARD AND BATTEN SIDING



BRONZE DOORS AND FIXED AND OPERABLE CASEMENT WINDOWS



CLAY TILE ROOF



STAINED OR PAINTED NATURAL OR COMPOSITE MATERIAL HORIZONTAL BOARD SIDING



COPPER STANDING SEAM ROOF



SANTA BARBARA SANDSTONE VENEER FRONT ENTRY STEPS AND CHIMNEYS

TWO TREES
ARCHITECT

Charles Hilton
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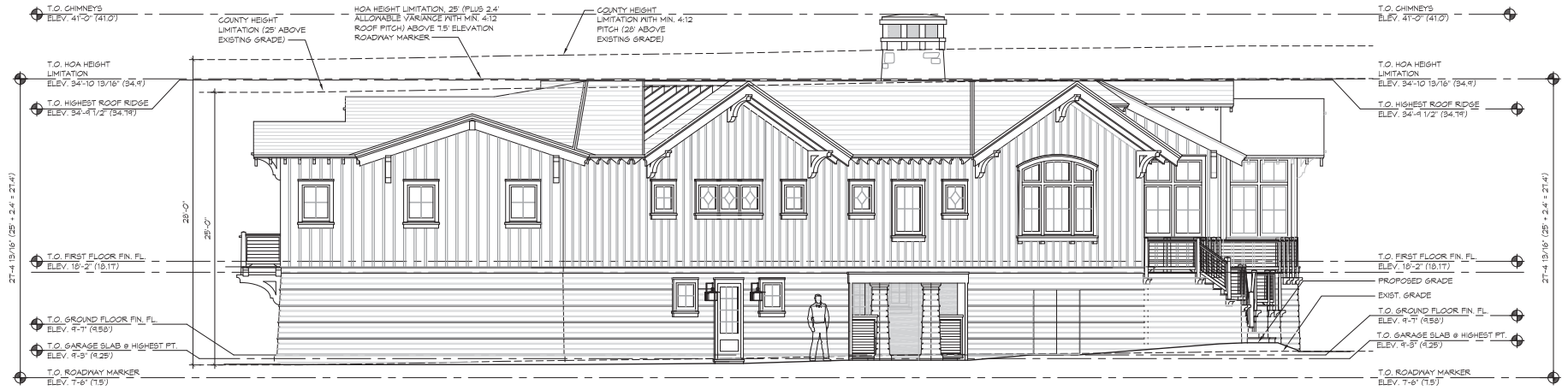
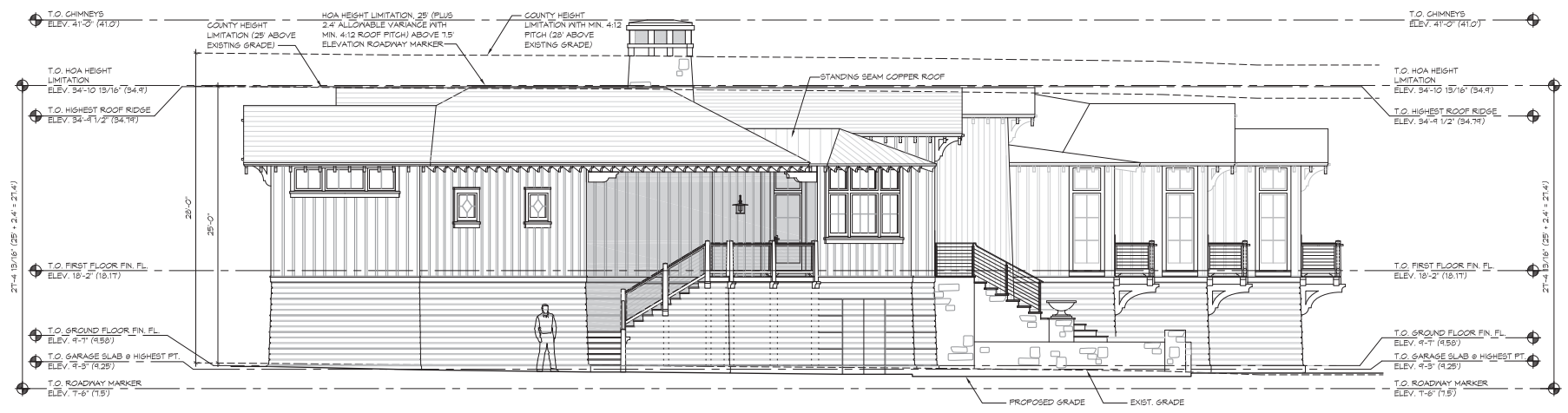


PROPOSED NORTHWEST SIDE ELEVATION

SCALE: 3/16" = 1'-0"



PROPOSED SOUTHEAST SIDE ELEVATION

SCALE: 3/16" = 1'-0"

TWO TREES
ARCHITECT

Charles Hilton
ARCHITECTS
170 Mason Street
Greenwich, Connecticut 06830
203 406-3800

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607 Sand Point Road
Carpinteria, CA 93013
004-098-006

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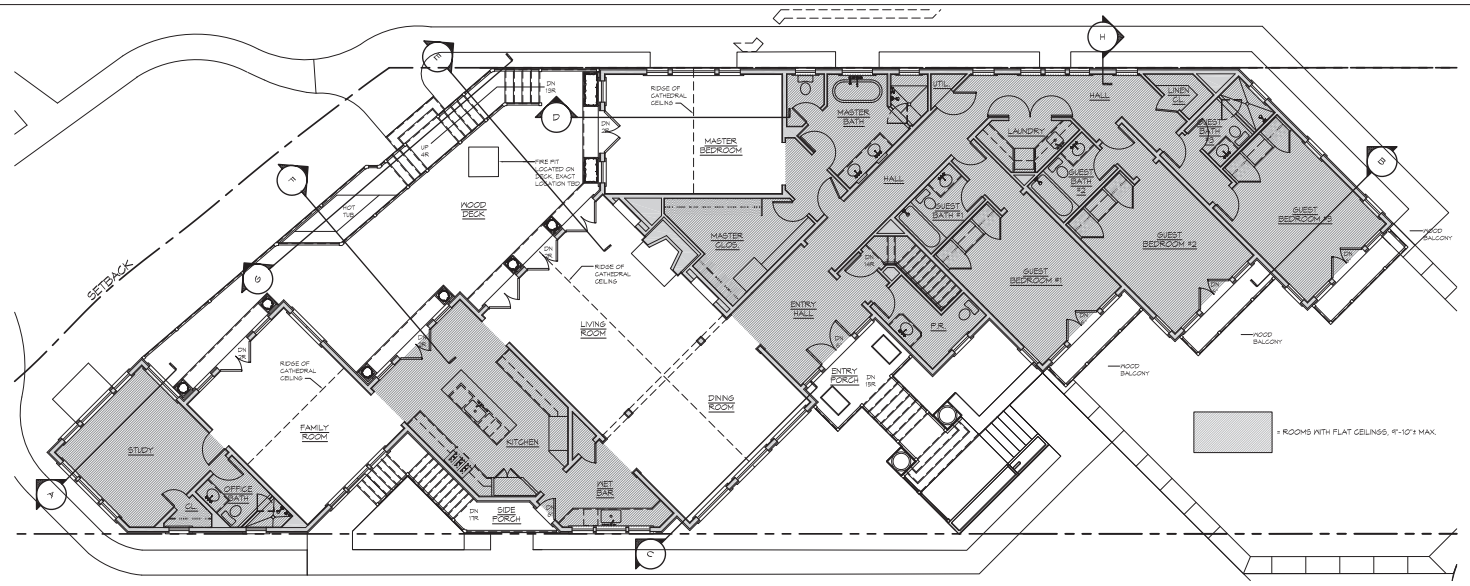
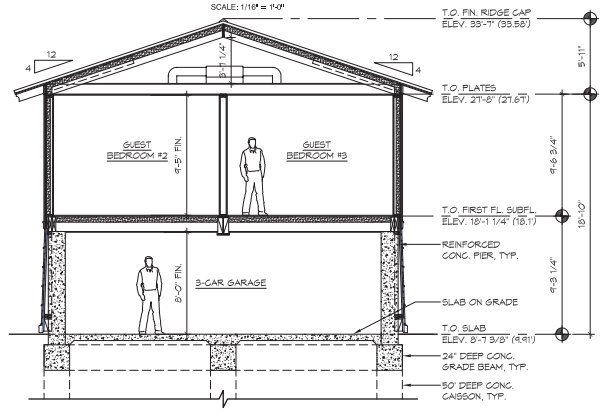


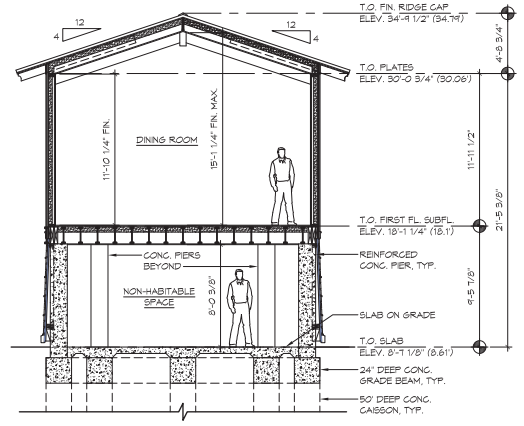
FINISH CEILING DIAGRAM

SCALE: 1/16" = 1'-0"



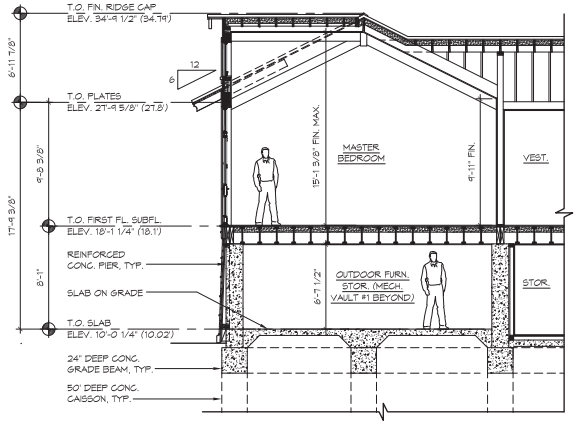
BUILDING SECTION 'B' (THROUGH GUEST BEDROOMS #2 & #3)

SCALE: 3/16" = 1'-0"



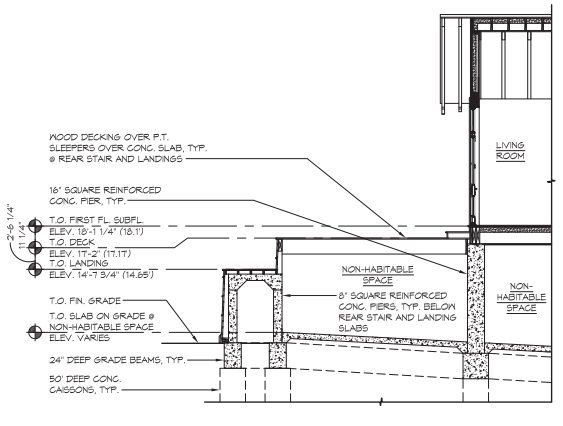
BUILDING SECTION 'C' (THROUGH DINING ROOM)

SCALE: 3/16" = 1'-0"



BUILDING SECTION 'D' (THROUGH MASTER BEDROOM)

SCALE: 3/16" = 1'-0"

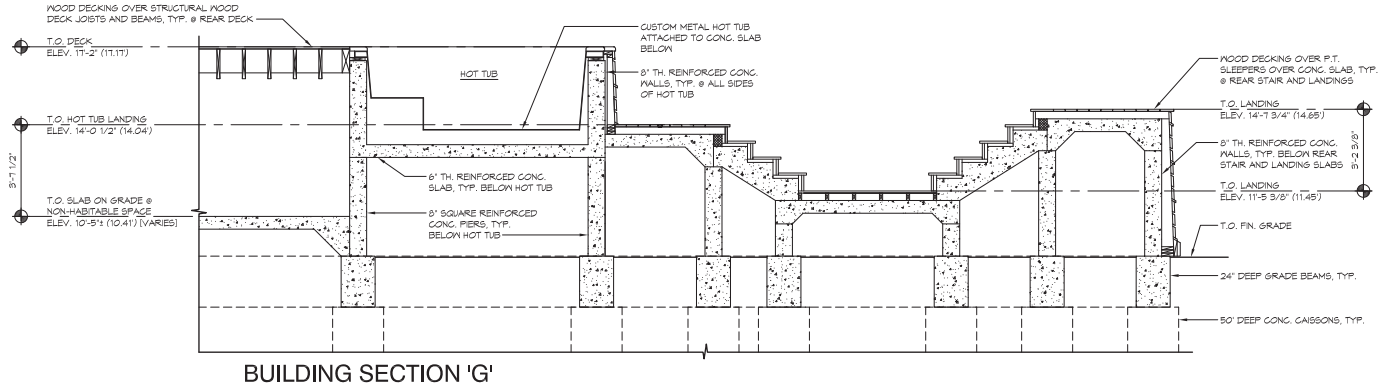


BUILDING SECTION 'E' (THROUGH REAR DECK & STAIR)

SCALE: 3/16" = 1'-0"

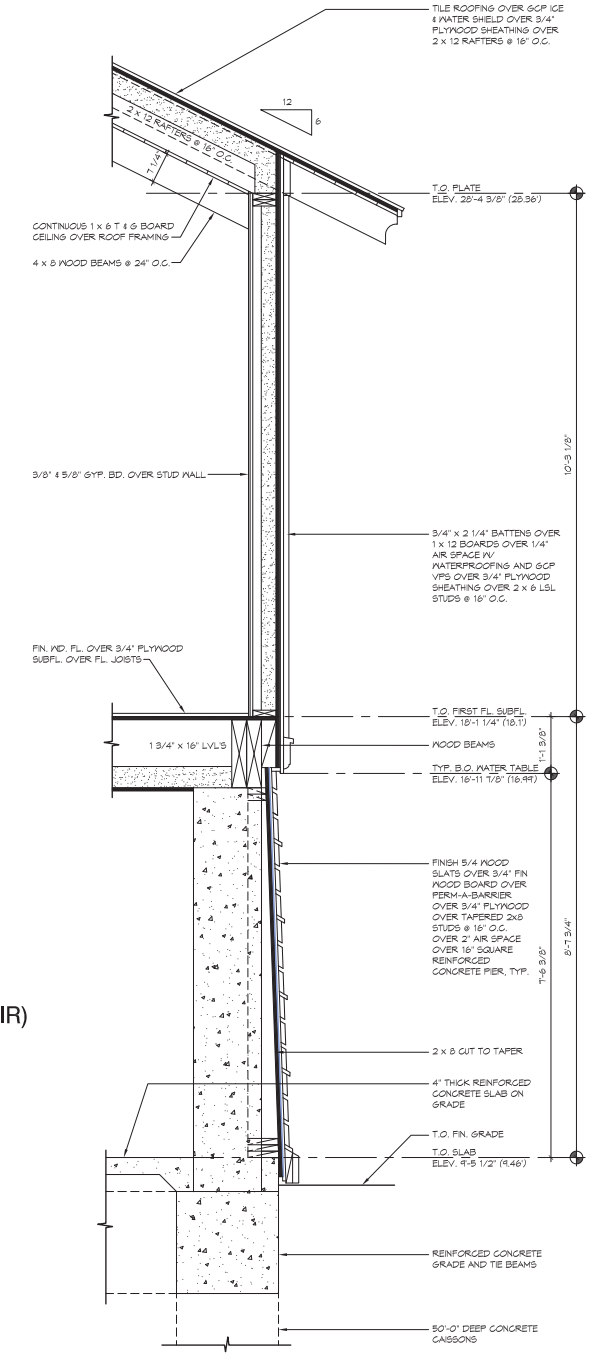
BUILDING SECTION 'F' (THROUGH REAR DECK & HOT TUB)

SCALE: 3/16" = 1'-0"



BUILDING SECTION 'G' (THROUGH STAIR @ REAR DECK)

SCALE: 3/8" = 1'-0"



TYPICAL WALL SECTION 'H'

SCALE: 3/4" = 1'-0"

TWO TREES
ARCHITECT

Charles Hilton
ARCHITECTS
170 Mason Street
Greenwich, Connecticut 06830
203 486-8800

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PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT:
COLEMAN RESIDENCE
607 Sand Point Road
Carpinteria, CA 93013
004-098-006

JOB NUMBER:
1701

DATE ISSUED:
27 AUGUST 2018
25 SEPTEMBER 2018
18 MARCH 2019
9 MAY 2019

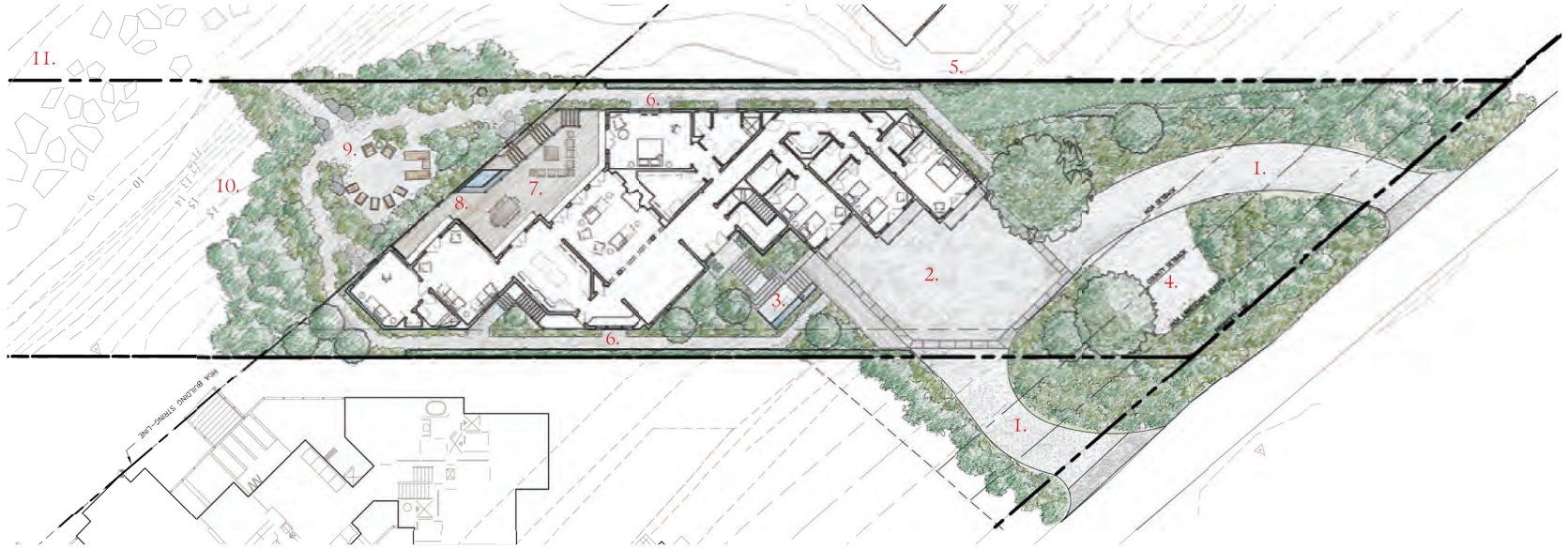
SHEET
A3.1
OF
16

COLEMAN RESIDENCE

607 SAND POINT ROAD | CARPINTERIA, CA

SEPTMBER 21 | 2018

OVERALL LANDSACPE PLAN AND PRECEDENT IMAGES



LEGEND:

1. CHIP & SEAL DRIVEWAY
2. STONE PARKING COURT
3.. FRONT ENTRY WITH WATER FEATURE
4.. FRONT GARDEN
5. EXISTING HEDGE
6. STONE PATH TO REAR YARD
7. WOOD DECK
8. SPA
9. LOUNGE AREA WITH STONE PAVING
10. EXISTING LANDSCAPE AREA WITH SUPPLEMENTAL PLANTINGS
11. BEACH

CONCEPTUAL PLANT LIST:

SMALL TREES AND SHRUBS

Arctostaphylos edmundsii 'Carmel Sur' - Sur Manzanita
Arbutus unedo 'Marina' - Strawberry Tree
Carissa macrocarpa - Natal Plum
Ceanothus griseus 'Yankee Point'
Cistus x purpureus
Coleonema pulchellum - Pink Breath of Heaven
Echium candicans - Pride of Madiera
Elaeagnus x ebbingei - Silverberry
Feijoa sellowiana - Pineapple Guava
Hebe species - Hebe
Leucadendron species - Proteas
Leucophyllum frutescens - Texas Sage
Metrosideros excelsa - New Zealand Christmas Tree
Myrica californica - Bayberry
Pittosporum crassifolium - Karo
Pittosporum tobira - Dwarf Pittosporum
Rosmarinus officinalis - Rosemsary
Rosmarinus officinalis 'Prostratus' - Creeping Rosemary
Teucrium fruticans - Bush Germander

PERENNIALS AND GROUNDCOVER

Arctotis breviscapa - African Daisy
Clivia miniata - Bush Lily
Dietes bicolor - Fortnight Lily
Geranium maderense - Giant herb-robert
Iris germanica 'Cloud Ballet' - Re-blooming Bearded Iris
Leonitis leonurus - Lions Tail
Lavandula intermedia 'Phenomenal' - Phenomenal Lavender
Leymus mollis - Sea Lyme-Grass
Limonium californicum - California Sea Lavender
Pennisetum alpecuroides 'Cassian' - Cassian Dwarf Fountain Grass
Pelargonium tomentosum - Mint-scented Geranium
Salvia leucantha - Mexican Bush Sage

FRONT LANDSCAPE



REAR LANDSCAPE



Doyle Herman Design Associates
LANDSCAPE DESIGN

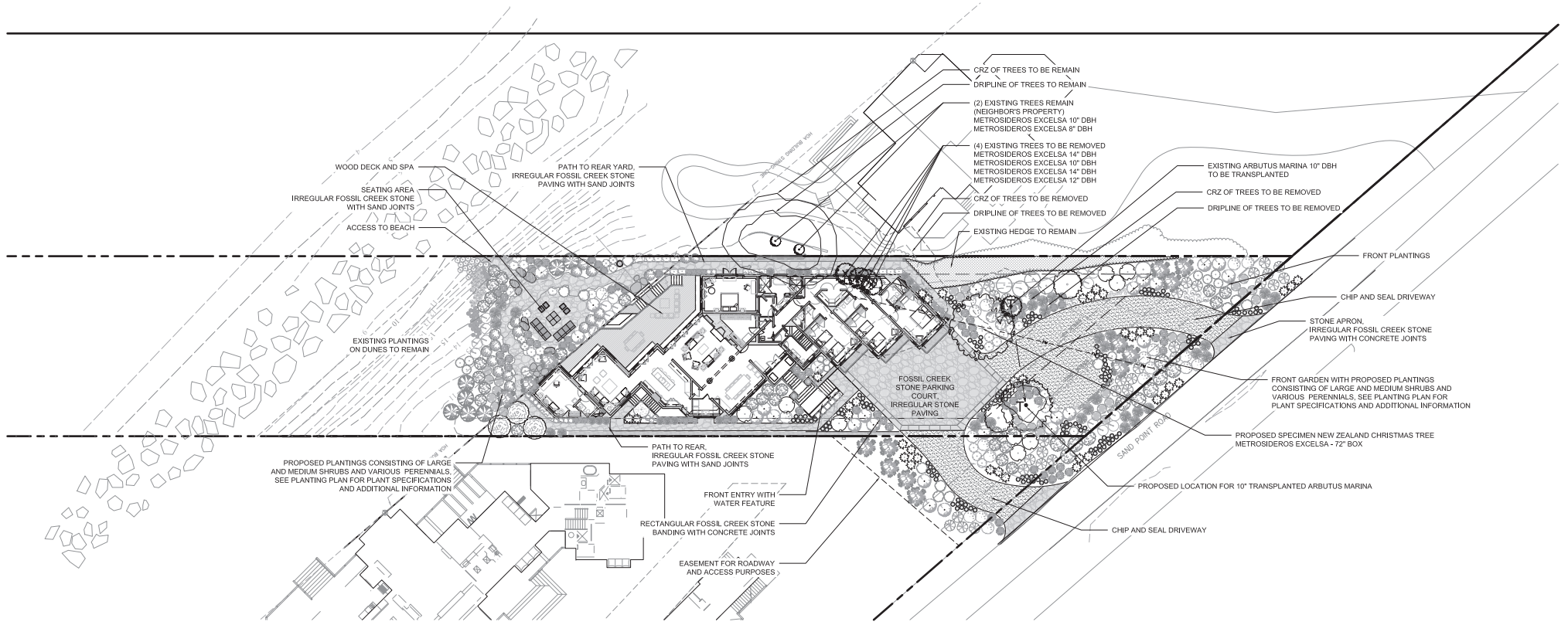
125 GREENWICH AVENUE | GREENWICH CT 06830
203 869 2900 | FAX 203 869 0300 | JDDA.COM

TREE REMOVAL LEGEND:

X — TREE TO BE REMOVED

T — TREE TO BE TRANSPLANTED

TOTAL TREES TO BE REMOVED = 4
TOTAL TREES TO BE TRANSPLANTED = 1



NORTH

0 20' 40'

SCALE: 1" = 20'
TO SCALE WHEN PLOTTED ON 24" X 36"

1. Survey provided by Prober Land Surveying, 645 Flora Vista Drive, Santan Barabara, CA 93109.

2. Doyle Herman Design Associates, LLC takes no responsibility for the accuracy of the information provided by the survey. If the Contractor determines inaccuracies on site, the Contractor shall alert the Landscape Designer prior to construction of any part of the design affected by the perceived inaccuracy.

3. The Contractor shall verify the location of all utilities prior to commencement of any construction activities. The Contractor takes full responsibility for any utilities damaged due to not verifying utility locations, and will repair any damage at the Contractors own expense.

4. The Contractor shall obtain all permits for construction activities as required by the local municipality, state and federal regulations. All permits shall be obtained prior to commencement of the work associated with the permit. The Contractor shall abide by all rules and regulations set forth by the permits required for construction activities.

5. The Contractor shall at all times keep the construction site in an orderly condition, store materials in a pre-determined location, minimize site disturbance, and remove all debris and excess material from the site.

6. The Contractor shall maintain any erosion control measures utilized on site.

No.	Date & Revision
1	--
2	--
3	--
4	--
5	--
6	--
7	--
8	--

D H
D A
Doyle Herman Design Associates

125 GREENWICH AVENUE
GREENWICH, CT 06830
P 203 869 2900

PROJECT:

COLEMAN RESIDENCE
607 SAND POINT ROAD
CARPINTERIA, CA
93013

DWG. TITLE:

LANDSCAPE PLAN

DRAWING FILE: Coleman_2019-03-15.dwg
DRAWN BY: EGG
CHECKED BY: JD
SAVE DATE: March 15, 2019
ISSUE DATE: June 22, 2018 REV. DATE: ----

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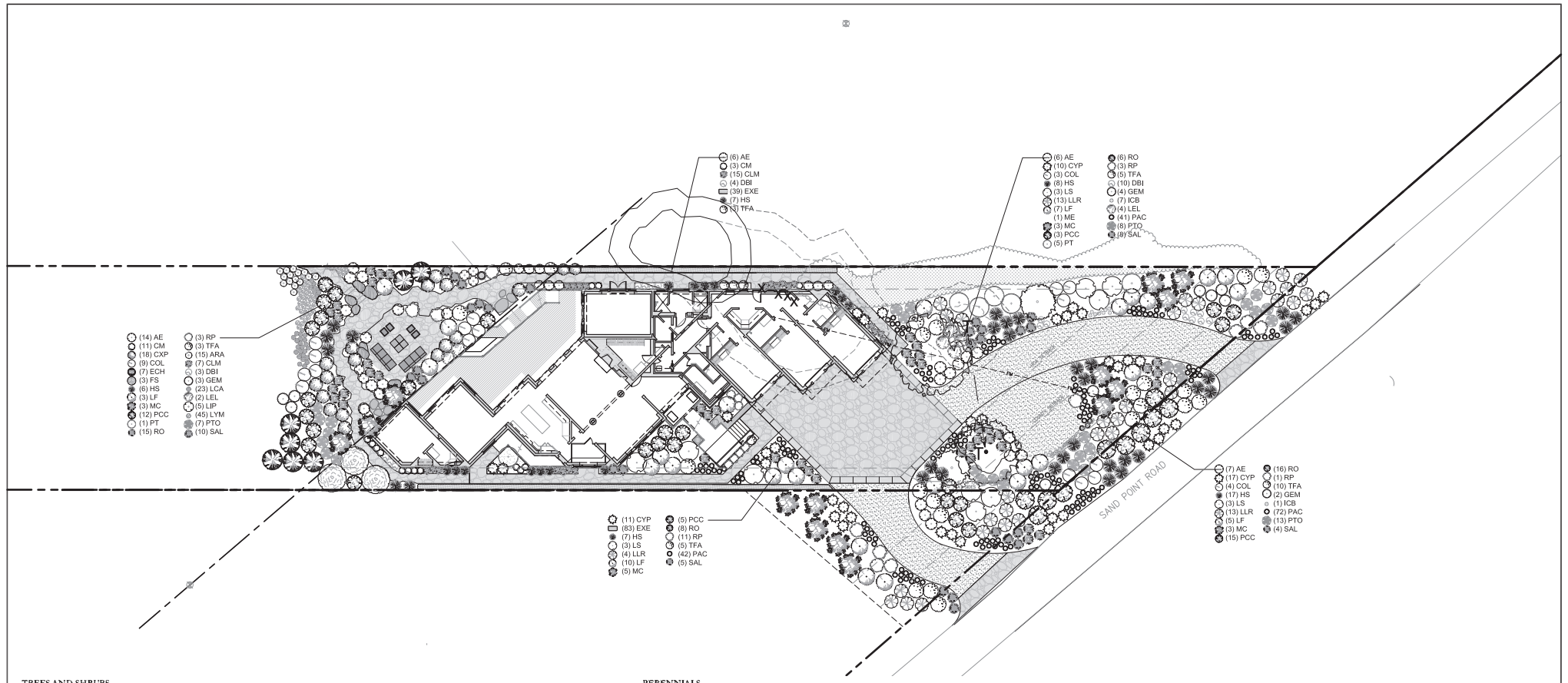

TREES AND SHRUBS

SYM	KEY	QTY	LATIN NAME	COMMON NAME	SIZE	SPACING/NOTES
	AE	33	Arctostaphylus edmundsii 'Carmel Sur'	Sur Manzanita	#5	42" o.c.
	CM	14	Carissa macrocarpa	Natal Plum	#3	24" o.c.
	CYP	38	Ceanothus griseus 'Yankee Point'	Yankee Point California Lilac	#5	36" o.c.
	CXP	18	Cistus x purpureus	Orchid Rockrose	2-3'	48" o.c.
	COL	16	Colocnema pulchellum	Pink Breath of Heaven	3-4'	4' o.c.
	ECH	7	Echium candicans	Pride of Madeira	4'	6' o.c.
	ENE	122	Eleagnus x ebbingei	Silverberry	6-7'	24" o.c. / hedge material
	FS	3	Feijoa sellowiana	Pineapple Guava	7-8'	see plan / multi-stem
	HS	43	Hebe speciosa	Hebe	#5	48" o.c.
	LS	9	Leucadendron 'Safari Sunset'	Conebush	4-5'	6' o.c.
	LLR	39	Leucadendron 'Little Red'	Little red conebush	#5	4' o.c.
	LF	25	Leucophyllum frutescens	Texas Sage	3'	5' o.c.
	ME	1	Metrosideros excelsa	New Zealand Christmas Tree	72" Box	see plan
	MC	14	Myrica californica	Pacific Wax Myrtle	5-6'	7' o.c
	PCC	33	Pittosporum crassifolium 'Compactum'	Karo	#5	54" o.c.
	PT	6	Pittosporum tobira	Dwarf Pittosporum	4'	6' o.c.
	RO	43	Rosmarinus officinalis	Rosemary	#3	36" o.c.
	RP	18	Rosmarinus officinalis 'Prostratus'	Creeping Rosemary	#3	48" o.c.
	TFA	26	Teucrium fruticans 'Azureum'	Bush Germander	2-3'	54" o.c.
	T	3	Transplant		ex.	Transplanted Arbutus and Myrica

PERENNIALS

SYM	KEY	QTY	LATIN NAME	COMMON NAME	SIZE	SPACING/NOTES
	ARA	15	Arctotis acaulis	African Daisy	#1	24" o.c.
	CLM	22	Clivia miniata	Clivia	#3	24" o.c.
	DBI	17	Dietes bicolor	Fortnight Lily	#2	24" o.c.
	GEM	9	Geranium maderense	Giant Herb Robert	36"	42" o.c.
	ICB	17	Iris germanica 'Cloud Ballet'	Light Blue re-blooming German Iris	#1	12" o.c.
	LEL	6	Leonotis leonurus	Lions Tail	#3	18" o.c.
	LIP	8	Lavandula intermedia 'Phenomenal'	Lavender	#2	36" o.c.
	LYM	45	Leymus mollis	Sea Lyme-Grass	#1	15" o.c.
	LCA	23	Limonium californicum	California Sea Lavender	#1	15" o.c.
	PAC	155	Pennisetum alopecuroides 'Cassian'	Cassian Dwarf Fountain Grass	#1	18" o.c.
	PTO	28	Pelargonium tomentosum	Mint-Scented Geranium	#2	42" o.c.
	SAL	27	Salvia leucantha	Sage	#2	36" o.c.

NORTH

0 16' 32'

SCALE: 1/16" = 1'-0"'

TO SCALE WHEN PLOTTED ON 24" X 36"

1. Survey provided by Probst Land Surveying, 645 Flora Vista Drive, Santan Barabara, CA 93109.

2. Doyle Herman Design Associates, LLC takes no responsibility for the accuracy of the information provided by the survey. If the Contractor determines inaccuracies on site, the Contractor shall alert the Landscape Designer prior to construction of any part of the design affected by the perceived inaccuracy.

3. The Contractor shall verify the location of all utilities prior to commencement of any construction activities. The Contractor takes full responsibility for any utilities damaged due to not verifying utility locations, and will repair any damage at the Contractors own expense.

4. The Contractor shall obtain all permits for construction activities as required by the local municipality, state and federal regulations. All permits shall be obtained prior to commencement of the work associated with the permit. The Contractor shall abide by all rules and regulations set forth by the permits required for construction activities.

5. The Contractor shall at all times keep the construction site in an orderly condition, store materials in a predetermined location, minimize site disturbance, and remove all debris and excess material from the site.

6. The Contractor shall maintain any erosion control measures utilized on site.

No.	Date & Revision
1	--
2	--
3	--
4	--
5	--
6	--
7	--
8	--

Doyle Herman Design Associates

125 GREENWICH AVENUE
GREENWICH, CT 06830
P 203 869 2900

PROJECT:

COLEMAN RESIDENCE
607 SAND POINT ROAD
CARPINTERIA, CA
93013

DWG. TITLE:

PLANTING PLAN

DRAWING FILE: Coleman_2019-03-15.dwg

DRAWN BY: EGG

CHECKED BY: JD

SAVE DATE: March 15, 2019

ISSUE DATE: 04/20/2018 REV. DATE: ----

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SHEET NO.

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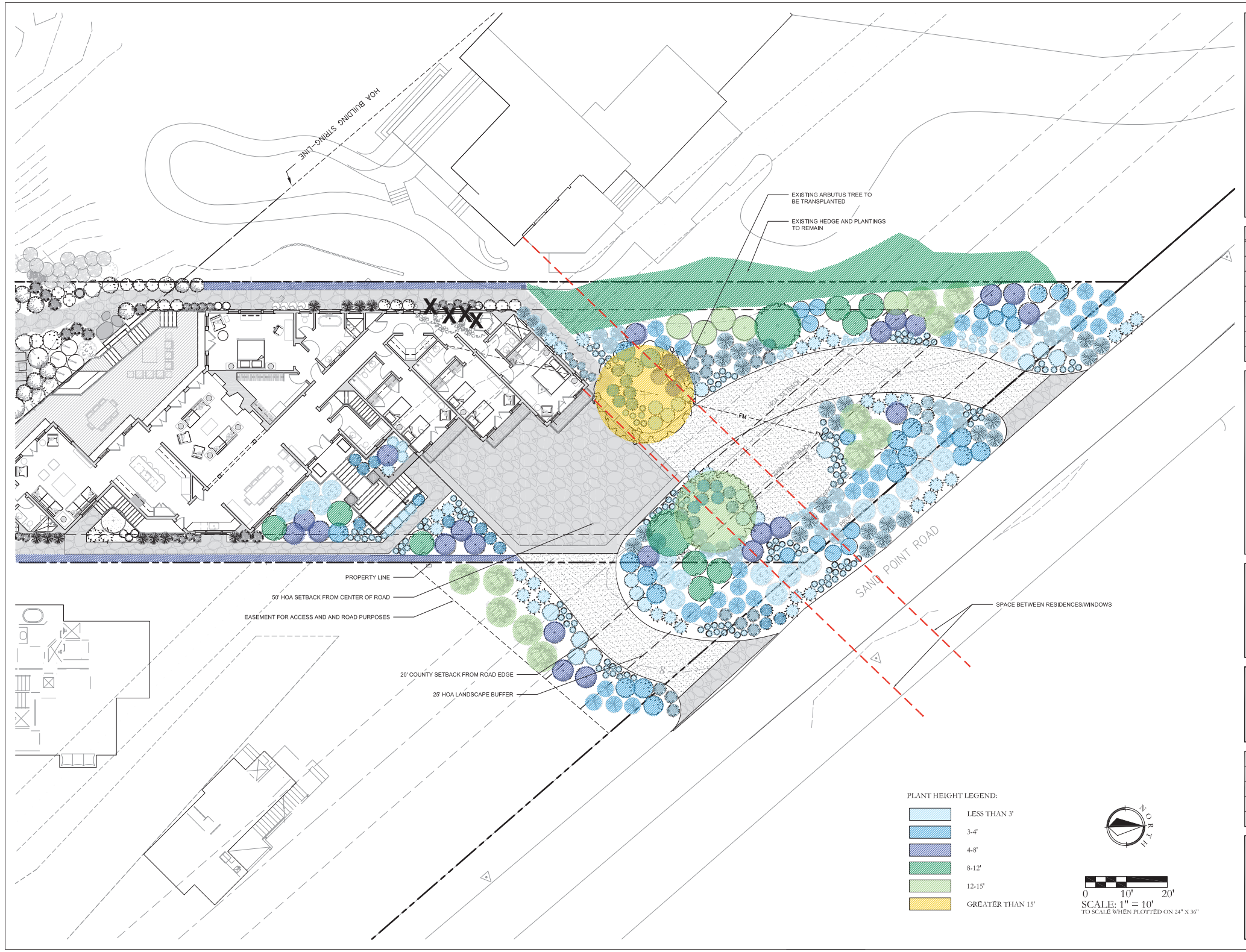

1. Survey provided by Prober Land Surveying, 645 Flora Vista Drive, Santan Barabara, CA 93109.

2. Doyle Herman Design Associates, LLC takes no responsibility for the accuracy of the information provided by the survey. If the Contractor determines inaccuracies on site, the Contractor shall alert the Landscape Designer prior to construction of any part of the design affected by the perceived inaccuracy.

3. The Contractor shall verify the location of all utilities prior to commencement of any construction activities. The Contractor takes full responsibility for any utilities damaged due to not verifying utility locations, and will repair any damage at the Contractors own expense.

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5. The Contractor shall at all times keep the construction site in an orderly condition, store materials in a pre-determined location, minimize site disturbance, and remove all debris and excess material from the site.

6. The Contractor shall maintain any erosion control measures utilized on site.

No.	Date & Revision
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-

D H
D A

Doyle Herman Design Associates

125 GREENWICH AVENUE
GREENWICH, CT 06830
P 203 869 2900

PROJECT:

COLEMAN RESIDENCE
607 SAND POINT ROAD
CARPINTERIA, CA
93013

DWG. TITLE:

PLANT HEIGHT DIAGRAM

DRAWING FILE: Coleman_2018-09-20.dwg
DRAWN BY: EGG
CHECKED BY: JD
SAVE DATE: September 21, 2018
ISSUE DATE: 04/20/2018 REV. DATE: ----

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Attachment C

NOAA Tidal Bench Mark

9411340 - Santa Barbara

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Datums Page

Station ID: 9411340 **PUBLICATION DATE:** 12/05/2016
Name: SANTA BARBARA, PACIFIC OCEAN CA
NOAA Chart: 18725 **Latitude:** 34° 24.5' N
USGS Quad: SANTA BARBARA **Longitude:** 119° 41.1' W

To reach the tidal bench marks from Highway 101 southbound, exit on Castillo Street (Harbor), turn right on Castillo at end of ramp, go straight ahead 2 blocks and turn right onto Cabrillo/Shoreline Drive, proceed one long block and turn left on Harbor Street, which is the parking lot for the harbor. The tide station is located upstairs in Ice House at the end of the City Pier.

T I D A L B E N C H M A R K S

PRIMARY BENCH MARK STAMPING: **1340 S 2005**
DESIGNATION: 941 1340 S

MONUMENTATION: Tidal Station disk VM#: 17815
AGENCY: National Ocean Service (NOS) PID:
SETTING CLASSIFICATION: Stainless steel rod

The primary bench mark is a rod located in a landscaped island in the main parking area for the harbor, 24.51 m (80.4 ft) west of Marina Gate #2, 5.09 m (16.7 ft) WNW of the main road leading into the parking lot, and 1.01 m (3.3 ft) south of the southern most of three palm trees which are also located in the landscaped island. The bench mark is set 5 cm (0.2 ft) below ground level, being the top of a stainless steel rod, driven 16.8 m (55 ft), and encased in a standard NGS aluminum access cover.

BENCH MARK STAMPING: **BM 1 1930**
DESIGNATION: 941 1340 TIDAL 1

MONUMENTATION: Tidal Station disk VM#: 936
AGENCY: US Coast and Geodetic Survey (USC&GS) PID#: EW3742
SETTING CLASSIFICATION: Concrete monument

The bench mark is set in top of a NE concrete guardrail post, at the NE end of the railing on the SE side of the bridge which carries cabrillo boulevard over outlet of mission creek, 95 m (312 ft) NE of the center of the "T" junction of state street and cabrillo boulevard, and 16 m (52 ft) SE of the centerline of cabrillo boulevard, and about 1 m (4 ft) above the sidewalk.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Station ID: 9411340 **PUBLICATION DATE:** 12/05/2016
Name: SANTA BARBARA, PACIFIC OCEAN CA
NOAA Chart: 18725 **Latitude:** 34° 24.5' N
USGS Quad: SANTA BARBARA **Longitude:** 119° 41.1' W

T I D A L B E N C H M A R K S

BENCH MARK STAMPING: **1340 L 1990**
DESIGNATION: 941 1340 L

MONUMENTATION: Tidal Station disk VM#: 943
AGENCY: National Ocean Service (NOS) PID:
SETTING CLASSIFICATION: Concrete sea wall

The bench mark is set flush in a concrete sea wall at the SE corner of the intersection of State Street and Cabrillo Boulevard, 22.25 m (73.0 ft) SW of the centerline of State Street, 15.70 m (51.5 ft) SE of the centerline of Cabrillo Boulevard, 3.32 m (10.9 ft) SW of the NE rounded end of the seawall, and 0.30 m (1.0 ft) above the sidewalk.

BENCH MARK STAMPING: **BM 2 1930**
DESIGNATION: 941 1340 TIDAL 2

MONUMENTATION: Tidal Station disk VM#: 1823
AGENCY: US Coast and Geodetic Survey (USC&GS) PID#: EW3741
SETTING CLASSIFICATION: Sea wall

The bench mark is set in the top center of the SW end of a round concrete sea wall on the SE side of West Cabrillo Blvd, 45.00 m (147.6 ft) NE of the centerline of Castillo Street, 17.71 m (58.1 ft) SE of the centerline of West Cabrillo Blvd, 7.00 m (23.0 ft) NW of the fence surrounding the municipal wading pool, and about 0.60 m (2.0 ft) above the sidewalk.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Station ID: 9411340 **PUBLICATION DATE:** 12/05/2016
Name: SANTA BARBARA, PACIFIC OCEAN CA
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T I D A L B E N C H M A R K S

BENCH MARK STAMPING: **NO 3 1973**
DESIGNATION: 941 1340 TIDAL 3

MONUMENTATION: Tidal Station disk VM#: 12536
AGENCY: US Coast and Geodetic Survey (USC&GS) PID#: EW7026
SETTING CLASSIFICATION: Curb

The bench mark is set in the SE curbing of West Cabrillo Boulevard at the SE end of the storm drain across the street from the Ambassador Motel, about midway between Bath and Chapala Streets, 17.37 m (57.0 ft) NW of three pilings set in the beach, 7.77 m (25.5 ft) NW of the seawall, and 2.80 m (9.2 ft) SW of the "90 minute parking" sign.

BENCH MARK STAMPING: **1340 K 1977**
DESIGNATION: 941 1340 K TIDAL

MONUMENTATION: Tidal Station disk VM#: 12537
AGENCY: National Ocean Survey (NOS) PID#: EW6797
SETTING CLASSIFICATION: Copper-clad steel rod

The benchmark is located 29.57 m (97.0 ft) SW of the westerly corner of the I Banos Del Mar Swimming pool located at the SW corner of the Marina, 10.79 m (35.4 ft) east of the centerline of the road that leads into the north parking lot, 0.83 m (2.7 ft) SSW of a light pole with a witness post sign, 0.60 m (2.0 ft) north of a concrete storm drain, 0.56 m (1.8 ft) east of West Cabrillo Blvd. curb, and 0.10 m (0.33 ft) below grass level under a toilet seat lid. The bench mark is set 10 cm (0.3 ft) below ground level, crimped to the top of a 5/8-inch copper clad steel rod driven to a depth of 12.2 m (40 ft), and encased in a 4-inch PVC pipe set flush with ground level.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Station ID: 9411340 **PUBLICATION DATE: 12/05/2016**
Name: SANTA BARBARA, PACIFIC OCEAN CA
NOAA Chart: 18725 **Latitude: 34° 24.5' N**
USGS Quad: SANTA BARBARA **Longitude: 119° 41.1' W**

T I D A L B E N C H M A R K S

BENCH MARK STAMPING: 1340 T 2005
DESIGNATION: 941 1340 T

MONUMENTATION: Tidal Station disk VM#: 17813
AGENCY: National Ocean Service (NOS) PID:
SETTING CLASSIFICATION: Stainless steel rod

The bench mark is a rod located in a landscaped island in the main parking area for the harbor, 29.87 m (98.0 ft) west of Marina Gate #3, 4.65 m (15.2 ft) west of the centerline of the main road leading into the parking lot, 3.66 m (12.0 ft) NE of the south end of the island, and 0.81 m (2.7 ft) west of the east side of the curb where an expansion crack is located. The bench mark is set 5 cm (0.2 ft) below ground level, being the top of a stainless steel rod, driven 19.5 m (64 ft), and encased in a standard NGS aluminum access cover.

BENCH MARK STAMPING: 1340 R 2005
DESIGNATION: 941 1340 R

MONUMENTATION: Tidal Station disk VM#: 17814
AGENCY: National Ocean Service (NOS) PID:
SETTING CLASSIFICATION: Sea wall

The bench mark is set in a sea wall located at the SW corner of the Marina, 10.79 m (35.4 ft) east of the centerline of the road that leads into the north parking lot, 2.80 m (9.2 ft) south of a storm drain where it exits the seawall, 1.31 m (4.3 ft) north of the south end of the sea wall, and 0.30 m (1.0 ft) above the adjacent sidewalk.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Station ID: 9411340 **PUBLICATION DATE: 12/05/2016**
Name: SANTA BARBARA, PACIFIC OCEAN CA
NOAA Chart: 18725 **Latitude: 34° 24.5' N**
USGS Quad: SANTA BARBARA **Longitude: 119° 41.1' W**

T I D A L B E N C H M A R K S

BENCH MARK STAMPING: EL 11.42 MLLW
DESIGNATION: 941 1340 EL 11.42

MONUMENTATION: Tidal Station disk VM#: 18097
AGENCY: City of Santa Barbara PID:
SETTING CLASSIFICATION: Concrete bulkhead

The bench mark is set in the concrete bulkhead walkway, 10.06 m (33.0 ft) SE of the SE inshore end of City Pier, 3.90 m (12.8 ft) north of the NW corner of the West Marine store (132 Harbor Way), and 2.50 m (8.2 ft) SW of an electric vault in the walkway.

BENCH MARK STAMPING: SB2-RESET, 2006
DESIGNATION: 941 1340 SB2 RESET

MONUMENTATION: Survey disk VM#: 18676
AGENCY: US Army Corp Of Engineers (USE) PID:
SETTING CLASSIFICATION: Concrete sidewalk

The benchmark is set in the center of a concrete breakwater sidewalk in the SE corner of Santa Barbara Harbor, 132.10 m (433.4 ft) SE of the east corner of the Harbormaster building by continuously measuring along the curved breakwater seawall, 59.70 m (195.9 ft) SE then east from the centerline of the entrance to Marina One floating dock by measuring continuously along the curved sidewalk handrail, 2.01 m (6.6 ft) NW of the sea wall, and 1.47 m (4.8 ft) SE of the first flag pole.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Station ID: 9411340 **PUBLICATION DATE:** 12/05/2016
Name: SANTA BARBARA, PACIFIC OCEAN CA
NOAA Chart: 18725 **Latitude:** 34° 24.5' N
USGS Quad: SANTA BARBARA **Longitude:** 119° 41.1' W

T I D A L D A T U M S

Tidal datums at SANTA BARBARA, PACIFIC OCEAN based on:

LENGTH OF SERIES:	16 YEARS
TIME PERIOD:	Jan 91- Dec 97 & Nov 05-Oct 07 & April 08-March 10
TIDAL EPOCH:	1983-2001
CONTROL TIDE STATION:	9410660 LOS ANGELES, OUTER HARBOR

Elevations of tidal datums referred to Mean Lower Low Water (MLLW), in METERS:

HIGHEST OBSERVED WATER LEVEL (12/13/2012)		=	2.324
MEAN HIGHER HIGH WATER	MHHW	=	1.645
MEAN HIGH WATER	MHW	=	1.415
MEAN TIDE LEVEL	MTL	=	0.857
MEAN SEA LEVEL	MSL	=	0.851
MEAN LOW WATER	MLW	=	0.299
North American Vertical Datum	NAVD88	=	0.027
MEAN LOWER LOW WATER	MLLW	=	0.000
LOWEST OBSERVED WATER LEVEL (12/17/1933)		=	-0.882

North American Vertical Datum (NAVD88)

Bench Mark Elevation Information In METERS above:

Stamping or Designation	MLLW	MHW
1340 S 2005	3.177	1.762
BM 1 1930	4.962	3.547
1340 L 1990	3.781	2.366
BM 2 1930	3.954	2.539
NO 3 1973	3.218	1.803
1340 K 1977	3.549	2.134
1340 T 2005	2.841	1.426
1340 R 2005	3.196	1.781
EL 11.42 MLLW	3.470	2.055
SB2-RESET, 2006	3.761	2.346

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service

Station ID: 9411340 **PUBLICATION DATE:** 12/05/2016
Name: SANTA BARBARA, PACIFIC OCEAN CA
NOAA Chart: 18725 **Latitude:** 34° 24.5' N
USGS Quad: SANTA BARBARA **Longitude:** 119° 41.1' W

D E F I N I T I O N S

Mean Sea Level (MSL) is a tidal datum determined over a 19-year National Tidal Datum Epoch. It pertains to local mean sea level and should not be confused with the fixed datums of North American Vertical Datum of 1988 (NAVD88).

NAVD88 is a fixed datum derived from a simultaneous, least squares, minimum constraint adjustment of Canadian/Mexican/United States leveling observations. Local mean sea level observed at Father Point/Rimouski, Canada was held fixed as the single initial constraint. NAVD88 replaces NGVD29 as the national standard geodetic reference for heights. Bench mark elevations relative to NAVD88 are available from NGS through the World Wide Web at National Geodetic Survey.

NGVD29 is a fixed datum adopted as a national standard geodetic reference for heights but is now considered superseded. NGVD29 is sometimes referred to as Sea Level Datum of 1929 or as Mean Sea Level on some early issues of Geological Survey Topographic Quads. NGVD29 was originally derived from a general adjustment of the first-order leveling networks of the U.S. and Canada after holding mean sea level observed at 26 long term tide stations as fixed. Numerous local and wide-spread adjustments have been made since establishment in 1929. Bench mark elevations relative to NGVD29 are available from the National Geodetic Survey (NGS) data base via the World Wide Web at National Geodetic Survey.

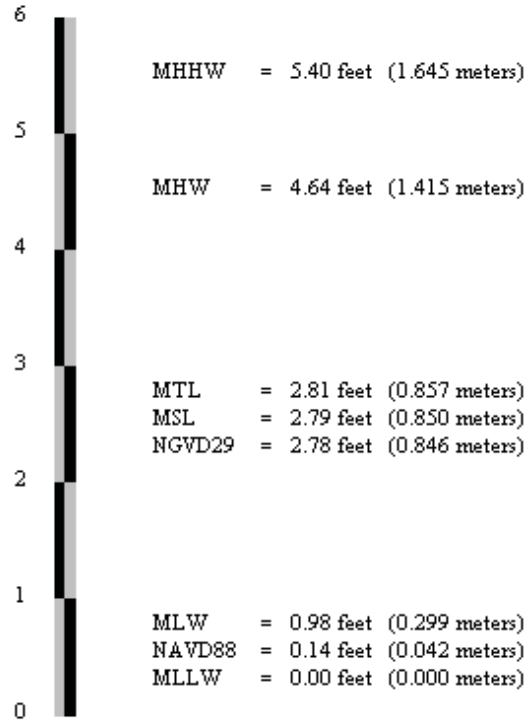
NAVD88 and NGVD29 are fixed geodetic datums whose elevation relationships to local MSL and other tidal datums may not be consistent from one location to another.

The Vertical Mark Number (VM#) and PID# shown on the bench mark sheet are unique identifiers for bench marks in the tidal and geodetic databases, respectively. Each bench mark in either database has a single, unique VM# and/or PID# assigned. Where both VM# and PID# are indicated, both tidal and geodetic elevations are available for the bench mark listed.

The NAVD88 elevation is shown on the Elevations of Tidal Datums Table Referred to MLLW only when two or more of the bench marks listed have NAVD88 elevations. The NAVD88 elevation relationship shown in the table is derived from an average of several bench mark elevations relative to tide station datum. As a result of this averaging, NAVD88 bench mark elevations computed indirectly from the tidal datums elevation table may differ slightly from NAVD88 elevations listed for each bench mark in the NGS database.

ELEVATION INFORMATION

PID: EW3742
VM: 936
STATION ID: 9411340
EPOCH: 1983-2001
DATE: Sunday, July 31, 2016 1:35:11 PM EST



The NAVD 88 and the NGVD 29 elevations related to MLLW were computed from Bench Mark, 941 1340 TIDAL 1, at the station.

Displayed tidal datums are Mean Higher High Water(MHHW), Mean High Water (MHW), Mean Tide Level(MTL), Mean Sea Level (MSL), Mean Low Water(MLW), and Mean Lower Low Water(MLLW) referenced on 1983-2001 Epoch.

Attachment D

State of California Sea-Level Rise Guidance

Projected Sea-Level Rise (in feet) for Santa Barbara

TABLE 22: Projected Sea-Level Rise (in feet) for Santa Barbara

Probabilistic projections for the height of sea-level rise shown below, along with the H++ scenario (depicted in blue in the far right column), as seen in the Rising Seas Report. The H++ projection is a single scenario and does not have an associated likelihood of occurrence as do the probabilistic projections. Probabilistic projections are with respect to a baseline of the year 2000, or more specifically the average relative sea level over 1991 - 2009. High emissions represents RCP 8.5; low emissions represents RCP 2.6. ***Recommended projections for use in low, medium-high and extreme risk aversion decisions are outlined in blue boxes below.***

		Probabilistic Projections (in feet) (based on Kopp et al. 2014)					H++ scenario (Sweet et al. 2017) *Single scenario
		MEDIAN	LIKELY RANGE		1-IN-20 CHANCE	1-IN-200 CHANCE	
		50% probability sea-level rise meets or exceeds...	*66% probability sea-level rise is between...*		*5% probability sea-level rise meets or exceeds...*	*0.5% probability sea-level rise meets or exceeds...*	
				Low Risk Aversion		Medium - High Risk Aversion	Extreme Risk Aversion
High emissions	2030	0.3	0.2 -	0.4	0.5	0.7	1.0
	2040	0.5	0.3 -	0.7	0.8	1.1	1.6
	2050	0.7	0.4 -	1.0	1.2	1.8	2.5
Low emissions	2060	0.7	0.4 -	1.0	1.4	2.2	
High emissions	2060	0.9	0.6 -	1.3	1.6	2.5	3.6
Low emissions	2070	0.9	0.5 -	1.3	1.7	2.8	
High emissions	2070	1.1	0.7 -	1.7	2.1	3.3	4.9
Low emissions	2080	1.0	0.5 -	1.5	2.0	3.6	
High emissions	2080	1.4	0.9 -	2.1	2.7	4.3	6.3
Low emissions	2090	1.1	0.6 -	1.8	2.4	4.4	
High emissions	2090	1.7	1.1 -	2.6	3.3	5.3	7.9
Low emissions	2100	1.2	0.6 -	2.0	2.9	5.3	
High emissions	2100	2.1	1.2 -	3.1	4.1	6.6	9.8
Low emissions	2110*	1.3	0.7 -	2.1	3.0	5.9	
High emissions	2110*	2.2	1.4 -	3.2	4.2	6.9	11.5
Low emissions	2120	1.4	0.7 -	2.4	3.5	7.0	
High emissions	2120	2.5	1.7 -	3.7	4.9	8.2	13.7
Low emissions	2130	1.5	0.8 -	2.6	3.9	8.0	
High emissions	2130	2.9	1.8 -	4.2	5.6	9.5	16.0
Low emissions	2140	1.6	0.8 -	2.9	4.4	9.1	
High emissions	2140	3.1	2.0 -	4.8	6.4	11.0	18.6
Low emissions	2150	1.8	0.7 -	3.2	5.0	10.5	
High emissions	2150	3.5	2.2 -	5.3	7.2	12.6	21.4

**Most of the available climate model experiments do not extend beyond 2100. The resulting reduction in model availability causes a small dip in projections between 2100 and 2110, as well as a shift in uncertainty estimates (see Kopp et al. 2014). Use of 2110 projections should be done with caution and with acknowledgement of increased uncertainty around these projections.*

Attachment E

NOAA Nautical Chart 18725

CAUTION

Submarine Pipelines

Uncharted submarine pipelines may exist in the vicinity of oil well structures, and between such structures and the shoreline. Mariners should use caution when anchoring.

SCALE 1:50,000

Nautical Miles

1 ½ 0 1 2 3 4

Yards

1000 0 1000 2000 3000 4000 5000 6000

WARNING

The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot for details.

Formerly C&GS 5120, 1st Ed., Mar. 1958 KAPP 1884

119° 40' 35' 30'

THE NATION'S CHARTMAKER SINCE 1807

UNITED STATES -WEST COAST

CALIFORNIA

PORT HUENEME TO SANTA BARBARA

Mercator Projection
Scale 1:50,000 at Lat. 34°18'
North American Datum of 1983
(World Geodetic System 1984)

SOUNDINGS IN FATHOMS
(FATHOMS AND FEET TO ELEVEN FATHOMS)
AT MEAN LOWER LOW WATER

For Symbols and Abbreviations see Chart No. 1
Additional information can be obtained at nauticalcharts.noaa.gov.
COLREGS: International Regulations for Preventing Collisions at Sea, 1972.
Demarcation lines are shown thus: ———

TIDAL INFORMATION

PLACE NAME	(LAT/LONG)	Height referred to datum of soundings (MLLW) Mean Higher High Water	Mean High Water	Mean Low Water
		feet	feet	feet
Port Hueneme	(34°09'N/119°12'W)	5.4	4.7	1.0
Ventura	(34°16'N/119°17'W)	5.4	4.7	1.0
Santa Barbara	(34°24'N/119°41'W)	5.4	4.6	1.0

Dashes (- - -) located in datum columns indicate unavailable datum values for a tide station. Real-time water levels, tide predictions, and tidal current predictions are available on the Internet from http://tidesandcurrents.noaa.gov.

(Apr 2013)

HEIGHTS

Elevations of rocks, bridges, landmarks and lights are in feet and refer to Mean High Water Contour and summit elevation values are in feet and refer to Mean Sea Level

AUTHORITIES

Hydrography and topography by the National Ocean Service, Coast Survey, with additional data from the Corps of Engineers, Geological Survey, and U.S. Coast Guard.

HORIZONTAL DATUM

The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83), which for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to the North American Datum of 1927 must be corrected an average of 0.002" southward and 3.418" westward to agree with this chart.

SUPPLEMENTAL INFORMATION

Consult U.S. Coast Pilot 7 for important supplemental information.

NOTE K

MARINER ACTIVATED SOUN

Horn is activated by keying the
Ch 81-horn will operate for thirty m

Design Beach Profile

SANTA BARBARA
Fl 10s 142ft 14M

Santa Barbara Pt

Pt Castillo

Mission Cr

Sycamore Canyon

Montecito

Summerland

Romero Canyon

Toro Canyon

Oil Canyon

Paredon Cr

Serena Park

Arroyo Serena

Sandyland

Marsh

Carpinteria

Carpinteria Cr

Rincon Cr

Rincon Pt

Punta Gorda

Punta

RINCON ISLAND

Edgecliff Pt

Fernald Pt

Loon Pt

Moorings

Anch

Permitted Mooring Area

Numerous mooring buoys

Obstn

Abandoned

Wells (covered 8, 9 fms)

Well PA

Subm Structure

Subm Pipeline PA

Platform "C"

Platform "B"

Platform "A"

"HILLHOUSE"

"HOGAN"

"HOUCHIN"

"HENRY"

THREE NAUTICAL MILE LINE [see note]

MAGNETIC

VAR 12°45'E (2013)

ANNUAL DECREASE 6'

Kelp

Rep 2005

Fl R 6s 25ft SM "A"

Fl 2.5s 35ft BM

5 HORN

RW "SP" Mo (A) BELL

W Or Priv

Fl Y 4s Priv

Subm ruins

Piles (2)

Breakers

Foul

Hosp

CUPOLA

RTR (KBD) 1490 kHz

RTR (KKIO) 1280 kHz

Sewer

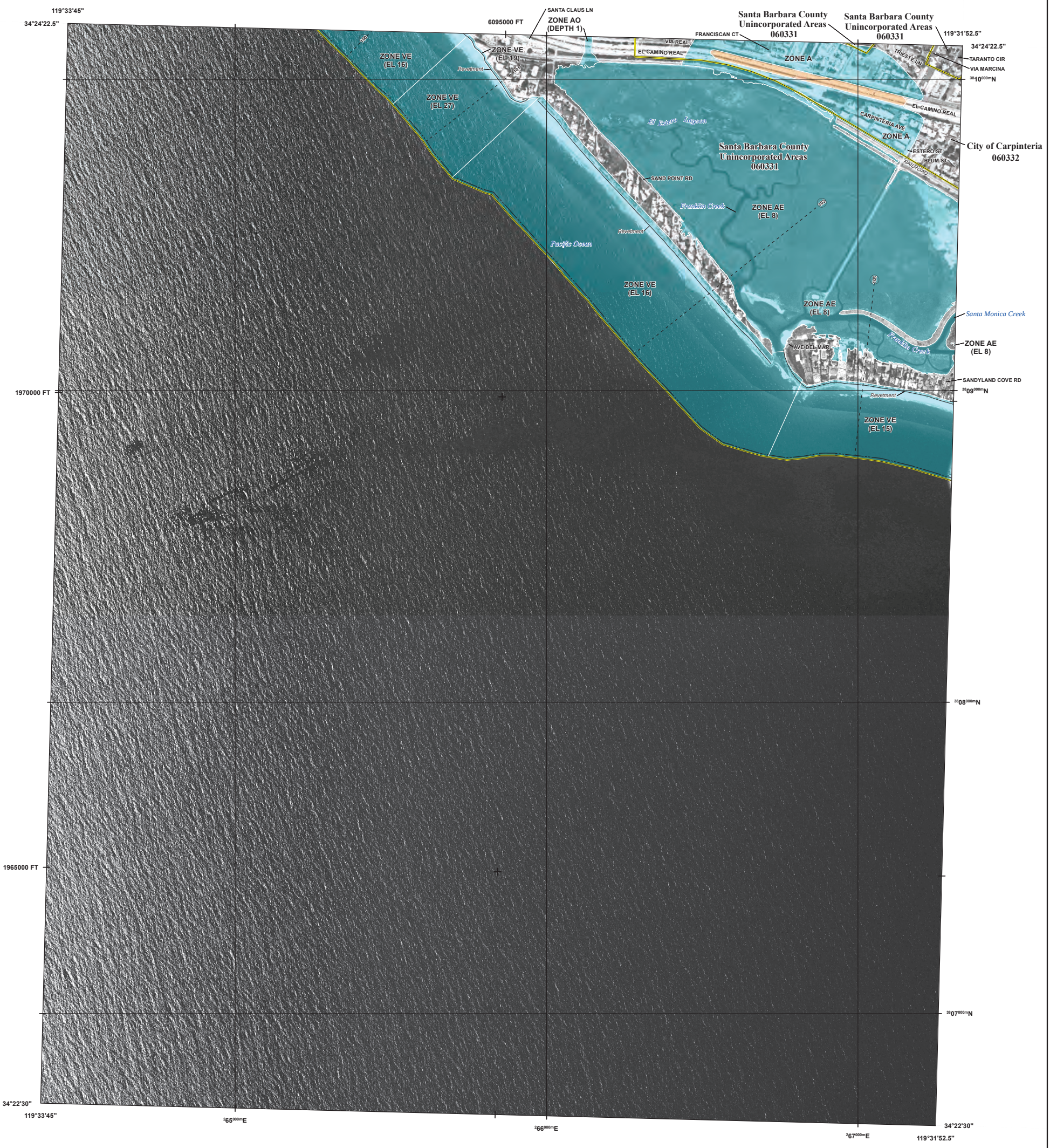
Foothill Road

Franklin Cr

Santa Monica Cr

Attachment F

FEMA
Proposed Updated Flood Insurance Rate Map (FIRM)



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*

OTHER AREAS
- NO SCREEN Areas of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert or Storm Sewer
- Levee, Dike or Floodwall

OTHER FEATURES
- E 18.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation (BFE)
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from digital orthophotography collected by the Coastal Service Center and U.S. Department of Agriculture Farm Service Agency. Coastal Service Center imagery was flown in 2011 and was produced with a sub-meter ground sample distance. Department of Agriculture imagery was flown in 2014 and was produce with a 1-meter ground sample distance.

SCALE

N

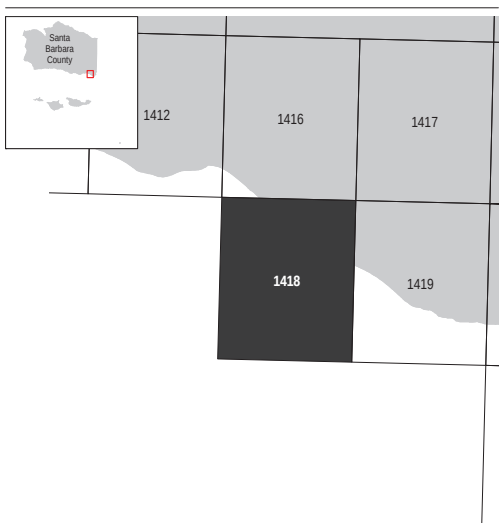
Map Projection:
Universal Transverse Mercator Zone 11N; North American Datum 1983;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

SANTA BARBARA COUNTY, CALIFORNIA
and Incorporated Areas

PANEL 1418 OF 1835

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
CARPINTERIA, CITY OF	060332	1418	H
SANTA BARBARA COUNTY	060331	1418	H

PRELIMINARY
12/15/2016

VERSION NUMBER
2.3.3.3

MAP NUMBER
06083C1418H

MAP REVISED

Attachment G

Santa Barbara County Flood Control

18CDH-00000-00013; Coleman Demo Rebuild

Recommended Conditions of Approval Letter (June 12, 2018)

Santa Barbara County Public Works Department
Flood Control ♦ Water Agency ♦ Project Clean Water

June 12, 2018

Sean Stewart, Planner
County of Santa Barbara
Planning & Development Department
123 E. Anapamu St.
Santa Barbara, CA 93101

Re: 18CDH-00000-00013; Coleman Demo Rebuild
APN: 004-098-006, Carpinteria

Dear Mr. Stewart:

The District recommends that approval of the above referenced project be subject to the following conditions:

1. General
    a. The above referenced project is located within the Coastal High Hazard/Repetitive Loss Zone of the County Floodplain Management Plan, as adopted per County Resolution #92-138
    b. The applicant shall comply with the Santa Barbara County Flood Control District Standard Conditions of Approval dated January 2011 (http://www.countyofsb.org/uploadedFiles/pwd/Water/Development/StdConditionsJan2011.pdf)
    c. The applicant shall provide a site plan of the proposed development following the guidelines provided in the Standard Conditions of Approval.
2. Plan check/ Prior to Issuance of Permits
    a. The applicant shall submit all improvement plans, grading plans, drainage plans, drainage studies and landscape plans to the District for review and approval.
    b. The applicant shall acquire and submit all required data, forms and certifications as described in the Standard Conditions of Approval.
    c. If the structure is within the VE Zone, then Base Flood Elevation (BFE) is 16 feet (NAVD 1988 Datum) per the preliminary FEMA maps (will be effective in September) and the following requirements apply:
        i. Engineer of record shall submit a V-Zone Design Certificate.

Scott D. McGolpin
Public Works Director

Naomi Schwartz Building
130 E. Victoria Street, Suite 200, Santa Barbara, California 93101
PH: 805 568-3440 FAX: 805 568-3434 http://cosb.countyofsb.org/pwd/water/

Thomas D. Fayram
Deputy Public Works Director

ii. Development design and construction shall conform to the requirements listed in Section 15A-22, "Coastal High Hazard Areas" of the County Floodplain Management Ordinance.
iii. Design shall comply with sections (e) through (i) of this section.

d. If the structure is outside the VE Zone and within the Repetitive Loss Zone, then BFE per County Resolution 92-138 is 13.6 feet (NAVD 1988 Datum).
   i. Design shall comply with sections (e) through (i) of this section.
e. Utilities for new or substantially improved structures shall be elevated to BFE+2 feet (NAVD 1988 Datum) or be designed to eliminate infiltration of flood waters into the system. Elevation of utilities shall be confirmed by elevation certificate.
f. The space below the lowest floor shall be either free of obstruction or constructed with non-supporting breakaway walls, opening wood lattice-work, or insect screening intended to collapse with no more than 10-20 lbs/ft^2 of pressure. Applicant to submit supporting calculations during plan check.
g. Breakaway walls shall have flood openings with a minimum of two flood vents and sized according to 15A standards of one square inch of opening per one square foot of enclosed space subject to flooding. The openings shall be installed on at least two walls and bottom of openings shall be no higher than one foot above grade.
h. The applicant shall pay the appropriate ministerial permit fee deposit at the time of the initial submittal of maps, plans and studies.
i. The applicant shall submit to the District electronic drawings in PDF format of the approved Final Map, grading plans, improvement plans, drainage plans, drainage studies and landscape plans on a compact disc along or thumb drive.

3. Prior to Occupancy Clearance
   a. The applicant shall submit all certifications as required in the County Floodplain Management Ordinance.
   b. The applicant shall submit an Elevation Certificate (FEMA Form 086-0-33) to the District's Floodplain Manager for review and approval.
   c. The applicant shall submit to the District electronic Record Drawings in PDF on compact disc or thumb drive.

Sincerely,

SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT

By: Y. Thierumaran

Yoganathan Thierumaran, P.E., CFM
Development Review Engineer

Cc: Tim and Allison Coleman, 16 Highgate Road, Riverside, CT 06878
Jennifer Siemens and Garrett Riha, P.O. Box 591, Summerland, CA 93067
Danny Longwill, Two Trees Architects, 407 Bryant Circle, Suite A-1, Ojai, CA 93023
Ashley and Vance, 924 Chapala Street, Santa Barbara, CA 93101

Attachment H

FEMA FIS 060083CV001D

Table 17: Coastal Transect Parameters

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Figure 9: Transect Location Map

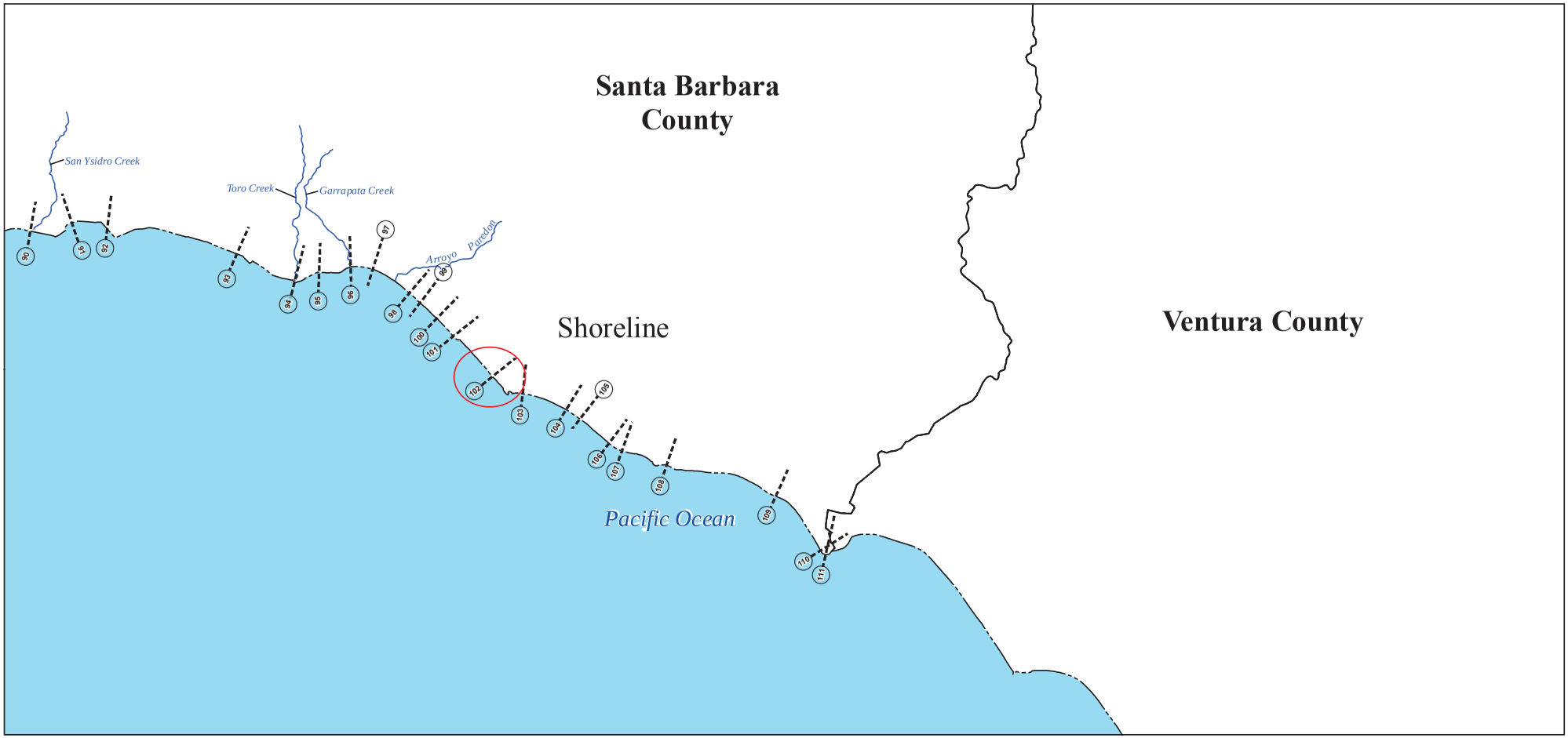
Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	96	264111.4325	3811677.3473	11.8	12.3	12.7	13.1	14.1
Pacific Ocean	97	264388.5351	3811648.7831	13.0	13.8	14.4	15.1	16.7
Pacific Ocean	98	264902.2910	3811108.6455	12.0	12.7	13.3	13.8	15.3
Pacific Ocean	99	265097.9754	3810953.7168	13.8	15.4	17.0	18.9	25.0
Pacific Ocean	100	265358.9059	3810648.5620	13.8	14.5	15.1	15.7	17.1
Pacific Ocean	101	265614.2609	3810313.4281	20.8	23.0	24.9	26.8	31.7
Pacific Ocean	102	266282.2966	3809611.9660	13.8	14.5	15.1	15.7	17.1
Pacific Ocean	103	266990.0260	3809503.7494	12.4	13.3	14.1	15.0	17.4

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	104	267639.6058	3809153.4986	13.7	14.3	14.8	15.3	16.5
Pacific Ocean	105	267857.2182	3808969.6305	12.9	13.5	14.0	14.6	15.8
Pacific Ocean	106	268346.5102	3808571.2201	14.4	15.3	16.0	16.7	18.5
Pacific Ocean	107	268621.8654	3808524.8985	13.6	14.4	15.1	15.9	17.9
Pacific Ocean	108	269382.8310	3808246.8390	14.6	17.2	19.9	23.5	37.2
Pacific Ocean	109	271213.2275	3807719.7421	13.1	14.1	15.0	16.0	19.0
Pacific Ocean	110	271893.4819	3806637.8520	15.7	16.7	17.6	18.4	20.7
Pacific Ocean	111	272100.6142	3806976.4524	13.5	14.7	15.7	16.8	20.1

Figure 9: Transect Location Map, continued



N

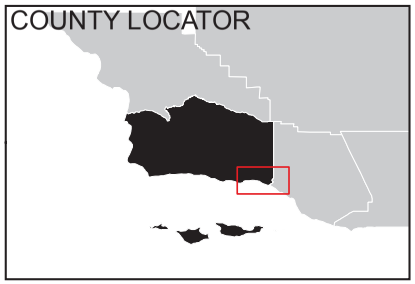
1 inch = 5,417 feet 1:65,000

Feet

0 2,450 4,900 9,800 14,700 19,600

Map Projection:

Universal Transeverse Mercator Zone 11 North;
North American Datum 1983



NATIONAL FLOOD INSURANCE PROGRAM

Transect Location Map

PANELS WITH TRANSECTS

1392H, 1411H, 1412H, 1416H, 1418H, 1419H, 1438H, 1451H

FEMA

Attachment I

Tsunami Fact Sheet

Tsunami Awareness and Safety

What is a tsunami and where do they happen?



Tsunamis are a series of large ocean waves generated by large undersea disturbances, such as a major earthquake on the sea floor or landslide. Tsunamis are not affected by tides or currents – a tsunami in the ocean means the whole water column is moving, not just the surface. Tsunamis can strike any ocean shoreline.

When tsunami waves enter shallow water, they rise to form massive moving water called "run-up." The run-up of water many feet high rushes onto shore striking the coast with tremendous, destructive force.

If you are on the shore and in low coastal areas, you should know that a tsunami could arrive within minutes after the earth shakes. Devastating tsunamis can also happen when major earthquakes happen far away. Recent earthquakes in Chile and Japan have caused tsunami strikes in Hawaii, Alaska, Washington, Oregon, and California, causing loss of life and millions in property damage.

The tsunami danger period can continue for many hours as the waters move onto land, recede, and return. Sometimes the second or third waves are more devastating than the first. A tsunami can occur during any season of the year and at any time, day or night.

What is the best source of information in a tsunami situation?

Listen to local news reports, and visit NOAA/National Weather Service's website, tsunami.gov.



The International Tsunami Warning System monitors oceans through a network of buoys and scientific instruments. When the instruments detect a major earthquake and the potential for tsunami to occur, warnings are issued to local authorities who can order the evacuation of low-lying areas if necessary.

The National Oceanic and Atmospheric Administration (NOAA)'s National Weather Service operates two tsunami warning centers:

1. West Coast/Alaska Tsunami Warning Center (WC/ATWC), Palmer, Alaska. Serves Alaska, Washington, Oregon, California, the U.S. Atlantic and Gulf of Mexico coasts, Puerto Rico, the U.S. Virgin Islands and Canada.

2. Pacific Tsunami Warning Center (PTWC), Ewa Beach, Hawaii. Serves Hawaii and the U.S. Pacific territories, and as an international warning center for the Pacific and Indian oceans and the Caribbean Sea.

USGS science for a changing world · NOAA · FEMA

This information provided by the National Tsunami Hazard Mitigation Program, a partnership among NOAA/National Weather Service, the Federal Emergency Management Agency, the U.S. Geological Survey, the National Academy of Sciences, and 28 states, territories, and commonwealths.

Be aware of the signs of a tsunami:

- **A strong earthquake lasting 20 seconds or more near the coast.**
- **A noticeable rapid rise or fall in coastal waters.**
- **A loud roaring noise from the ocean.**

How can I prepare ahead of time?

Find out if your home, school, workplace or other frequently visited locations are in tsunami hazard areas.

- Know the height of your street above sea level and the distance of your street from the coast or other high-risk waters. Evacuations may be based on these numbers.
- Plan evacuation routes from your home, school, workplace and other places you could be where tsunamis could happen. If possible, pick areas 100 feet (30 meters) above sea level or go as far as 2 miles (3 kilometers) inland, away from the coastline. If you cannot get this high or far, go as high or far as you can. Every foot inland or upward may make a difference. You should be able to reach your safe location on foot within 15 minutes. An alternative in some areas is "vertical evacuation" by going to a high floor of a tall building.
- Find out what the school evacuation plan is. Schools will keep children safe by moving them out of harm's way. Find out where the assembly area is and if that is where your school wants you to come to pick up children. Do not rush to the school during an evacuation.
- Practice walking evacuation routes. Familiarity may save your life. Be able to follow your escape route at night and during inclement weather. Practicing your plan will make it easier to understand and to do during an actual emergency.
- If you are a coastal visitor, find out about local tsunami safety procedures. For long-lead time warnings, you may be asked to leave by driving away. For short lead-time warnings, you may be able to take refuge in reinforced concrete hotel structures on the third floor or above.

This information provided by the National Tsunami Hazard Mitigation Program, a partnership among NOAA/National Weather Service, the Federal Emergency Management Agency, the U.S. Geological Survey, the National Academy of Sciences, and 28 states, territories, and commonwealths.

What To Do When A Tsunami May Happen

If you are in a coastal area and feel a strong earthquake:

- Drop, cover and hold on. You should first protect yourself from the earthquake.
- When the shaking stops, move quickly to higher ground away from the coast. A tsunami may be coming within minutes.
- Be prepared for aftershocks which happen frequently after earthquakes. Each time the earth shakes, drop, cover, and hold on.
- Move to your designated assembly area, or as far inland and uphill as possible.

What to do during a tsunami watch

- Use a NOAA Weather Radio or listen to local radio or television stations for updated information.
- Locate loved-ones and review evacuation plans. Be ready to move quickly if a tsunami warning is issued.

What to do during a tsunami advisory

- Because of the threat of a potential tsunami which may produce strong currents or waves dangerous to those in or near the water, local officials may close beaches; evacuate harbors and marinas; and ask ships to reposition to deep water. Obey their directions.

What to do during a tsunami warning

- If you hear a tsunami warning siren, detect signs of a tsunami, or hear about a tsunami warning on the radio or TV, leave immediately.
- Ask neighbors who may need help leaving to come with you and offer assistance.
- Bring pets with you to keep them safe.
- Take your disaster supplies kit. Having supplies will make you more comfortable.
- Move to higher ground as far inland as possible. Watching a tsunami near the shore is dangerous and it is against the law to remain in an evacuated area.
- Keep listening to NOAA Weather Radio or local radio or TV for the latest updates.

What do I do after a tsunami?

- Return home only after local officials tell you it is safe. A tsunami is a series of waves that may continue for hours. Do not assume that after one wave the danger is over. The next wave may be larger than the first.
- Stay away from damaged areas so emergency responders can have full access.
- Stay out of any building that has water around it.
- Be careful re-entering buildings or homes. Tsunami-driven floodwater may have damaged buildings.