City of Santa Barbara
California

PLANNING COMMISSION
STAFF REPORT

REPORT DATE: September 29, 2022

AGENDA DATE: October 6, 2022

PROJECT ADDRESS: 2315 Edgewater Way (PLN2021-00584)

TO: Planning Commission

FROM: Planning Division
Allison De Busk, Senior Planner ALD
Kelly Brodison, Associate Planner KAB

I. PROJECT DESCRIPTION

The project consists of demolition of the existing, two-story, single-family residence and attached garage totaling 3,538 square feet, and construction of a 3,285-square-foot, two-story, single-family residence with an attached 730-square-foot two-car garage, a 600-square-foot basement, and a 625-square-foot attached Accessory Dwelling Unit (ADU) on the 22,651-square-foot lot. The parcel is in the E-3 (One-Family Residence) Zone and the appealable jurisdiction of the Coastal Zone with a Local Coastal Plan Land Use Designation of Residential (max 5 du/acre). Approximately 605 cubic yards of grading would take place on the site. The project would also include drought-tolerant landscaping with associated site improvements, approximately 3,200 square feet of new/replaced hardscape, and a 600-square-foot in-ground pool. See Exhibits B and C for project plans and applicant letter, respectively.

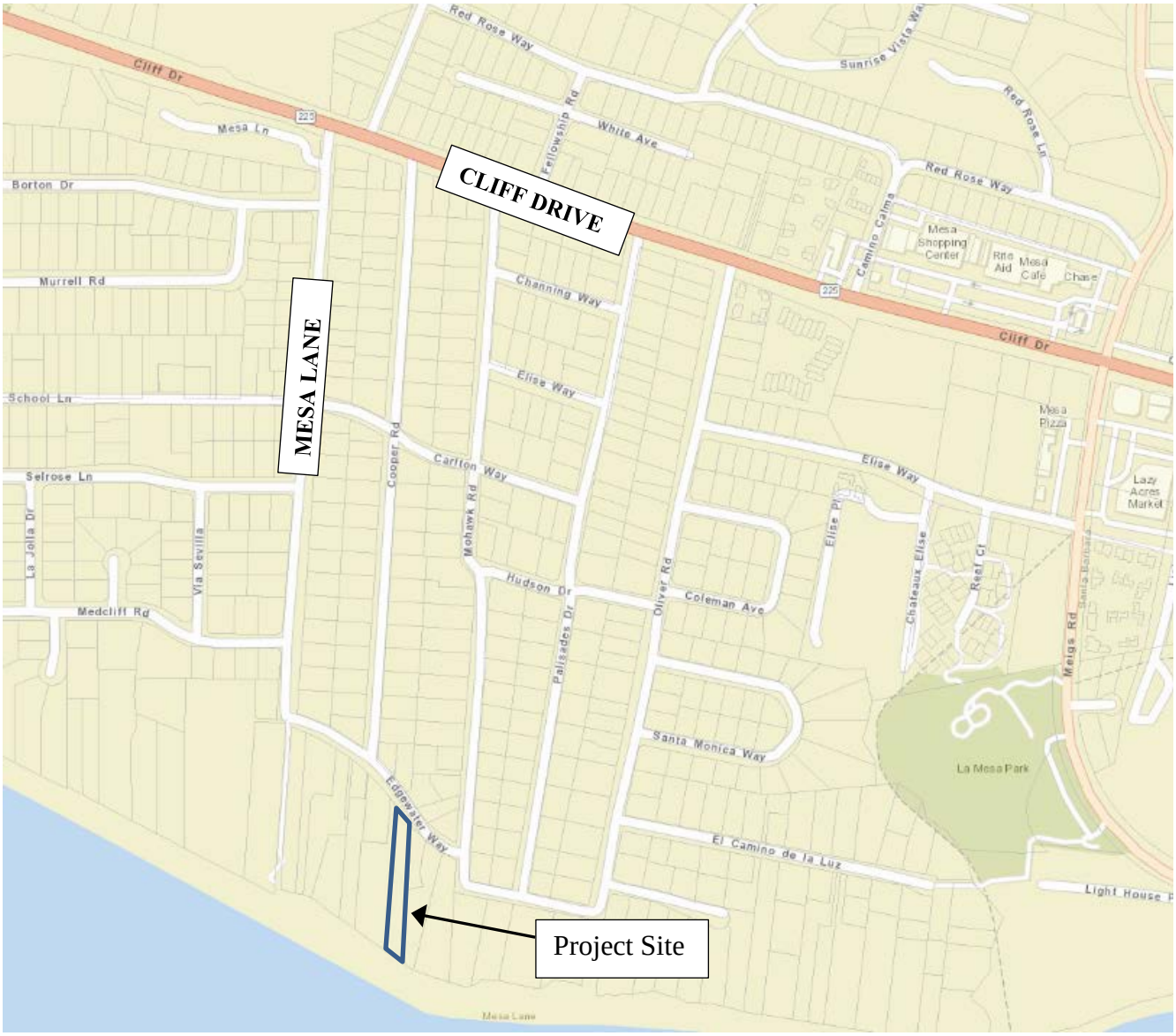
II. REQUIRED APPLICATIONS

The discretionary application required for this project is a Coastal Development Permit (CDP2022-00003) to allow the proposed development in the Appealable Jurisdiction of the City's Coastal Zone (SBMC §28.44.060).

APPLICATION DEEMED COMPLETE: August 18, 2022
DATE ACTION REQUIRED: November 16, 2022

III. RECOMMENDATION

If approved as proposed, the project would conform to the City's Zoning and Building Ordinances and policies of the Coastal Land Use Plan. In addition, the size and massing of the project have been reviewed by the Single Family Design Board and were found to be consistent with the surrounding neighborhood. Therefore, Staff recommends that the Planning Commission approve the project, making the findings outlined in Section IX of this report, and subject to the conditions of approval in Exhibit A.



Vicinity Map : 2315 Edgewater Way

IV. SITE INFORMATION AND PROJECT STATISTICS

A. SITE INFORMATION

Applicant:	Shaheen Ghazvinizadeh, Blackbird Architects		
Property Owner:	2315 Edgewater LLC		
Site Information			
Parcel Number: 041-350-024		**Lot Area** : 22,651 square feet	
Coastal Land Use Plan: Residential (5 dwelling units per acre)		**Zoning** : E-3/SD-3 (One-Family Residence/Coastal Overlay)	
Existing Use: Single-Unit Residential		**Topography**: ~35% (includes bluff)	
Adjacent Zoning and Land Uses			
North:	E-3/SD-3	Public Right-of-Way (Edgewater Way) and Single-Unit Residences	
East:	E-3/SD-3	Single-Unit Residence	
South:	E-3/SD-3	Pacific Ocean	
West:	E-3/SD-3	Single-Unit Residence	

B. PROJECT STATISTICS

	Existing	Proposed
Living Area	3,043 sq. ft.	3,285 sq. ft.
Garage	495 sq. ft.	730 sq. ft.
Accessory Dwelling Unit	N/A	625 sq. ft.
Floor Area Ratio	3,538 sq. ft.	4,640 sq. ft. = 99% of Maximum Guideline FAR
Basement (not included in FAR)	N/A	600 sq. ft.

V. POLICY AND ZONING CONSISTENCY ANALYSIS

A. ZONING ORDINANCE CONSISTENCY

Standard	Requirement/ Allowance	Existing	Proposed
Setbacks **-Front** **-Interior**	 20 feet 6 feet	 < 20 feet < 6 feet	 20 feet 6 feet
Building Height	30 feet	29 feet, 6 inches	28 feet, 6 inches
Parking **-Primary Residence**	2 covered spaces	2 covered spaces	2 covered spaces

-ADU	0 spaces	N/A	0 spaces
Max. garage size	750 sq. ft.	495 sq. ft.	730 sq. ft.
Open Yard	1,250 s.f.	> 1,250 s.f.	> 1,250 s.f.
Lot Coverage			
-Building	N/A	2,612 s.f. 11.5%	3,607 s.f. 15.9%
-Paving/Driveway	N/A	4,326 s.f. 19.1%	4,230 s.f. 18.7%
-Landscaping	N/A	15,713 s.f. 69.4%	14,814 s.f. 65.4%

As identified in the table above, the proposed development is consistent with the Zoning Ordinance.

B. ACCESSORY DWELLING UNIT STANDARDS

Accessory Dwelling Units (ADUs) in the City's coastal zone are governed by Santa Barbara Municipal Code (SBMC) Chapter 28.86. Typically, all ADUs in the coastal zone require approval of a Coastal Development Permit by the Staff Hearing Officer but do not require a public hearing (SBMC §28.44. 110.C). However, because development of the main house and garage require a Coastal Development Permit from the Planning Commission, the ADU will be reviewed by the Planning Commission in order to avoid having two separate hearings.

The project complies with the City's ADU requirements, as outlined in SBMC Chapter 28.86. Some of the key regulations are discussed in more detail below.

1. **REQUIRED FEATURES (SBMC §28.86.050.B)**

   The proposed 625-square-foot ADU contains all the required residential elements (kitchen, bathroom, living room, separate sleeping room), has independent exterior access, and exceeds the 400-square-foot minimum unit size for a one-bedroom unit.

2. **MAXIMUM FLOOR AREA (SBMC §28.86.055.B)**

   An attached accessory dwelling unit shall not exceed 50% of the primary residence. The proposed 625-square-foot ADU is less than 50% of the ~4,000 square foot residence.

3. **FLOOR AREA RATIO (SBMC §28.86.055.C)**

   As shown in the Project Statistics table above, the Floor-to-Lot Area Ratio for all development on site is 99% of the Maximum Required FAR. The project is consistent with FAR zoning standards.

4. **ARCHITECTURAL REVIEW (SBMC §28.86.060)**

   The propose ADU was reviewed by the Single Family Design Board as part of the overall project. See Section VIII below.

5. **PARKING (SBMC §28.86.080)**

   The proposed ADU is located within a half-mile (approximately 1,800 feet) of a public transit stop and is outside of any Key Public Access Areas as delineated in Figure 3.1-2 of the Coastal Land Use Plan. Therefore, no parking is required for the ADU.

   A two-car garage is proposed for the primary residence.

VI. COASTAL LAND USE PLAN CONSISTENCY

The project site is located within the Appealable Jurisdiction of the Coastal Zone and development must be found consistent with the California Coastal Act and the City's Local Coastal Program (LCP), which implements the California Coastal Act. A complete list of applicable Coastal Act and Land Use Plan policies is provided as Exhibit F.

1. CALIFORNIA COASTAL ACT

a. Environmentally Sensitive Habitat Area (ESHA)

There are no mapped or identified ESHAs on the subject parcel or adjacent parcels; therefore, there are no policy concerns related to ESHAs with the project.

b. Coastal Act 30244 (Archaeological Resources)

The project site is in the Prehistoric Watercourse Buffer archaeological sensitivity zone. However, prior archaeological reports have been prepared for two nearby properties and no archaeological resources have been identified therein, and proposed construction is outside of the sensitivity zone. Staff has recommended a condition of approval regarding discovery of unanticipated archaeological resources, as outlined in Exhibit A.

c. Coastal Act 30250 (Location; existing developed area)

The subject parcel is currently developed with a single-unit residence in an established single-family neighborhood with adequate public services including public transportation, fire prevention, police, and utility services. The project site is not located adjacent to any designated public access points for the coast. Therefore, no significant adverse effects to the coast or coastal resources are anticipated.

The subject parcel, and neighborhood, have existing services and no significant impact related to services is anticipated since the extent of the project is demolition and construction of one single-unit residence.

d. Coastal Act 30251 (Visual Resources)

The existing development on-site is two-stories, and the proposed home is two-stories. Two-story residences are prevalent in the area; however, the project's development envelope locates the proposed development a significant distance from the street. The proposed project has been reviewed by the Single-Family Design Board (SFDB), which is specifically tasked with protecting neighborhood character in regard to size, bulk, and scale. The project will require Project Design and Final Approvals from SFDB following approval of the Coastal Development Permit. The structure would not be visible from the beach below and would be consistent with the existing pattern of development along this portion of Edgewater Way. There are no mapped scenic views across the property other than the scenic shoreline. Impacts to public views are not anticipated with the two-story structure because of the location and design of the new structure. With the project meeting all Zoning requirements related to height, setbacks, and open yard, as well as the SFDB reviewing the project's neighborhood compatibility, the project would be consistent with this visual resource policy.

e. Coastal Act 30253 (Minimization of adverse impacts)

The project would not contribute to geologic instability or destruction of the site because the site is already developed, and the surrounding area has withstood existing development of similar size and scale. As outlined in the Coastal Hazards analysis below, the replacement residence is sited landward of the Coastal Bluff Edge Development Buffer. An Engineering Geology and Geotechnical Engineering Report dated March 11, 2022, prepared by Earth Systems was submitted for the project to address the geologic conditions of the site and the potential impacts relating to the proposed project. The Report concluded that the site is suitable for the proposed development, taking into account the effects of sea level rise. The project would be constructed in accordance with California Building Code requirements for the geologic and soil conditions of the site, including recommendations provided in the Report.

2. COASTAL LAND USE PLAN

The project is in the Mesa Component of the Land Use Plan (LUP), which is located eastward from Arroyo Burro Beach to the westerly boundary of Santa Barbara City College and extends inland to Cliff Drive. The LUP states that the primary land use of this area is small-lot, single-unit residential, with higher density multiple-unit development near the easterly boundary. The major coastal issues identified for this Component include beach and coastal bluff erosion with several known landslide areas located along the bluffs. Several large landslides have occurred in the vicinity of El Camino De La Luz and along Shoreline Park. Some private residences and significant accessory improvements (lawns, patios, etc.) extend close to the bluff edge at some locations along the bluff. No private shoreline protection structures have been permitted in this Component of the Coastal Zone.

a. Policy 4.2-22 Storm Water

The project is a Tier 3 Storm Water Management Program (SWMP) project and must comply with the City's Basic Storm Water Best Management Practice (BMP) requirements. A Storm Water Management Program Report dated July 1, 2022, prepared by Ashley & Vance Engineers, was submitted for this project. To satisfy the Tier 3 requirement, the project includes underground retention chambers accompanied by an irrigation pump to treat the stormwater generated by the one-inch storm. New storm drains will direct the runoff from the proposed building roof areas and the impermeable surfaces to this underground chamber treatment facility located under the driveway in the northwest corner of the parcel. During events exceeding the design storm, excess water would be conveyed to the street curb along Edgewater Way.

b. Policy 4.3-7 Compatible Development

The surrounding neighborhood includes a mix of one- and two-story residences. The new two-story house was reviewed by the SFDB on two occasions and the SFDB supported the project, finding that the size, bulk, and scale were aesthetically appropriate, and forwarded the project to the Planning Commission.

c. Policy 4.3-13 Tree Protection and Replacement

The Landscape Plan prepared by Courtney Miller, Landscape Architect, identified seven trees proposed to be removed. The owner is proposing to replace these trees by planting three fruit trees and one olive tree in the northwest portion of the site after building and hardscape construction has been completed. This recommendation is consistent with the recommendation in Arborist Report dated June 19, 2022, prepared by Duke McPherson. Each tree would reach a trunk diameter of 6-8" at maturity. For trees that may experience encroachment by the proposed development the Arborist Report provides tree protection measures which have been incorporated into the project. Fruit trees are not typically considered equivalent as a replacement tree, so feedback from the Planning Commission on this issue would be appreciated. However, the project is maintaining several existing trees, and the landscape plan includes some additional new trees, although quantities are not identified.

d. Policy 5.1-29 Coastal Hazards

According to Coastal LUP Policy 5.1-29 (Interim Shoreline Hazards Screening Areas Map), the project site is located in Potential Shoreline Hazards Screening Areas 3 (Coastal Bluff-Face) and 4 (Coastal Bluff-Tops), which are subject to potential shoreline hazards of coastal bluff erosion and coastal bluff slope failure. The primary development standards applicable to the project are outlined in LUP Policies 5.1-33, 5.1-66, and 5.1-67, which require a Shoreline Hazard Evaluation be conducted for new development and substantial redevelopment.

An Engineering Geology and Geotechnical Engineering Report dated March 11, 2022, prepared by Earth Systems, was submitted for the project to address the geologic conditions of the site and potential impacts relating to the proposed project.

The Report states that the long-term rate of retreat is approximately .33 feet per year (4 inches per year). Based on a rate of retreat of .33 feet per year, the projected amount of retreat of the top of bluff is estimated to be approximately 25 feet in 75 years (not accounting for accelerating sea level rise).

With regard to sea level rise, the 2018 Coastal Commission guidance recommends that the "Medium-High Risk" category be used for establishing setbacks for residential development given the uncertainty of the sea level rise projections, the limitation of adaptation options, and the potential risk to life and property. The California Coastal Commission "Sea Level Rise Policy Guidance" projects the upper limit of sea level rise to be 1.1 feet at year 2040 under the "Medium-High Risk Aversion" category. Applying the methodology in the Report, bluff retreat is estimated to be approximately 41.5 feet due to anticipated, accelerating sea level rise over the next 75 years.

According to LUP policy 5.1-70, the Coastal Bluff Edge Development Buffer calculation should be determined by both slope stability buffer and coastal bluff erosion buffer. The slope stability buffer is not applicable to this project because the proposed replacement residence does not appear to be impacted by gross (global) slope instability. Therefore, the Coastal Bluff Edge Development Buffer is the coastal bluff erosion buffer, which is 41.5 feet from the bluff edge.

All proposed development is sited landward of the Coastal Bluff Edge Development Buffer. The Report concluded that the project site is suitable for the proposed replacement residence from an engineering geology and geotechnical engineering standpoint provided that the recommendations provided in the report are properly implemented in the project.

There are existing foundations that were constructed within the Coastal Bluff Edge Development Buffer prior to the implementation of the Coastal Act. These structures are proposed to remain (refer to Exhibit D) since they legally existed on site prior to the adoption of the Coastal Act. These structures were the foundations of the original house and garage (the house and garage were built in 1967 and relocated to their current location in 1975) and are currently used as patios (Exhibit D). The applicant is proposing to leave these structures in place (which now have paint or a thin tile veneer over the structure) in place as part of the project. As they were permitted prior to the Coastal Act and are not proposed to be modified as part of the project, they are allowed to remain, in accordance with LUP policy 2.1-19. At staff's request an Addendum to the Engineering Geology and Geotechnical Engineering Report was submitted addressing the foundations, which recommended leaving the patio surface in place and installing additional drains to collect the surface water flow over these surfaces. The drains would connect to the drain system for the project.

e. <u>Policy 5.1-38 Landscaping, Watering, Weight, and Drainage on Coastal Bluff Faces and Coastal Bluff Edge Development Buffers</u>

The proposed landscaping on site will be native and drought tolerant. Watering in the Coastal Bluff Edge Development Buffer is limited to the minimum necessary for plant establishment with easily removable drip irrigation with a dedicated shut-off valve outside the Buffer as shown on the Landscape Plan. No sprinkler systems, irrigation plumbing, or in-ground irrigation are proposed within the Coastal Bluff Edge Development Buffer. There are existing succulents (which can add weight to the bluff and are typically not allowed for new development) on the bluff. However, because the project does not include any landscape work beyond the Coastal Bluff Edge Development Buffer, staff has not made a recommendation to remove them.

f. <u>Policy 5.1-39 Drainage Systems on Lots Containing Coastal Bluff Faces and Coastal Bluff Edge Development Buffer</u>

All site stormwater is proposed to go directly into site area drains throughout the property, and due to the natural slope of the property tie into the southern sump pump which would be located just north of the Bluff Edge Development Buffer. From there, all water would be pumped up to the northern side of the property into the below-ground cistern, and then discharged onto the street via another pump.

If the project were to direct all the site area drains directly to the cistern at the north end of the site, that would force the cistern to be buried ±10 feet below ground with an equally as deep pump to get the water to discharge onto the street. The applicant did not believe this was a feasible solution for maintenance purposes, hence the current drainage proposal. Generally, staff encourages applicants to address drainage without use of a sump pump, because those tend to fail when they are needed most. However, the proposal is consistent with LUP drainage policies.

In order to satisfy SWMP requirements, the applicant was directed to capture all stormwater within the Bluff Edge Development Buffer area as well. This is the only area where site runoff is being captured via a linear trench drain, and with gravity, it is draining into the southern sump pump.

VII. ENVIRONMENTAL REVIEW

Staff has determined that the project is categorically exempt from further environmental review pursuant to California Environmental Quality Act Guidelines Section 15303 (New Construction or Conversion of Small Structures) which allows for construction of one single-family dwelling in a residential zone, as well as accessory/ appurtenant structures such as garages, patios, swimming pools and fences. Based on review of the project, there would be no significant project-specific or cumulative impacts on the environment as a result of the project, the project does not have the potential to damage scenic highways or historic resources, and the project site is not identified as a hazardous waste site. The project site does not contain any historical resources. The project location is not within a particularly sensitive environment with mapped resources. None of the exceptions to the exemption under CEQA Guidelines Section 15300.2 apply.

VIII. DESIGN REVIEW

This project was reviewed by the Single Family Design Board on two separate occasions (meeting minutes are attached as Exhibit E). On April 11, 2022, the SFDB stated that the size, bulk, and scale should be restudied, in particular, the roof of the oval element and the hip eave line running along the west elevation. It was also suggested to restudy the second floor plate heights and the south elevation glazing in accordance with the neighborhood compatibility guidelines.

The applicant responded to the Board's direction by breaking up the massing and ridgeline along the west elevation into a series of hipped roofs and parapets at varying elevations. The heights of both the oval massing and front entry sandstone feature were reduced by 12 inches. The south elevation was restudied by introducing vertical elements to reduce the amount of glazing. The second floor roof plate height was reduced by a minimum of 6 inches throughout the building, along with other changes to the massing.

The project returned to the Board on May 23, 2022. The Board found that the size, bulk, and scale were aesthetically appropriate and found the massing and roof lines to be an improvement.

The project was forwarded to the Planning Commission and will return for further study subsequently.

IX. FINDINGS

The Planning Commission finds the following:

A. COASTAL DEVELOPMENT PERMIT (SBMC §28.44.150)

1. The project is consistent with the policies of the California Coastal Act as described in Section VI.1 of the staff report dated September 29, 2022. The proposal will not result in any adverse effects related to coastal resources, including public views, public access to

the coast, and coastal bluff erosion. The proposed development is located within an existing developed area that is able to accommodate it, and both parking and open space minimum requirements will be met.

2. The project is consistent with all applicable policies of the City's Local Coastal Plan, all applicable implementing guidelines, and all applicable provisions of the Code, as described in Sections V and VI.2 of the staff report dated September 29, 2022. The proposed development is compatible with surrounding neighborhood development; will not impact any public views or public access to the coast; will not contribute to erosion, geologic instability or destruction of the site; and will not contribute to safety or drainage hazards on the site.

Exhibits:

A. Draft Conditions of Approval
B. Project Plans
C. Applicant's letter dated July 15, 2022
D. Existing Foundation Exhibit
E. Engineering Geology and Geotechnical Engineering Report, dated July 20, 2021
F. Addendum to Engineering Geology Report dated July 11, 2022
G. SFDB Minutes
H. Applicable Coastal Act & LUP Policies

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DRAFT PLANNING COMMISSION CONDITIONS OF APPROVAL

2315 EDGEWATER WAY
COASTAL DEVELOPMENT PERMIT
OCTOBER 6, 2022

I. In consideration of the project approval granted by the Planning Commission and for the benefit of the owner(s) and occupant(s) of the Real Property, the owners and occupants of adjacent real property and the public generally, the following terms and conditions are imposed on the use, possession, and enjoyment of the Real Property:

A. **Order of Development.** In order to accomplish the proposed development, the following steps shall occur in the order identified:

1. Obtain all required design review approvals.

2. Submit an application for and obtain a Building Permit (BLD) to demolish any structures / improvements and/or perform rough grading. Comply with condition E "Construction Implementation Requirements."

3. Record any required documents (see Recorded Conditions Agreement section).

4. Permits.

a. Submit an application for and obtain a Building Permit (BLD) for construction of approved development and complete said development.

b. Submit an application for and obtain a Public Works Permit (PBW) for all required public improvements and complete said improvements.

Details on implementation of these steps are provided throughout the conditions of approval.

B. **Recorded Conditions Agreement**. The Owner shall execute a *written instrument*, which shall be prepared by Planning staff, reviewed as to form and content by the City Attorney and Community Development Director, recorded in the Office of the County Recorder, and shall include the following:

1. **Approved Development.** The development of the Real Property approved by the Planning Commission on October 6, 2022, is limited to an approximately 4,015 net square foot residence and garage, 600 square foot basement, and a 625 net square foot Accessory Dwelling Unit as described in the Applicant Letter dated July 15, 2022, and as shown on the plans signed by the chairperson of the Planning Commission on said date and on file at the City of Santa Barbara.

2. **Uninterrupted Water Flow.** The Owner shall allow for the continuation of any historic flow of water onto the Real Property including, but not limited to, swales, natural watercourses, conduits and any access road, as appropriate.

3. **Recreational Vehicle Storage Limitation.** No recreational vehicles, boats, or trailers shall be stored on the Real Property unless enclosed or concealed from view as approved by the Single Family Design Board (SFDB).

4. **Landscape Plan Compliance.** The Owner shall comply with the Landscape Plan approved by the Single Family Design Board (SFDB). Such plan shall not be

modified unless prior written approval is obtained from the SFDB. The landscaping on the Real Property shall be provided and maintained in accordance with said landscape plan, including any tree protection measures. If said landscaping is removed for any reason without approval by the SFDB, the owner is responsible for its immediate replacement.

5. **Storm Water Pollution Control and Drainage Systems Maintenance.** Owner shall maintain the drainage system and storm water pollution control devices in a functioning state and in accordance with the Storm Water BMP Guidance Manual and Operations and Maintenance Procedure Plan approved by the Creeks Division. Should any of the project's surface or subsurface drainage structures or storm water pollution control methods fail to capture, infiltrate, and/or treat water, or result in increased erosion, the Owner shall be responsible for any necessary repairs to the system and restoration of the eroded area. Should repairs or restoration become necessary, prior to the commencement of such repair or restoration work, the Owner shall submit a repair and restoration plan to the Community Development Director to determine if an amendment or a new Building Permit and Coastal Development Permit is required to authorize such work. The Owner is responsible for the adequacy of any project-related drainage facilities and for the continued maintenance thereof in a manner that will preclude any hazard to life, health, or damage to the Real Property or any adjoining property.

6. **Accessory Dwelling Unit Restrictions**. The Accessory Dwelling Unit shall remain, at all times, consistent with the City's Ordinance requirements.

7. **Future Threats to Development.** By acceptance of this permit, the Owner agrees, on behalf of him/herself and all successors and assigns, that the Owner shall remove the development authorized by this permit, including the residence, garage, Accessory Dwelling Unit, pool, spa, foundations, patios, etc. if any government agency has ordered that the structure(s) is not to be occupied or is otherwise unsafe due to imminent threat of damage or destruction from any shoreline hazard, including but not limited to waves, erosion, storm conditions, liquefaction, flooding, sea level rise. In the event that portions of the development fall to the bluff face, the beach, or are swept to another location before they are removed, the Owner shall remove all recoverable debris associated with the development and lawfully dispose of the material in an approved disposal site. Such removal shall require authorization through an emergency and/or regular Coastal Development Permit.

8. **Prohibition on Shoreline Protection Devices.** Construction of new or substantially redeveloped shoreline protection devices in the future to protect the new development or substantial redevelopment development from any shoreline hazard is prohibited.

9. **Prohibition on Slope Stabilization Devices.** Construction of new or substantially redeveloped slope stabilization devices in the future to protect the new development or substantial redevelopment development from any shoreline hazard is prohibited.

10. **Ownership Limitation.** This Coastal Development Permit is limited to only that time period that the land underlying the development is under the ownership of the applicant or successor in interest. If the public trust boundary moves landward resulting in the development encroaching onto public trust lands, the Coastal Development Permit will expire and the development on such public trust lands must be removed at the property owner's expense, unless the property owner obtains appropriate legal authorization from the trustee of the public trust lands (e.g., City of Santa Barbara or State Lands Commission) and obtains a new Coastal Development Permit from the California Coastal Commission to authorize any development of public tidelands. Authorization for such development on public trust lands is restricted by the Coastal Act and Public Trust Doctrine and may not be allowed if the proposed use significantly interferes with public access or other public trust uses.

11. **Coastal Hazards Liability Limitation.** The Owner understands and is advised that the project site and public services to the site (utilities, roads, etc.) may be subject to beach erosion, bluff erosion, coastal bluff slope failure, coastal flooding, wave impacts, or other extraordinary hazards associated with development on a coastal beach, coastal bluff face or top, or in a coastal flood and/or wave impact area, now and in the future, factoring in the effects of sea level rise. The Owner acknowledges that public services to the site may not be maintained in perpetuity due to the impacts of sea level rise. The Owner assumes the risks of injury and damage from such hazards in connection with the permitted development. The Owner unconditionally waives any present, future, and unforeseen claims of damage or liability on the part of the City for injury or damage arising from the aforementioned or other natural hazards and relating to this permit approval, as a condition of this approval. Further, the Owner agrees to indemnify and hold harmless the City and its employees for any alleged or proven acts or omissions and related cost of defense, related to the City's approval of this permit and arising from the aforementioned or other natural hazards whether such claims should be stated by the Owner's successor-in-interest or third parties.

12. **Development within Coastal Bluff Edge Development Buffer**. The existing patios and stairs located within the Coastal Bluff Edge Development Buffer (the foundations of the original house and garage) shall be subject to the following conditions:

    a. Proper maintenance of the improvements is required so that they do not become a safety issue or begin to affect erosion, geologic instability, or destruction of the site or surrounding area;

    b. No mechanized construction equipment shall be used for removal;

    c. Removal is required when erosion reaches less than 5 feet from the improvements or if the improvements are otherwise deemed unusable or unsafe due to imminent threat of damage or destruction from geologic instability, erosion, flooding, wave impact hazards, or other hazards associated with development on a coastal bluff or beach; and

d. The approval granted to keep the existing improvements is limited to a maximum 20 years from the issuance of the Coastal Development Permit. When the permit term ends, the improvements shall be removed unless re-evaluation of the site shows the minor improvements still meet the standards and conditions listed above and a new Coastal Development Permit is approved to retain the minor improvements. The Owner shall have the burden of following up with the City regarding this condition.

e. The improvements must comply with Land Use Plan policy 2.1-19 related to nonconforming development.

13. **Geotechnical Liability Limitation.** The Owner understands and is advised that the site may be subject to extraordinary hazards from landslides, erosion, retreat, settlement, or subsidence and assumes liability for such hazards. The Owner unconditionally waives any present, future, and unforeseen claims of liability on the part of the City arising from the aforementioned or other natural hazards and relating to this permit approval, as a condition of this approval. Further, the Owner agrees to indemnify and hold harmless the City and its employees for any alleged or proven acts or omissions and related cost of defense, related to the City's approval of this permit and arising from the aforementioned or other natural hazards whether such claims should be stated by the Owner's successor-in-interest or third parties.

14. **Areas Available for Parking.** All parking areas and access thereto shall be kept open and available in the manner in which it was designed and permitted.

C. **Design Review.** The project, including public improvements, is subject to the review and approval of the Single Family Design Board (SFDB). The SFDB shall not grant project design approval until the following Planning Commission land use conditions have been satisfied.

1. **Tree Removal and Replacement.** The removal of the mature Eucalyptus tree in the rear yard shall be replaced with a four fruit trees to be planted in the northwest portion of the lot. The replacement trees shall be of a species that will reach a trunk diameter of at least 6-8” at maturity.

2. **Tree Protection Measures.** The landscape plan and grading plan shall include the following tree protection measures:

a. **Tree Protection.** All trees not indicated for removal on the approved site plan / landscape plan shall be preserved, protected, and maintained, in accordance with the Arborist Report, and/or any related Conditions of Approval.

b. **Arborist’s Report.** Include a note on the plans that the recommendations/conditions contained in the arborist’s report prepared by Duke McPherson, dated June 19, 2022, shall be implemented.

3. **Appropriate Plants on Bluff .** Special attention shall be paid to the appropriateness of the existing and proposed plant material on the bluff. All new plantings shall be native, drought tolerant vegetation.

4. **Irrigation System.** The irrigation system shall be designed and maintained with the most current technology to prevent a system failure. Watering of vegetation on the bluff edge shall be kept to the minimum necessary for plant survival. No irrigation is allowed on the bluff face or within the Coastal Bluff Edge Development Buffer..

5. **Screened Backflow Device.** The backflow devices for fire sprinklers, pools, spas and/or irrigation systems shall be provided in a location screened from public view or included in the exterior wall of the building, as approved by the SFDB.

6. **Location of Dry Utilities.** Dry utilities (e.g. above-ground cabinets) shall be placed on private property unless deemed infeasible for engineering reasons.

D. **Requirements Prior to Permit Issuance.** The Owner shall submit the following, or evidence of completion of the following, for review and approval by the Department listed below prior to the issuance of any permit for the project. Some of these conditions may be waived for demolition or rough grading permits, at the discretion of the department listed. Please note that these conditions are in addition to the standard submittal requirements for each department.

1. **Public Works Department.**

a. **Edgewater Way Public Improvements.** The Owner shall construct new concrete curb/gutter and driveway apron as shown on Grading and Drainage Plan C-2.1. The overflow for onsite storm water shall discharge to the public right-of-way per City Standards. Any work in the public right-of-way requires a Public Works Permit.

b. **Construction-Related Truck Trips.** Construction-related truck trips for trucks with a gross vehicle weight rating of three tons or more shall not be scheduled during peak hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) in order to help reduce truck traffic on adjacent streets and roadways.

2. **Community Development Department**.

a. **Recordation of Agreements.** The Owner shall provide evidence of recordation of the written instrument that includes all of the Recorded Conditions identified in condition B "Recorded Conditions Agreement" to the Community Development Department prior to issuance of any building permits.

b. **Recorded Agreement.** Prior to zoning clearance on a building permit for the proposed Accessory Dwelling Unit, the property owner shall execute a Covenant stating the following: (1) The Accessory Dwelling Unit will not be sold separately from the existing primary residence. (2) The Accessory Dwelling Unit shall not be rented for less than 31 days. When a building permit application is submitted, City Administrative Staff will prepare the

Covenant and send an email from ADUCovenant@SantaBarbaraCA.gov letting the applicant know that the Covenant has been created. Written instructions will be provided to you on how to complete the procedure. The permit will not be issued until the final agreement is recorded. **Certificate of Occupancy will not be granted without the Covenant being recorded.**

c. **Drainage and Water Quality.** The project is required to comply with Tier 3 of the Storm Water BMP Guidance Manual, pursuant to Santa Barbara Municipal Code Chapter 22.87 treatment, rate and volume. The project shall comply with the Storm Water Treatments as provided in the Tier 3 Storm Water Management Report dated July 1, 2022, prepared by Ashley & Vance Engineering, Inc. The project plans for grading, drainage, stormwater facilities and treatment methods, and project development, shall be subject to review and approval by the City Building Division and Public Works Department. Sufficient engineered design and adequate measures shall be employed to ensure that no unpermitted construction-related or long-term effects from increased runoff, erosion and sedimentation, urban water pollutants (including, but not limited to trash, hydrocarbons, fertilizers, bacteria, etc.), or groundwater pollutants would result from the project.

For any proprietary treatment devices that are proposed as part of the project's final Storm Water Management Plan, the Owner shall provide an Operations and Maintenance Procedure Plan consistent with the manufacturer's specifications (describing schedules and estimated annual maintenance costs for pollution absorbing filter media replacement, sediment removal, etc.). The Plan shall be reviewed and approved by the Creeks Division for consistency with the Storm Water BMP Guidance Manual and the manufacturer's specifications.

After certificate of occupancy is granted, any proprietary treatment devices installed will be subject to water quality testing by City Staff to ensure they are performing as designed and are operating in compliance with the City's Storm Water MS4 Permit.

d. **Design Review Requirements.** Plans shall show all design, landscape and tree protection elements, as approved by the appropriate design review board and as outlined in Section C "Design Review," and all elements/specifications shall be implemented on-site.

e. **Conditions on Plans/Signatures.** The final Resolution shall be provided on a full-size drawing sheet as part of the drawing sets. The following statement shall be signed prior to issuance of and permits: The undersigned have read and understand the required conditions and agree to abide by any and all conditions which are their usual and customary responsibility to perform, and which are within their authority to perform.

Signed:

Property Owner		Date
Contractor	Date	License No.
Architect	Date	License No.
Engineer	Date	License No.

E. **Construction Implementation Requirements.** All of these construction requirements shall be carried out in the field by the Owner and/or Contractor for the duration of the project construction, including demolition and grading.

1. **Construction Contact Sign.** Immediately after Building permit issuance, signage shall be posted at the points of entry to the site that list the contractor(s) name, telephone number(s), construction work hours, site rules, and construction-related conditions, to assist Building Inspectors and Police Officers in the enforcement of the conditions of approval. The font size shall be a minimum of 0.5 inches in height. Said sign shall not exceed six feet in height from the ground if it is free-standing or placed on a fence. It shall not exceed 24 square feet if in a multi-family or commercial zone or six square feet if in a single-family zone.

2. **Construction Storage/Staging.** Construction vehicle/ equipment/ materials storage and staging shall be done on-site. No parking or storage shall be permitted within the public right-of-way, unless specifically permitted by the Public Works Director with a Public Works permit.

3. **Construction Parking.** During construction, free parking spaces for construction workers shall be provided on-site or off-site in a location subject to the approval of the Public Works Director.

4. **Nesting Birds.** Birds and their eggs nesting on or near the project site are protected under the Migratory Bird Treaty Act and pursuing, hunting, taking, capturing, killing, or attempt to do any of the above is a violation of federal and state regulations. No trimming or removing brush or trees shall occur if nesting birds are found in the vegetation. All care should be taken not to disturb the nest(s). Removal or trimming may only occur after the young have fledged from the nets(s).

5. **Air Quality and Dust Control.** The following measures shall be shown on grading and building plans and shall be adhered to throughout grading, hauling, and construction activities:

   a. During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late

morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.

b. Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.

c. If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.

d. Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

e. After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.

f. The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.

g. All portable diesel-powered construction equipment shall be registered with the state's portable equipment registration program OR shall obtain an APCD permit.

h. Fleet owners of mobile construction equipment are subject to the California Air Resource Board (CARB) Regulation for In-use Off-road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, § 2449), the purpose of which is to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles. For more information, please refer to the CARB website at www.arb.ca.gov/msprog/ordiesel/ordiesel.htm.

i. All commercial diesel vehicles are subject to Title 13, § 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

j. Diesel construction equipment meeting the California Air Resources Board (CARB) Tier 1 emission standards for off-road heavy-duty diesel

engines shall be used. Equipment meeting CARB Tier 2 or higher emission standards should be used to the maximum extent feasible.

k. Diesel powered equipment should be replaced by electric equipment whenever feasible.

l. If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California.

m. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.

n. All construction equipment shall be maintained in tune per the manufacturer's specifications.

o. The engine size of construction equipment shall be the minimum practical size.

p. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time. Construction worker trips should be minimized by requiring carpooling and by providing for lunch onsite.

6. **Unanticipated Archaeological Resources Contractor Notification.** Standard discovery measures shall be implemented per the City master Environmental Assessment throughout grading and construction: Prior to the start of any vegetation or paving removal, demolition, trenching or grading, contractors and construction personnel shall be alerted to the possibility of uncovering unanticipated subsurface archaeological features or artifacts. If such archaeological resources are encountered or suspected, work shall be halted immediately, the City Environmental Analyst shall be notified and the Owner shall retain an archaeologist from the most current City Qualified Archaeologists List. The latter shall be employed to assess the nature, extent and significance of any discoveries and to develop appropriate management recommendations for archaeological resource treatment, which may include, but are not limited to, redirection of grading and/or excavation activities, consultation and/or monitoring with a Barbareño Chumash representative from the most current City qualified Barbareño Chumash Site Monitors List, etc.

If the discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately. If the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission. A Barbareño Chumash representative from the most current City Qualified Barbareño Chumash Site Monitors List shall be retained to monitor all further subsurface disturbance in the area of the find. Work in the area may only proceed after the Environmental Analyst grants authorization.

If the discovery consists of possible prehistoric or Native American artifacts or materials, a Barbareño Chumash representative from the most current City Qualified Barbareño Chumash Site Monitors List shall be retained to monitor all further subsurface disturbance in the area of the find. Work in the area may only proceed after the Environmental Analyst grants authorization.

A final report on the results of the archaeological monitoring shall be submitted by the City-approved archaeologist to the Environmental Analyst within 180 days of completion of the monitoring and prior to any certificate of occupancy for the project.

F. **Prior to Certificate of Occupancy. Prior to issuance of the Certificate of Occupancy, the Owner of the Real Property shall complete the following:**

1. **Primary Residence Occupancy.** Occupancy shall not be granted to the ADU until the primary residence has received a Certificate of Occupancy.

2. **Repair Damaged Public Improvements.** Repair any public improvements (curbs, gutters, sidewalks, roadways, etc.) or property damaged by construction subject to the review and approval of the Public Works Department per SBMC §22.60. Where tree roots are the cause of the damage, the roots shall be pruned under the direction of a qualified arborist.

3. **Complete Public Improvements.** Public improvements, as shown in the public improvement plans or building plans, shall be completed.

G. **General Conditions.**

1. **Compliance with Requirements.** All requirements of the city of Santa Barbara and any other applicable requirements of any law or agency of the State and/or any government entity or District shall be met. This includes, but is not limited to, the Endangered Species Act of 1973 [ESA] and any amendments thereto (16 U.S.C. § 1531 et seq.), the 1979 Air Quality Attainment Plan, and the California Code of Regulations.

2. Approval Limitations.

   a. The conditions of this approval supersede all conflicting notations, specifications, dimensions, and the like which may be shown on submitted plans.

   b. All buildings, roadways, parking areas and other features shall be located substantially as shown on the plans approved by the Planning Commission.

   c. Any deviations from the project description, approved plans or conditions must be reviewed and approved by the City, in accordance with the Planning Commission Guidelines. Deviations may require changes to the permit and/or further environmental review. Deviations without the above-described approval will constitute a violation of permit approval.

3. **Litigation Indemnification Agreement**. In the event the Planning Commission approval of the Project is appealed to the City Council, Applicant/Owner hereby

agrees to defend the City, its officers, employees, agents, consultants and independent contractors ("City's Agents") from any third party legal challenge to the City Council's denial of the appeal and approval of the Project, including, but not limited to, challenges filed pursuant to the California Environmental Quality Act (collectively "Claims"). Applicant/Owner further agrees to indemnify and hold harmless the City and the City's Agents from any award of attorney fees or court costs made in connection with any Claim.

Applicant/Owner shall execute a written agreement, in a form approved by the City Attorney, evidencing the foregoing commitments of defense and indemnification within thirty (30) days of being notified of a lawsuit regarding the Project. These commitments of defense and indemnification are material conditions of the approval of the Project. If Applicant/Owner fails to execute the required defense and indemnification agreement within the time allotted, the Project approval shall become null and void absent subsequent acceptance of the agreement by the City, which acceptance shall be within the City's sole and absolute discretion. Nothing contained in this condition shall prevent the City or the City's Agents from independently defending any Claim. If the City or the City's Agents decide to independently defend a Claim, the City and the City's Agents shall bear their own attorney fees, expenses, and costs of that independent defense.

Time Limits:

H. **NOTICE OF COASTAL DEVELOPMENT PERMIT TIME LIMITS:**

The Planning Commission action approving the Coastal Development Permit shall expire two (2) years from the date of final action upon the application, per Santa Barbara Municipal Code §28.44.230, unless:

1. A Building permit for the work authorized by the coastal development permit is issued prior to the expiration date of the approval.

2. The Community Development Director grants an extension of the coastal development permit approval. The Community Development Director may grant up to three (3) one-year extensions of the coastal development permit approval. Each extension may be granted upon the Director finding that: (i) the development continues to conform to the Local Coastal Program, (ii) the applicant has demonstrated due diligence in completing the development, and (iii) there are no changed circumstances that affect the consistency of the development with the General Plan or any other applicable ordinances, resolutions, or other laws.

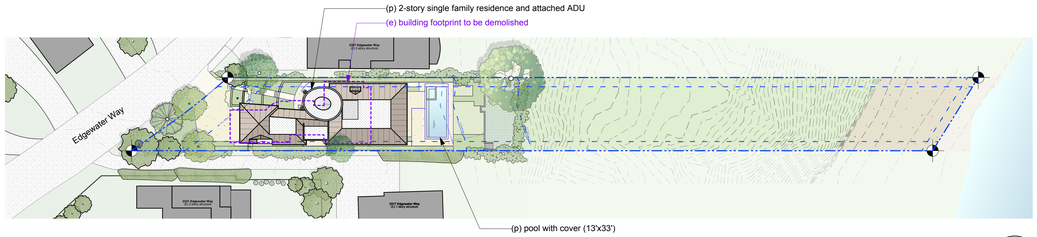
2315 Edgewater Way

Santa Barbara, 93109

Planning Submittal

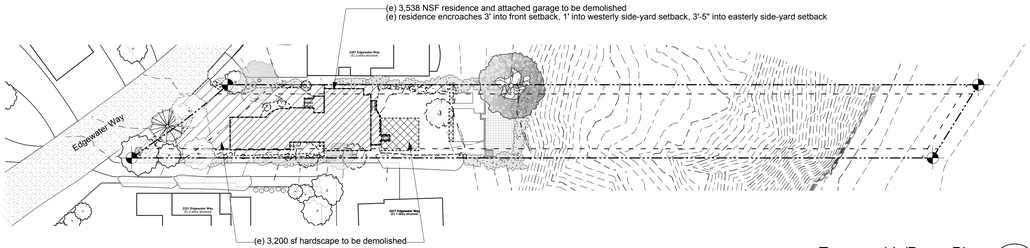
07.15.22

View from Edgewater Way



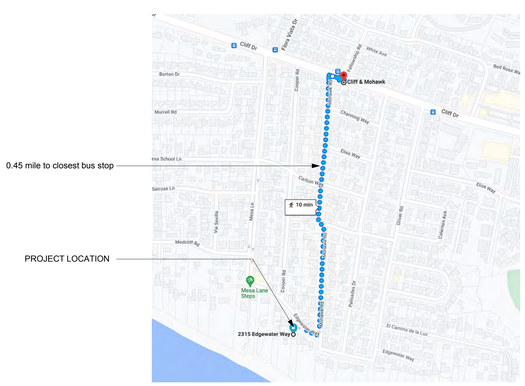
Proposed Site Plan 4

feet 0 20' 40' 80' 1"=40'-0"



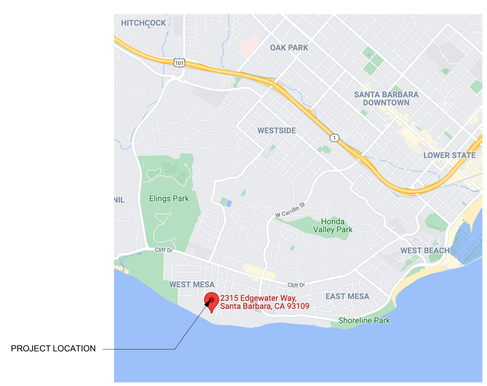
Topographic/Demo Plan 3

feet 0 20' 40' 80' 1"=40'-0"



Bus Stop Vicinity Map 2

N.T.S.



Vicinity Map 1

N.T.S.

Project Description

Existing development on the site consists of a two-story single-family 4-bedroom, 3-bath residence with an attached 2-car garage, totaling 3,538 NSF. Existing hardscape on site totaling 4,326 SF of impervious paving.

The proposed project consists of demolition of the existing single-family residence and attached garage totaling 3,538 NSF, and demolition of 3,200 SF of hardscape north of the 41'-6" bluff edge development setback. Trees to be removed include one eucalyptus tree and one pittosporum tree in the south yard area, one palm and three eucalyptus trees in the westerly side-yard and three palms in the easterly side-yard. All screening vegetation north of the bluff edge development setback to be cleared and replaced. Please refer to landscape drawings.

The proposed construction consists of a new 3,285 SF two-story single-unit residence with an attached 730 SF two-car garage, a 600 SF basement, and a 625 SF Accessory Dwelling Unit (ADU). The project will also include drought-tolerant landscaping with associated site improvements, a small new orchard, new cypress trees planted at entry garden, and approximately 3,140 SF of new hardscape, and a 600 SF in-ground pool. Pool will be under a separate permit. The proposed project will require a Coastal Development Permit.

Scope of Work

- Demolition of existing single-family residence and garage
- Removal of existing hardscape on site and planter curbs;
- New construction for a single-family residence with attached garage and ADU;
- New construction for pool;
- New hardscape and landscape;
- Replaced driveway
- No work to be done south of the Bluff Edge Development Setback

Separate Permit/ Delegated Design

- Fire Sprinklers :
  To be approved and installed under deferred submital to Fire Department
- Solar Photo-Voltaic System:
  Plans and application for PV installation must be submitted to SB County for plan check prior to inspection request for rough framing inspection and must be installed prior to final inspection
- Pool Permit
- Encroachment Permit

Permit IDs

Coastal Development Permit # CDP2022-00003

Covenants Required

ADU Covenant:
- The accessory dwelling unit shall not be sold separately from the primary residential unit
- The accessory dwelling unit shall not be rented for less than 31 days
- No unauthorized or unpermitted residential units shall be developed or maintained on the property. The installation of unauthorized or unpermitted food preparation facilities apart from the kitchens shown on the approved plans on file with the City of Santa Barbara shall constitute a violation of the terms of this Covenant

Stormwater Narrative

This project is to meet the City of Santa Barbara's Tier 3 SWMP requirements by treating the 1 inch, 24-hour storm. Please refer to civil drawings and SWMP report.

Sheet Index

Project Information

Owner		2315 Edgewater, LLC
Project Address		2315 Edgewater Way Santa Barbara, CA 93109
Assessor's Parcel Number		041-350-024
Zone		RS-7.5 (E-3)
Occupancy		R-3
Construction Type		V-B (sprinklered)
Number of Stories		2 Stories above ground + basement
High Fire		No
Coastal Zone		Yes; appealable jurisdiction
Coastal Land Use Plan Designation		Low Density Residential
Hillside		Yes
Design Review Board		SFDB
General Plan Neighborhood		West Mesa
Lot Area		0.52 acres (22,651 sf)
100% FAR (4,430 sf + 0.013 x net lot area)		4,724 sf
85% FAR		4,016 sf
Proposed FAR		4,640
Setbacks	front yard	20 feet from property line
	side yard	6 feet
	ADU side yard	4 feet
	rear yard	6 feet
	bluff edge development	41.5 feet (per geotech report)
Allowable Height	residence	30 feet

Parking

	existing	required	proposed
main residence	2 covered	2 covered	2 covered
ADU	n/a	0 (located within 1/2 mile of public transit stop)	0
total	2	2	2

Open Yard Required Area		1,250 sf
Proposed Open Yard		2,235 sf
Grading (estimated)	cut	400 cy
	fill	60 cy
	export	340 cy
	import	0 cy
Existing Area	building footprint	2,612 gsf
	residence+garage	3,538 nsf
Demolished Area	residence+garage	3,538 nsf
Proposed Area	building footprint	2,815 gsf
Proposed Area (Net)	attached garage	730 nsf
	first floor	1,705 nsf
	second floor	1,580 nsf
	total main residence	**4,015 nsf** | **85% of max FAR**
	ADU	625 nsf
	total main residence & ADU	**4,640 nsf** | **98.2% of max FAR**
	basement*	600 nsf

**not included in FAR*

Impervious Area		
	(E) impervious building	2,612 sf
	(E) impervious flatwork	4,326 sf
	total existing impervious area^	**6,938 sf**
	(P) impervious building	3,607 sf
	(E) to remain + (P) impervious flatwork	3,775 sf
	total proposed impervious area^	**7,382 sf**
	(N) impervious area^	1,194 sf
	replaced impervious area^	4,856 sf
	(E) impervious area to remain^	1,332 sf
	total proposed impervious area^	**7,382 sf** **(Tier 3 SWMP)**

^ denotes combined sf of building + flatwork

		max. height
Building Height	existing	+/- 29'-6"
	proposed	+/- 28'-6"

F.A.R. Calculator

Instructions: Enter the information in the white boxes below. The spreadsheet will calculate the proposed FAR (floor area ratio), the 100% max FAR (per the Zoning Ordinance for "Required FAR"), and the 80% max FAR (per the Zoning Ordinance for "Required FAR"). Additionally it will determine whether a FAR Modification is required. "Guideline FAR" calculations are as outlined in the "Applicability" section of the Single Family Residence Design Guidelines, page 23-C.

The **Net Lot Area** does not include any Public Road Easements or Public Road Right-of-Way areas. The proposed **TOTAL Net FAR Floor Area** shall include the net floor area of all stories of all building, but may or may not include basement/cellar floor area. For further clarification on these definitions please refer to SBMC §28.15.083 & 30.300. This form has not yet been updated for current Title 30 zone designations, see SBMC §30.05.010 for comparison.

ENTER Project Address:	**2315 Edgewater Way**
Is there a basement or cellar existing or proposed?	**Yes**
ENTER Proposed TOTAL Net FAR Floor Area (in sq. ft.):	**4,640**
ENTER Zone ONLY from drop-down list:	**E-3**
ENTER Net Lot Area (in sq. ft.):	**22,651**
Is the height of existing or proposed buildings 17 feet or greater?	**Yes**
Are existing or proposed buildings two stories or greater?	**Yes**
The FAR Requirements are:	**GUIDELINE****
ENTER Average Slope of Lot:	**35.00%**
Does the height of existing or proposed buildings exceed 25 feet?	**Yes**
Is the site in the Hillside Design District?	**Yes**
Does the project include 500 or more cu. yds. of grading outside the main building footprint?	**No**
An FAR MOD is not required per SBMC §28.15 or §30.20.030	
FLOOR AREA RATIO (FAR):	**0.205**
Lot Size Range:	**>= 20,000 sq. ft.**
MAX FAR Calculation (in sq. ft.):	**4,430 + (0.013 x lot size in sq. ft.)**
100% MAX FAR:	**0.209**
100% MAX FAR (in sq. ft.):	**4,724**
85% of MAX FAR (in sq. ft.):	**4,016**
80% of MAX FAR (in sq. ft.):	**3,780**
The 4640 square foot proposed total is 99% of the MAX FAR.*	

*** NOTE: Percentage total is rounded up.**

****NOTE: If your project is located on a site with multiple or overlay zones, please contact Planning Staff to confirm whether the FAR limitations are "Required" or "Guideline".**

Acreage Conversion Calculator	
ENTER Acreage to Convert to square footage:	**0.52**
Net Lot Area (in sq. ft.):	**22651.2**

blackbird architects

Edgewater Residence

2315 Edgewater Way
Santa Barbara

041-350-024

PLN2021-00584

architect:

Ken Radtkey
Blackbird Architects
235 Palm Ave
Santa Barbara, CA 93101
t 805.957.1315

geotech engineer:

Todd Tranby
Earth Systems Pacific
1731-A Walter Street
Ventura, CA 93003
t 805.826.1474

civil engineer:

Jason Gotsis
Ashley & Vance Engineering, Inc.
210 East Cota Street
Santa Barbara, CA 93101
t 805.962.9966

Revisions

NOT FOR CONSTRUCTION

Cover Sheet

A0.0

Planning Submittal 07.15.22

EXHIBIT B

(1) Looking towards existing residence from Edgewater Way

(2) Looking southeast towards residence along Edgewater Way

(3) Neighboring 2-story residence to the west (2321 Edgewater Way)

(4) North elevation of existing residence

(5) South elevation of existing residence

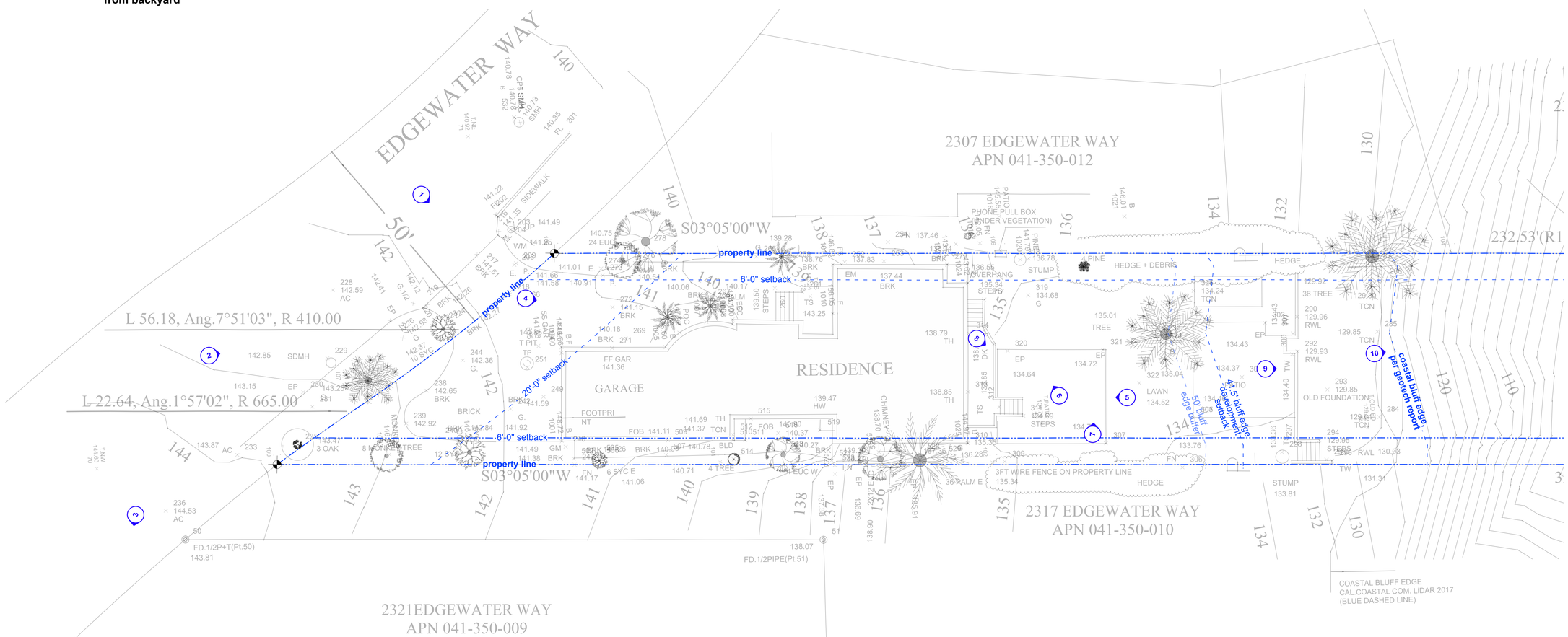
(6) Looking north east towards neighbor from backyard

(7) Looking east towards neighbor from backyard

(8) Looking southwest towards ocean & screening from backyard

(9) Looking south toward lower patio and ocean

(10) Looking south down bluff



Site Survey 1

feet 0 5 10 20

1/10" = 1'-0"

blackbird architects

Edgewater Residence

2315 Edgewater Way
Santa Barbara

041-350-024

PLN2021-00584

architect:

Ken Radtkey
Blackbird Architects
235 Palm Ave
Santa Barbara, CA 93101
t 805.957.1315

geotech engineer:

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civil engineer:

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Santa Barbara, CA 93101
t 805.962.9966

Revisions

NOT FOR CONSTRUCTION

Existing Site Photos

and Survey

A0.1

Planning Submittal 07.15.22

ENGINEERING GEOLOGY AND
GEOTECHNICAL ENGINEERING REPORT
PROPOSED RESIDENTIAL CONSTRUCTION
2315 EDGEWATER WAY
SANTA BARBARA, CALIFORNIA

PROJECT NO.: 304467-001
JULY 20, 2021

PREPARED FOR
2315 EDGEWATER LLC

BY
EARTH SYSTEMS PACIFIC
1731-A WALTER STREET
VENTURA, CALIFORNIA 93003

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

July 20, 2021

Project No.: 304467-001
Report No.: 21-7-51

Mr. Ralf Pohl
2315 Edgewater LLC
1536 Brook Drive
Downers Grove, IL 60515

Project: 2315 Edgewater Way
Santa Barbara, California
Subject: Engineering Geology and Geotechnical Engineering Report

As authorized, Earth Systems Pacific (Earth Systems) has performed an engineering geology and geotechnical engineering study for proposed residential construction at 2315 Edgewater Way in Santa Barbara, California. The accompanying Engineering Geology and Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, and our conclusions and recommendations pertaining to geotechnical aspects of project design. This report completes Phase 1 of the scope of services described within our Proposal SBA-21-02-004 dated February 17, 2021 and authorized by you on March 1, 2021.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or if we can be of further service.

Respectfully submitted,
EARTH SYSTEMS PACIFIC

Meng Wei Lu Civil Engineer	Todd J. Tranby Engineering Geologist
7-20-2021	7-20-2021
	Richard M. Beard Geotechnical Engineer
	7-20-2021

Reviewed and Approved

REGISTERED PROFESSIONAL ENGINEER — MENG WEI LU — No. C 89106 — 09/30/2022 — Civil — STATE OF CALIFORNIA

PROFESSIONAL GEOLOGIST — TODD J. TRANBY — No. 2078 — CERTIFIED ENGINEERING GEOLOGIST — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — RICHARD MICHAEL BEARD — GE 128 — Exp. 12-31-21 — GEOTECHNICAL — STATE OF CALIFORNIA

Copies: 1 - Client (email)
1 - Project File

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

INTRODUCTION

Project Description

This report presents results of an Engineering Geology and Geotechnical Engineering study performed for a proposed replacement residence at 2315 Edgewater Way in Santa Barbara, California (see Vicinity Map in Appendix A). Earth Systems understands that an existing residence will be demolished prior to the construction of the proposed replacement residence.

Purpose and Scope of Work

The purpose of the geologic/geotechnical study that led to this report was to analyze the soil/bedrock conditions of the project site and to provide geologic/geotechnical recommendations for construction. The soil/bedrock conditions include surface and subsurface soil/bedrock types, expansion potential, soil/bedrock strength, settlement potential, bearing capacity, slope stability, erosional retreat estimation; and the presence or absence of subsurface water. The scope of work included:

- Performing a reconnaissance of the project site.
- Drilling, sampling, and logging one bucket-auger boring (BA-1) to study bedrock, soil, and groundwater conditions.
- Excavating, sampling, and logging two exploratory test pits (TP-1 and TP-2) to study bedrock, soil, and groundwater conditions.
- Hand-augering, sampling, and logging two exploratory borings (HA-1 and HA-2) to study bedrock, soil, and groundwater conditions
- Laboratory testing soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
- Consulting with owner representatives and design professionals.
- Analyzing the geotechnical data obtained.
- Preparing this report.

Contained in this report are:

- Descriptions and results of field and laboratory tests that were performed.
- Conclusions and recommendations pertaining to site grading and structural design.

Site Setting

An existing residence currently occupies the project site. The site is about 50 feet wide in its west-east orientation and about 500 feet long in its north-south orientation. The northern about 200 feet of the site is relatively flat and it is here that existing improvements are located. The southern about 300 feet of the site descends to the Pacific Ocean and terminates on a sandy beach. The descending slope is about 120 feet high and has a variable gradient of between 1-horizontal to 1-vertical (1H:1V) to about 6H:1V.

The project site is bounded by Edgewater Way to the north, residential lots to the west and east, and the before-mentioned approximately 120-foot high descending slope to the south. The area surrounding the existing residence is covered by landscaping (planters and trees) and hardscaping (walkways and driveways). The geographic coordinates of the project site are 34.3972° North Latitude and 119.7295° West Longitude.

REGIONAL GEOLOGY

The site lies atop an ocean bluff in the western portion of the Transverse Ranges geologic province. Numerous east-west trending folds and reverse faults indicative of active north-south transpressional tectonics characterize the region. The ongoing regional compression produces the east-west trending faults that deform early Pleistocene to Tertiary aged marine and non-marine sedimentary bedrock units. These sedimentary bedrock units underlie the property at an unknown depth.

Both Regional Geologic Map 1 (T.W. Dibblee, Jr, Geologic Map of the Santa Barbara Quadrangle, 1986) and Regional Geologic Map 2 (USGS, Geologic Map of the Santa Barbara Coastal Plain, 2009) indicate that the northwest-southeast trending Lavigia Fault is about 4,700 feet north of the site (see Appendix A).

The site is mapped by T.W. Dibblee, Jr. and the USGS to be underlain by Marine Terrace deposits (a.k.a. older alluvium). Our field study encountered artificial fill overlying Marine Terrace deposits, which is underlain by Monterey Formation bedrock.

AERIAL PHOTO REVIEW

An aerial photograph study was performed at by Dr. Larry Gurrola (subcontracted geologist) on April 6, 2021. The following table summarizes the aerial photographs that were reviewed for the subject property:

Year	Flight and Frame Numbers	Scale
1928	C-311 C-Section: A10, A11	18,000
1929	C-430: A12, A13	24,000
1938	C-4950: SF-72, SF-73	24,000
1943	BTM-1943: 4B-148, 4B-149	20,000
1947	GS-EM: 6-160, 6-161	24,000
1953	CC: 1-45, 1-46	14,400
1954	BTM-1954 7K-66, 7K-67	20,000
1954	CM: I-66, I-67	14,400
1956	HA-AN: 1-7, 1-8	9,600
1959	HA-GN: 67, 68	15,600
1961	BTM-1961: 7B-89, 7B-90	20,000
1962	HA-OI: 81 (non-stereo)	12,000
1967	HB-JW: 121, 122	12,000
1969	AN-AM: 37, 38	24,000
1969	HB-QD: 109, 110	24,000
1975	HB-XQ: 239, 240	12,000
1992	PW-SB-8: 8-2, 8-4	24,000
1995	PW-S5010: 26, 27	12,000
2001	CCC-BQK-C: 72-2, 72-3	12,000

Google Earth images dated: 2006-2007 and 2010-2018.

The aerial photographs listed in the above table were supplemented with Google Earth images to observe evidence related to the presence of a landslide on the subject property and to observe the performance of the subject slopes in the last ninety years. A mirrored stereoscope with 3X magnification was used to view the subject property in 3-D and map areas of instability of the subject slopes. Areas of instability such as flows and slides, in addition to development history of the site vicinity were recorded.

The subject property is situated on an elevated terrace (bench feature) with a descending slope in the earliest 1920's and 1930's aerials. The elevated terrace area and surrounding vicinity appear to be used as agricultural fields. The descending sea cliff slope was sub-vertical and mostly vegetated with few barren areas. A prominent lineation was expressed as a topographic step down to the south, and this feature traverses the site which is likely a buried sea cliff. The buried sea cliff daylights near or on the subject property at the top of bluff.

Development of Edgewater Way was observed in 1947 and a small building was observed on or near the subject property. Artificial fill may have been pushed over the top of bluff that was associated with the development of the structure as fill was observed on the upper bluff face. A translational landslide was observed in the early 1950's and part of the head scarp extended to the southeast portion of the subject slope. The lateral margin of the slide formed a northeast-southwest scarp that extended down the slope face of the subject property. The landslide mass re-mobilized down slope over the course of the following years.

The landslide mass was graded and a haul road from Edgewater Way located east of the site allowed access to the slope in 1956. However, re-mobilization of the slide occurred shortly thereafter. A new head scarp formed on the graded landslide mass in 1967 and earth flow slides were observed on the landslide mass in 1969.

Two structures were present on the subject property in 1973 with the largest structure situated near the top of slope. Artificial fill had been pushed over the bluff top in an apparent attempt to fill in the recently formed head scarp graben on the bluff face and apparently extended the pad southward forming a new top of bluff composed of fill. A landslide was observed in 1975 that formed a new head scarp that extended to the structure near the top of bluff. This slide mobilized the artificial fill observed at the top of bluff in 1973 and possibly mobilized part of the intact bluff top.

Due to a lack of available aerial photo images, observations were not made in the late 1970's and the 1980's. Runoff related erosion was observed on the slope face in the 1990's and a small slide occurred on the lower part of the slope along the west property line. Runoff related erosion has repeatedly occurred in the lower part of the slope along the west property line in the 2000's.

SEISMICITY AND SEISMIC DESIGN

Although the project site is not within a State-designated "fault rupture hazard zone", it is located in an active seismic region where large numbers of earthquakes are recorded each year. Historically, major earthquakes felt in the vicinity of the project site have originated from faults outside the area. These include the 1857 Fort Tejon earthquake, the 1872 Owens Valley earthquake, and the 1952 Arvin-Tehachapi earthquake. An exception is the December 21, 1812 "Santa Barbara Region" earthquake, that was presumably centered in the Santa Barbara Channel. The June 25, 1925 Santa Barbara earthquake had an estimated magnitude of 6.8 and is not considered a "major" earthquake. However, it did cause widespread damage around Santa Barbara because of poor construction techniques.

It is assumed that the 2019 CBC and ASCE 7-16 guidelines will apply for the seismic design parameters. The 2019 CBC includes several seismic design parameters that are influenced by the geographic site location with respect to active and potentially active faults, and with respect to subsurface soil or rock conditions. The "general procedure" (i.e., probabilistic) seismic design parameters presented below were retrieved from the U.S. Seismic Design Maps web services using the SEAOC/OSHPD website which presents the data in a report format. The data were retrieved for the ASCE 7-16 design code, site coordinates 34.3972° North Latitude and 119.7295° West Longitude, Soil Site Class C_c and Occupancy (Risk) Category II. The 2019 California Building Code (CBC) and ASCE 7-16 seismic parameters to be used for structural design are included in Appendix C and summarized in the following table.

Summary of Seismic Parameters (2019 CBC)

Seismic Design Category	E
Site Class (Table 20.3-1 of ASCE 7-10 with 2013 update)	C
Occupancy (Risk) Category	II
Maximum Considered Earthquake (MCE) Ground Motion	
Site Modified Peak Ground Acceleration – PGA_m	1.227 g
Spectral Response Acceleration, Short Period – S_s	2.320 g
Spectral Response Acceleration at 1 sec. – S_1	0.822 g
Site Coefficient – F_a	1.2
Site Coefficient – F_v	1.4
Site-Modified Spectral Response Acceleration, Short Period – S_{ms}	2.784 g
Site-Modified Spectral Response Acceleration at 1 sec. – S_{m1}	1.151 g
Design Earthquake Ground Motion	

Short Period Spectral Response – S_{DS}	1.856 g
One Second Spectral Response – S_{D1}	0.768 g

The values presented in the table above are appropriate for a 2 percent probability of exceedance in 50 years. A listing of the calculated 2019 CBC and ASCE 7-16 seismic parameters is included in Appendix D. The Fault Parameters table in Appendix D lists the significant "active" and "potentially active" faults within a 42-mile radius of the project site.

The distance between the project site and the nearest portion of each fault is shown, as well as the respective estimated maximum earthquake magnitudes, and the deterministic mean site peak ground accelerations.

SOIL/BEDROCK AND GROUNDWATER CONDITIONS

Evaluation of the subsurface indicates that much of the project site is underlain by artificial fill (silty sand to sandy silt, thicknesses ranging from zero to about 3.5 feet) overlying marine terrace deposits (silty sand to sandy silt, thicknesses of up at least 2 feet), which overlies Monterey formation bedrock.

Testing indicates that anticipated bearing soils lie in the "Very Low" expansion range based on a measured expansion index (EI) of 2. A version of this classification of soil expansion is incorporated into a Minimum Foundation Design Table, which is included in Appendix C of this report. It appears that soils can be cut by normal grading equipment.

Groundwater was not encountered in any of the test borings drilled for this study. It should be noted that fluctuations in groundwater levels may occur because of variations in rainfall, regional climate, and other factors.

A sample of near-surface soil was tested for pH, resistivity, soluble sulfates, and soluble chlorides. The test results provided in Appendix B should be distributed to the design team for their interpretations pertaining to the corrosivity or reactivity of various construction materials (such as concrete and piping) with the soils. It should be noted that the sulfate content (58 mg/Kg) is in the "S0" exposure class (i.e. "Negligible" severity range) of Table 19.3.1.1 of ACI 318-14. Therefore, special concrete designs will not be necessary for the measured sulfate content according to Table 19.3.2.1 of ACI 318-14.

Based on criteria established by the County of Los Angeles, the measured resistivity of a near-surface soil sample (11,000 ohms-cm) indicates that near-surface soils are "Mildly Corrosive" to ferrous metal (i.e. cast iron, etc.) pipes. It should be noted that Earth Systems does not practice soil corrosion engineering.

HYDROCOLLAPSE POTENTIAL

Hydrocollapse is a phenomenon in which naturally occurring soil deposits, or non-engineered fill soils, collapse when wetted. Natural soils that are susceptible to this phenomenon are typically aeolian, debris flow, alluvial, or colluvial deposits with high apparent strength when dry. Loosely compacted fills can also be susceptible to this phenomenon. The dry strength is attributed to salts, clays, silts, and in some cases capillary tension, "bonding" larger soil grains together. So long as these soils remain dry, their strength and resistance to compression are retained. However, when wetted, the salt, clay, or silt bonding agent is weakened or dissolved, or capillary tension reduced, eventually leading to collapse. Soils susceptible to this phenomenon are found throughout the southwestern United States.

A consolidation test was performed on a sample of artificial fill collected at a depth of 3 feet in Boring BA-1. The test specimen exhibited about 2.3% of hydrocollapse when the sample was loaded to wetted. Based on the laboratory test results, there is the potential for hydrocollapse of the artificial fill soils should they become wetted; however, all existing artificial fill soils will be removed and replaced with compacted engineered fill beneath all future improvements. The existing artificial fill is underlain by marine terrace deposits and Monterey Formation bedrock, which are typically not susceptible to hydrocollapse. Therefore, it is our opinion the potential for hydrocollapse is low.

LIQUEFACTION POTENTIAL

Earthquake-induced cyclic loading can be the cause of several significant phenomena, including liquefaction in fine sands and silty sands. Liquefaction results in a loss of soil strength and can cause structures to settle and, in extreme cases, to experience bearing failure.

The potential hazard posed by liquefaction is considered to be low at the project site because:

- Groundwater was not encountered in either boring to a depth of about 40 feet below the ground surface.

- The project site is underlain at shallow depths by Monterey Shale that is typically not susceptible to liquefaction.

SEISMIC-INDUCED SETTLEMENT OF DRY SANDS

Dry (unsaturated) soils tend to settle and densify when subjected to earthquake shaking. The amount of settlement is a function of relative density, cyclic shear strain magnitude, and the number of strain cycles. A procedure to evaluate this type of settlement was developed by Seed and Silver (1972) and later modified by Pyke, et al. (1975). Tokimatsu and Seed (1987) presented a simplified procedure that has been reduced to a series of equations by Pradel (1998). Research on this subject is continuing (Stewart, et al., 2004).

Potential of this phenomenon is considered to be low at the project site because the project site is underlain at shallow depths by Monterey Formation bedrock which are typically not susceptible to seismic-induced settlement of dry sands, and the existing artificial fill soils will be removed and replaced beneath all future improvements with compacted engineered fill which is also not susceptible to seismic-induced settlement of dry sands.

FAULT RUPTURE HAZARD

A fault is a break in the earth's crust upon which movement has occurred in the recent geologic past and at which future movement is expected. A summary of nearby active faults is presented in Appendix C under Table 1 Fault Parameters.

The project site does not lie within a State of California designated active fault hazard zone. The activity of faults is classified by the State of California based on the Alquist-Priolo Earthquake Fault Zoning Act (1972, Revised 1999). An active fault has had surface rupture with Holocene time (the past 11,000 years). A potentially active fault shows evidence of surface displacement during Quaternary time (last 1.6 million years). An inactive fault has no evidence of movement within the Quaternary time.

As previously discussed in the Regional Geology section of this report, all nearby faults (as shown on both reviewed Regional Geologic Maps) are at least about 4,700 feet away from the project site. Therefore, the potential for fault rupture at the project site is considered low.

ROCKFALL

Loose boulder-sized rocks and/or weathering bedrock outcrops located upslope from construction can lead to a rockfall hazard. Because of the project site's location on top of a slope area, the potential for rockfall onto the project site appears to be low.

EARTHQUAKE-INDUCED FLOODING

Earthquake-induced flooding types include tsunamis, seiches, and reservoir failure. The potential for earthquake-induced tsunamis is not considered a hazard because the project site is not located in a tsunami inundation area according to Tsunami Inundation Map for Emergency Planning, Santa Barbara Quadrangle, Effective January 31, 2009 (CalEMA/CGS/USC).

Because of the project site's relative position away from any reservoirs, the potential for seiche and reservoir failure should be considered low.

OTHER FLOODING

The project site is not within any of the flood hazard areas mapped by Federal Emergency Management Agency (FEMA), FEMA Flood Map for City of Santa Barbara, effective September 28, 2018, Map No. 06083C1388H.

GROSS (GLOBAL) SLOPE STABILITY

Slope stability analyses were performed for Section A-A', which is shown on the Site Plan/ Geologic Map in Appendix A. This Section A-A' is located within the property lines and is believed to represent the steepest descending slope below the southern portion of the project site.

Strength Parameters

The unit weights and shear strength values of the Monterey Formation bedrock for the slope stability analyses were selected based on results of laboratory testing on samples obtained from the project site. The direct shear tests were performed with the samples saturated. The shear data were composited to determine the average shear strength parameters of the relatively undisturbed samples of Monterey Formation bedrock that were tested.

For the Monterey Formation bedrock, peak shear strength parameters were used for both static and seismic (earthquake, pseudostatic) conditions. Groundwater was not considered in the slope stability analyses because it is located substantially below the ground surface.

Results of the composite shear strength graphs are included in Appendix B. The composited results are summarized in the following table:

Composited Parameters that are Used in the Slope Stability Analyses

Unit	Unit Weight (pcf)	Cohesion (psf)	Friction Angle
Monterey Formation Bedrock (peak)	93.5 (Moist)	321.8	38.1°

Therefore, it is our professional opinion that the geotechnical parameters presented below are appropriate for use in the slope stability analyses. The strength parameters of the Fill Material were based on a direct shear test performed on a remolded sample (BA-1@0'-5'). The peak shear strengths of the Monterey Formation bedrock were based on direct shear testing of onsite samples. The residual shear strengths for the Monterey Formation bedrock were based on a Sea Cliff Retreat Study report prepared for a nearby project site (2215 and 2305 Edgewater Way) that was explored by Earth Systems Southern California in 2008 (Project No. VT-23780-01, Report No. 08-2-32, Dated February 20, 2008). See Appendix B for the Site Plan, Boring Log, and Direct Shear Test from the referenced site. The strength parameters of the Landslide Mass were assumed based on experiences and judgements.

Unit	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (degrees)
Fill Material	122 (moist)	300 (peak)	29 (peak)
		120 (ultimate)	30 (ultimate)
Native Bedrock (Monterey Formation)	93.5 (moist)	321.8 (peak)	38.1 (peak)
		0 (residual)	34 (residual)
Landslide Mass (Qls)	110 (moist)	200 (peak & ultimate)	28 (peak & ultimate)

Slope Stability Analyses Criteria

The stability of Section A-A' was analyzed for adverse bedding conditions with apparent bedding dipping south at between 22° and 38°. Stability analyses were performed using the previously-presented strength parameters.

The City of Santa Barbara allows the use of a seismic coefficient of 0.15 g in pseudo-static slope stability analyses when the proximity of active faults did not warrant the use of higher values. Earth Systems' opinion is that a higher value is not warranted at this site because there is no

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active fault within about 4,700 feet of the project site based on review of regional geologic maps. Hence, pseudostatic analyses were performed using the SLIDE2 computer program with seismic coefficient of 0.15 g. The City of Santa Barbara requires a minimum safety factor for gross static stability is 1.50 for static loads, and a minimum safety factor for pseudostatic stability is 1.10 for loading due to seismic shaking.

Results of Slope Stability Analyses

The slope stability plots and printouts are included in Appendix E. The following table summarizes the minimum safety factors that were computed for gross (global) stability analyses of Section A-A':

Minimum Safety Factors Obtained from Different Conditions

Cross-Section Analyzed	Case	Minimum Safety Factor
A-A'	Static, Circular	1.05
A-A'	Seismic, Circular, k=0.15g	0.82
A-A'	Static, Planar	1.65
A-A'	Seismic, Planar, k=0.15g	1.06

As shown in the table above, all of the minimum safety factors obtained, with the exception of a planar failure surface on the bluff face under static conditions, were greater than the required threshold. No failure surface with factors of safety less than the required minimums projects into the building pad area. Hence, the proposed replacement residence does not appear to be impacted by gross (global) slope instability.

RATE OF RETREAT

The rate of retreat was analyzed for the top of the bluff for the southern slope of the subject property. The analysis was performed along one survey transect located on the eastern portion of the property. The survey utilized measurements on large scale aerial photographs and a County of Santa Barbara Flood Control topographic map, dated 1997. The aerial photographs and map acquired data was supplemented with field measurements taken on April 7, 2021.

It is necessary to utilize the same geographic reference point to accurately determine the amount of retreat that has occurred for a given time period. Horizontal distances were measured from the geographic reference points to the top of bluff along the survey transect. The earliest measurements of the distance to top of bluff on the eastern side of the property

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Revisions

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Reports

Geotechnical Report

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were made on large scale 1975 aerial photos. It is noted that measurements prior to 1975 were not included in the survey as the bluff top was extended southward by artificial fill and was not visible due to tree cover.

Utilizing the distance to the bluff top in 1975 photos as a base reference in comparison to the field survey in 2021, the estimated total amount of retreat from 1975 to 2021 is approximately 15 feet. Therefore, the long-term rate of retreat for the eastern survey is approximately 0.33 feet per year (4 inches per year).

Based on a rate of retreat of 0.33 feet per year, the projected amount of retreat of the top of bluff is estimated to be approximately 25 feet in 75 years. The rate of retreat represents an average annual rate for bluff top erosion that is episodic in nature.

The estimated amount of retreat in 75 years does not account for accelerated rates of bluff retreat due to sea level rise. The following section presents the analysis and accounts for accelerating sea level rise in the Santa Barbara area for the next 75-year period.

SEA LEVEL RISE AND RATE OF RETREAT

Because of climatic changes over the past 100 years, average worldwide sea level has been rising approximately 1 to 2 millimeters per years since the end of the "Little Ice Age" in the 19th century (USGS, 2000 and Douglas, 1995). This rise is not globally uniform and there is considerable debate regarding the accuracy of predicted future sea level changes. However, there is general scientific consensus that sea levels will rise at an accelerating rate in the coming decades. A recently adopted California Coastal Commission guidance document, the "Sea Level Rise Policy" dated November 7, 2018 contains future sea level rise projections under various time scales and risk scenarios, which were developed in a 2017 report by the California Ocean Protection Council under direction of the State of California (OPC, 2017).

For Santa Barbara (Appendix G, Table G-8 in the CACC 2018 document), the projected sea level rise (SLR) at the year 2100 is 3.1 feet in the "Low Risk Aversion" category, which is defined as about 17 percent likely that sea level rise will exceed the 3.1 feet estimate. In the "Medium-High Risk Aversion" category, an estimate of 0.5 percent probability that sea level rise will be higher than 6.6 feet at the year 2100. The 2018 state guidance recommends that the "Medium-High Risk" category be used for establishing setbacks for residential development given the uncertainty of the sea level rise projections, the limitation of adaptation options, and

the potential risk to life and property. The sea level rise projections are presented in 10-year increments (see Table G-8 in the Appendix F of this report) and have utilized this data for 20 year "periods" to estimate accelerated rate of sea cliff retreat, as described below.

Projected Coastal Bluff Retreat

The future rate of coastal bluff retreat is estimated by application of a percentage increase to the site-specific historical retreat rate, estimated as described above, based on the increase in the rate of bluff retreat determined by the U.S. Geological Survey's Coastal Storm Modeling System also known as CoSMoS. This widely recognized model simulates coastal hazards that predicts ocean wave data input, storm surge, tides, and sea level rise.

The CoSMoS model (current version is CoSMoS 3.0) includes a shoreline hazard map with various historic and projected bluff edge retreat rates at noted transect locations. The transects with numerical identifiers are separated by roughly 300 feet horizontally along the coastline in the Mesa Lane area. The CoSMoS transect number 4005 is located near the subject property and the aerial photography rate of retreat transect line. The data for that transect lists the historical sea cliff retreat rate at 0.27609 meters per year (0.91 feet per year). The reported CoSMoS historical retreat rate is based on the USGS's evaluation of historic regional topographic maps and regional aerial imagery (Hapke and Reid, 2007), and is not comparable to the site-specific historical retreat rate determined for the subject property.

The California Coastal Commission (CCC, 2018) "Sea Level Rise Policy Guidance" projections for the Santa Barbara area are used in conjunction with the CoSMoS projections (Appendix A). The CACC guidance projects the upper limit of sea level rise to be 1.1 feet (0.34 meter) at year 2040 under the "Medium-High Risk Aversion" category (see Table G-8 in the Appendix F of this report). The CoSMoS model at transect number 4005 shows that for a sea level that has risen by 0.25 meter (the closest value to the 0.34 meter rise projected at 2040 by the 2018 CACC document), the sea cliff retreat rate is by that time forecast to increase to 0.32275 meters per year (1.1 feet per year). An increase from 0.27609 meters per year to 0.32275 meters per year is equivalent to a 17 percent increase (0.32275/0.27609 = 1.17) in the CoSMoS model retreat rate. That percentage increase is then applied to the site-specific historical retreat rate of 0.33 ft/year to derive a new retreat rate for the 2021 to 2040 period. The following 20-year periods have been analyzed in the same way to develop an incremental percent increase in the rate of sea cliff retreat for each period.

The incremental changes in sea level (CACC, 2018) at Santa Barbara and the corresponding sea cliff retreat rate percentage change are summarized on the following matrix. Also included is the incremental percentage change in retreat rate applied to the site-specific historical retreat rate and the resulting total horizontal cliff edge retreat for the noted time increment.

CoSMoS Historical Retreat Rate (baseline) = 0.276 meters per year (0.91 feet per year) for CoSMoS Transect Station 4005 near 2315 Edgewater Way, Santa Barbara

Time Increment (Years)	Change in Sea Level (meters/feet) CACC Medium-High Aversion	Percentage Increase in Retreat Rate from CoSMoS Historical Rate	Site Specific Historical Retreat Rate (ft/year)	Projected Average Site Specific Annual Retreat Rate (ft/year)	Incremental Estimated Retreat (feet)
2021-2040 (19 years)	0.34 m (1.1) ft	17%	0.33	0.39	7.4
2040-2060	0.76 m (2.5 ft)	40%	0.33	0.46	9.2
2060-2080	1.31 m/ 4.3 ft	78%	0.33	0.59	11.8
2080-2096 (16 years)	2.01 m/ 6.6 ft	149%	0.33	0.82	13.1
					Total Retreat at 2096 = 41.5 feet

Applying the site-specific historical retreat rate of 0.33 feet/year for the subject property to the incremental percent, bluff retreat is estimated to be approximately 41.5 feet due to anticipated, accelerating sea level rise.

CONCLUSIONS AND RECOMMENDATIONS

According to Policy 5.1-70 of the City of Santa Barbara, Local Coastal Program, Coastal Land Use Plan (August 2019), the coastal bluff edge development buffer calculation should be determined by both slope stability buffer and coastal bluff erosion buffer. The slope stability buffer is not applicable to this project because the proposed replacement residence does not appear to be impacted by gross (global) slope instability, see Gross (Global) Slope Stability section of this report. Therefore, the coastal bluff edge development buffer will be the coastal bluff erosion buffer, which is 41.5 feet in 75 years.

Based on the data provided in this report, it appears that the project site is suitable for the proposed replacement residence from an engineering geology and geotechnical engineering standpoint provided that the recommendations provided herein are properly implemented into the project.

Earth Systems believes that a conventional footing system with slab-on-grade floors will be suitable to support the proposed replacement residence. Given the site conditions encountered, we conclude that remedial grading (i.e., overexcavation and recompaction) will be needed to provide a more uniform and moisture-conditioned subgrade. However, an alternative to overexcavation and recompaction below and around new footings would be to bear new footings into the existing dense marine terrace deposits (about 0 to 3.5 feet below existing grade). The footings should have a minimum of 12 inches of embedment into the marine terrace deposits. If footings bear into the dense marine terrace deposits, then either interior raised floors or structural slabs should be used.

The foundation systems of the proposed replacement residence should satisfy the minimum setback clearances from descending slopes in accordance with Section 1808.7 of the 2019 CBC. In general, when adjacent slopes are steeper than 3-horizontal to 1-vertical, foundations should be setback from descending slopes by a distance equal to the slope height divided by three (H/3). The setback from descending slopes should not be less than 5 feet and need not exceed 40 feet. See the Slope Setbacks for Foundations on or Adjacent to Slopes in Appendix C. Earth Systems estimated the height of the descending slope on the south to be 120 feet, which indicated the minimum setback clearance should be 40 feet. The designer is encouraged to make his/her own determination of slope height and setback clearances as required. This 40 feet of minimum setback clearance should be easily attained because of the above-mentioned 41.5 feet of the coastal bluff edge development buffer

The southern portion of the project site appears to be in an area identified on the Radon Hazard Zones Map that was included in the referenced Technical Report with Evaluation Guidelines (prepared by URS Corporation for the City of Santa Barbara, April 2008) as having high Radon potential. Mitigation measures may include, but not limited to: 1) sub-slab or sub-membrane depressurization systems; 2) mechanical barriers such as sealing and caulking foundation cracks; and/or 3) improved location and sealing of air handling ducts. Earth Systems does not provide Radon Mitigation Services. The project design professional should be aware of and/or evaluate this hazard.

Specific conclusions and recommendations addressing these geologic/geotechnical considerations, as well as general recommendations regarding the geotechnical aspects of design and construction, are presented in the following sections.

A. Grading
   1. Pre-Grading Considerations
      a. Roof draining systems should be designed so that water is not discharged into bearing soils or near structures.
      b. Final site grade should be designed so that all water is diverted away from the structures over paved surfaces, or over landscaped surfaces in accordance with current codes. Water should not be allowed to pond anywhere on the pad, nor should water be allowed to flow over the top of adjacent descending slopes/blufftops.
      c. Onsite irrigation should be minimal and drought-tolerant landscape should be used.
      d. Stormwater infiltration is not considered feasible onsite because of slope stability concerns. Stormwater should be treated onsite and diverted offsite.
      e. Shrinkage of soils (uncertified fills) affected by compaction is estimated to be about 10 percent based on an anticipated average compaction of 92 percent. This does not include losses from removing oversized rocks.
      f. Earth Systems should be retained to provide engineering geology and geotechnical engineering services during site development and grading, and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations. This will allow for timely design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.
      g. Plans and specifications should be provided to Earth Systems prior to grading. Plans should include the grading plans, foundation plans, and foundation details. Earth Systems will review these plans only for conformity with geotechnical parameters not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary to the proper function and performance of the structure.
      h. Compaction tests should be made to determine the relative compaction of the fills in accordance with the following minimum guidelines: two tests for each

1-foot vertical lift in the areas graded; two tests for each 500 cubic yards of material placed; and two tests at finished subgrade elevation in every area of remedial grading.

   2. Rough Grading/Areas of Development
      a. Grading at a minimum should conform to the 2019 California Building Code.
      b. The existing ground surface should be initially prepared for grading by removing all unwanted existing structures, concrete slabs and foundations, abandoned utility lines, vegetation, trees, large roots, debris, other organic material and non-complying fill. Organics and debris should be stockpiled away from areas to be graded, and ultimately removed from the project site to prevent their inclusion in fills. Voids created by removal of such material should be properly backfilled and compacted. No compacted fill should be placed unless the underlying soil has been observed by the Geotechnical Engineer.
      c. To provide a more uniform and moisture-conditioned building pad, overexcavation and recompaction of soils in these construction areas will be necessary. Alternatively, foundations can bear into the underlying dense marine terrace deposits as discussed in the Conventional Shallow Foundations section of this report. If footings bear into the dense marine terrace deposits, then either interior raised floors or structural slabs should be used.
      d. Soils should be overexcavated throughout the entire construction area to the greatest depth of the following: 1) 3 feet below the bottom of footings; 2) 4 feet below the finished pad grade; or 3) until all existing artificial fills are removed. Alternatively, foundations can bear into the underlying dense marine terrace deposits as discussed in the Convention Shallow Foundations section of this report. If footings bear into the dense marine terrace deposits, then either interior raised floors or structural slabs should be used.
      e. Overexcavation should be extended to a distance of at least 5 feet laterally, but not less than a distance equal to the depth of removal, beyond the outside edge of the foundation elements.
      f. The bottoms of all excavations should be observed by a representative of Earth Systems prior to processing or placing fill.
      g. The resulting surface(s) should then be scarified an additional 6 inches, uniformly moisture conditioned to above the optimum moisture content, and compacted to achieve a minimum relative compaction of 90 percent of the

ASTM D 1557 maximum dry density. Compaction of the prepared subgrade should be verified by testing prior to the placement of engineered fill.
      h. Areas outside of the building to receive fill, exterior slabs-on-grade, sidewalks, or paving should be overexcavated either to 1 foot below finished pad grade, or as deep as necessary to remove all existing fill, whichever is deeper. The resulting surfaces should then be scarified an additional 6 inches, moisture conditioned, and recompacted. If the owner decides to leave any existing fill in place under and/or within the influence of proposed exterior improvements, then the owner should aware that there is a risk of settlement that may cause displacement and cracking of exterior improvements.
      i. Voids created by dislodging cobbles and boulders during excavation should be backfilled and recompacted and the dislodged cobbles larger than 6 inches in diameter should be removed from the subgrade.
      j. On-site soils may be used for fill once they are cleaned of all organic material, rocks, debris, and irreducible material larger than 6 inches.
      k. Fill and backfill placed above optimum moisture in layers with a loose thickness not greater than 6 inches should be compacted to a minimum of 90 percent of the maximum dry density obtainable by the ASTM D 1557 test method unless otherwise recommended or specified by the Geotechnical Engineer or his/her representative. Random compaction tests by Earth Systems can assist the Grading Contractor in evaluating whether the Grading Contractor is meeting compaction requirements. However, compaction tests pertain only to a specific location and do not guaranty that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve uniform compaction in accordance with the requirements of this report and the grading ordinance.
      l. Import soils used (if any) to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.
      m. According to the 2019 CBC Section 1804.4, the ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than 5% for a minimum distance of 10 feet measured perpendicular to the face of the wall.

   3. Utility Trenches
      a. Utility trench backfill should be governed by the provisions of this report relating to minimum compaction standards. In general, on-site service lines may be backfilled with native soils compacted to 90 percent of maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.
      b. Utility trenches running parallel to footings should be located at least 5 feet outside the footing line, or above a 1:1 (horizontal to vertical) projection downward from the outside edge of the bottom of the footing.
      c. Compacted on-site native soils should be utilized for backfill below structures. Clean sand backfill should be avoided under structures because it provides a conduit for water to migrate under foundations.
      d. Backfill operations should be observed and tested by the Geotechnical Engineer to monitor compliance with these recommendations.
      e. Although not anticipated, shoring and/or sloping of trenches may be required because of the potential presence of caving sand.
      f. Rocks greater than 6 inches in diameter should not be placed in trench zones (from 12 inches below pavement subgrade or ground surface to 12 inches above top of pipe or box); rocks greater than 2.5 inches in diameter should not be placed in pipe zones (from 12 inches above top of pipe or box to 6 inches below bottom of pipe or box exterior).
      g. Jetting should not be utilized for compaction in utility trenches.

B. Structural Design
   1. Conventional Shallow Foundations
      a. The foundation systems of the proposed replacement residence should satisfy the minimum setback clearances from descending slopes in accordance with Section 1808.7 of the 2019 CBC.
      b. Conventional continuous footings and/or interior pad footings supported by recompacted fills or dense marine terrace deposits may be used to support structures. Based on the tested expansion index of zero, perimeter and interior footings should have minimum embedment depths of 12 and 18 inches for one-story and two-story structures, respectively. The expansion index should be re-evaluated at the completion of rough grading to confirm that these minimum footing depths are appropriate.

      c. Footings should be embedded into firm recompacted fill or dense marine terrace deposits as recommended elsewhere in this report. Foundation excavations should be observed by a representative of this firm after excavation, but prior to placing of reinforcing steel or concrete, to verify bearing conditions.
      d. Footings embedded 12 and 18 inches deep into firm recompacted fill or dense marine terrace deposits may be designed based on allowable bearing values of 2,200 and 2,600 psf, respectively. These values include a safety factor of 3. These allowable bearing values are net (weight of footing and soil surcharge may be neglected) and are applicable for dead plus reasonable live loads.
      e. Bearing values may be increased by one-third when transient loads such as wind and/or seismicity are included.
      f. Lateral loads may be resisted by soil friction on floor slabs and foundations and by passive resistance of the soils acting on foundation stem walls. Lateral capacity is based on the assumption that any required backfill adjacent to foundations and grade beams is properly compacted.
      g. The information that follows regarding reinforcement and premoistening for footings is the same as that given in the Minimum Foundation Design Table for the "Very Low" expansion range. Actual footing designs should be provided by the project Structural Engineer, but the dimensions and reinforcement he recommends should not be less than the criteria set forth in the Minimum Foundation Design Table for the appropriate expansion range.
      h. Continuous footings bottomed in soils in the "Very Low" expansion range should be reinforced, at a minimum, with one No. 4 bar along the bottom and one No. 4 bar along the top.
      i. Soils should be lightly moistened prior to placing concrete. Testing of premoistening is not required.

   2. Slabs-on-Grade Floors
      a. Concrete slabs on grade should be supported by firm recompacted fills as recommended elsewhere in this report.
      b. It is recommended that perimeter slabs (walkways, patios, etc.) be designed relatively independent of footing stems (i.e. free floating) so foundation adjustment will be less likely to cause cracking.
      c. The information that follows regarding design criteria for slabs is generally the same as that given in the Minimum Foundation Design Table for the "Very

Low" expansion range. Actual slab designs should be provided by the project Structural Engineer, but the reinforcement and slab thicknesses he recommends should not be less than the criteria set forth in the Minimum Foundation Design Table for the appropriate expansion range, or as recommended below, whichever is more stringent.
      d. Slabs bottomed on soils in the "Very Low" expansion range should be underlaid with a minimum of 2 inches of sand. Areas where floor wetness would be undesirable should be underlaid with a vapor retarder (as specified by the Project Architect or Civil Engineer) to reduce moisture transmission from the subgrade soils to the slab. The retarder should be placed as specified by the project Structural Engineer or Architect.
      e. Slabs bottomed on soils in the "Very Low" expansion range should at a minimum be reinforced at mid-slab with No. 4 bars on 16-inch centers, each way. No. 4 bars acting as dowels should also extend out of the perimeter footings, and should be bent so that they extend a minimum of 3 feet into adjacent slabs.
      f. Soils should be lightly moistened prior to placing concrete. Testing of premoistening is not required.
      g. According to Policy 5.1-33 of the City of Santa Barbara, Local Coastal Program, Coastal Land Use Plan (August 2019), patios should be constructed no more than 10 inches above existing grade. Walkways, lighting for public safety purposes, fences are limited to 42 inches in height. Policy 5.1-33 also limits the approval of the minor improvements to a maximum 20 years from the issuance of the Coastal Development Permit.

   3. Frictional and Lateral Coefficients
      a. Resistance to lateral loading may be provided by soil friction acting on the base of foundations. A coefficient of friction of 0.58 may be applied to dead load forces. This value does not include a safety factor.
      b. Passive resistance acting on the sides of foundation stems equal to 360 pcf of equivalent fluid weight may be included for resistance to lateral load. This value does not include a safety factor.
      c. A minimum safety factor of 1.5 should be used when designing for sliding or overturning.
      d. Passive resistance may be combined with frictional resistance provided that a one-third reduction in the coefficient of friction is used.

   4. Settlement Considerations
      a. A maximum settlement (static and seismic combined) of about half of an inch (0.5") is anticipated for: 1) foundations and floor slabs supported by recompacted fill as recommended; or 2) foundations supported by dense marine terrace deposits as recommended.
      b. Differential settlement between adjacent load bearing members could be about one-half the maximum settlement.
      c. The Project Structural Engineer will need to design the foundation system to accommodate the potential settlement values.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by Earth Systems during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

- Review of the building and grading plans during the design phase of the project.
- Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
- Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analyses and recommendations submitted in this report are based in part upon the data obtained from the on-site borings and test pits. The nature and extent of variations beyond the points of exploration may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of the client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they are because of natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structures and other improvements are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to ensure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, Earth Systems has striven to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of the Client for the purposes stated in this document for the referenced project only. No third party may use or rely on this report without express written authorization from Earth Systems for such use or reliance.

It is recommended that Earth Systems be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems is not accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretation of the recommendations contained herein.

BIBLIOGRAPHY

Al Atik, and N. Sitar, 2010, Seismic Earth Pressures on Cantilever Retaining Structures, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, October.

blackbird architects

Edgewater Residence

2315 Edgewater Way
Santa Barbara

041-350-024

PLN2021-00584

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Revisions

NOT FOR CONSTRUCTION

Reports

Geotechnical Report

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Planning Submittal 07.15.22

Geotechnical Addendum

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

March 11, 2022 — Project No.: 304467-001
(Revised July 11, 2022) — Report No.: 22-3-23

Mr. Ralf Pohl
2315 Edgewater LLC
1536 Brook Drive
Downers Grove, IL 60515

Project: 2315 Edgewater Way
Santa Barbara, California
Subject: Addendum to the Engineering Geology and Geotechnical Engineering Report
Reference: Earth Systems Pacific, July 20, 2021, Engineering Geology and Geotechnical Engineering Report, 2315 Edgewater Way, Santa Barbara, California, Project No. 304467-001, Report No. 21-7-51

Preserving an Existing Tile Patio Over Original Foundation (As-Built Feature)
There is an existing tile patio located on the north side of the top of bluff. It is our understanding that the existing tile patio is supported by the original 1967 concrete slab-on-grade. This as-built feature currently provides protection against water infiltrating (sources include irrigation water and rainwater) into the underlying soil/bedrock, and, therefore, protects the bluff top from additional water weight surcharge which could lead to lower global slope stability factors-of-safety. The lower global slope stability factors-of-safety may lead to an increased potential for slope failures along the bluff top. We recommend leaving this as-built feature in place. Additional drains to collect the surface water flow over the patio surface should be installed. These drains should be connected into the future drain system for the project which we understand will pump collected water to daylight on the street.

Retaining Wall Recommendations
We understand that there will be basement walls under the proposed replacement residence, and potential retaining walls around the site. Retaining wall recommendations were not included in the referenced report, but are presented below.

The footings of any retaining wall should satisfy the minimum setback clearances from descending slopes in accordance with Section 1808.7 of the 2019 CBC.

The footings of any retaining wall should have a minimum of 12 inches of embedment into the marine terrace deposits and/or Monterey Formation bedrock. The bottoms of all excavations should be observed by a representative of Earth Systems prior to processing.

On-site soils (with an expansion index of 2 according to the referenced report) can be used for wall backfill once they are retested for expansion index and cleaned of all organic material, rocks, debris, and irreducible material larger than 6 inches. Conventional cantilever retaining

walls backfilled with compacted on-site soils may be designed for active pressures developed from 42 pcf of equivalent fluid weight for well-drained, level backfill. Restrained retaining walls backfilled with compacted on-site soils may be designed for active pressures developed from 62 pcf of equivalent fluid weight for well-drained, level backfill. These pressures were based on the assumption that backfill soils will be compacted to 90 percent of the maximum dry density as determined by the ASTM D 1557 Test Method.

Retaining walls that retain more than 6 feet of soil will need to be designed for a seismic loading force that is applied in addition to the static forces when seismic shaking occurs. Seismic increments of earth pressure can be determined using 48 and 63 pcf of additional equivalent fluid weight need to be considered for cantilever and restrained retaining walls, respectively. These equivalent fluid weights have been determined by a procedure presented by Al Atik and Sitar (2010). The seismic increment of pressure can be assumed to be distributed so that the centroid of pressure acts at 0.33H above the base of a retaining wall, where H is the wall height in feet. Because this seismic force is transient, and in accordance with CBC Section 1807.2.3, a minimum safety factor of 1.1 may be used for sliding and overturning when seismic loads are included.

The lateral earth pressure to be resisted by the retaining walls or similar structures should also be increased to allow for other applicable surcharge loads. The surcharges considered should include forces generated by structures or temporary loads that would influence the wall design.

A system of backfill drainage should be incorporated into retaining wall designs. Backfill comprising the drainage system immediately behind retaining structures should be free-draining granular material with a filter fabric between it and the rest of the backfill soils. As an alternative, the backs of walls could be lined with geodrain systems. The backdrains should extend from the bottoms of the walls to about 18 inches from finished backfill grade. Waterproofing may aid in reducing the potential for efflorescence on the faces of retaining walls. The basement wall backdrains should be positioned lower that the basement floor. It may be necessary to carry the basement wall drainage to a sump, from which it can pumped and discharged away from the structure.

Compaction on the uphill sides of walls within a horizontal distance equal to one wall height should be performed by hand-operated or other lightweight compaction equipment. This is intended to reduce potential "locked-in" lateral pressures caused by compaction with heavy grading equipment.

Water should not be allowed to pond near the tops of retaining walls. To accomplish this, final backfill site grades should be such that all water is diverted away from retaining walls.

Please call if you have any questions, or if we can be of further service.

Respectfully submitted,
EARTH SYSTEMS PACIFIC

REGISTERED PROFESSIONAL ENGINEER MENG WEI LU No. C 88106 09/30/2022 CIVIL STATE OF CALIFORNIA

Meng Wei Lu
Project Engineer — 7-11-2022

PROFESSIONAL GEOLOGIST TODD J. TRANBY No. 2018 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

Todd J. Tranby
Engineering Geologist — 7-11-2022

REGISTERED PROFESSIONAL ENGINEER RICHARD MICHAEL BEARD GE 128 EXP. 12-31-23 GEOTECHNICAL STATE OF CALIFORNIA

Richard M. Beard
Geotechnical Engineer — 7-11-2022

Copies: 1 - Client (email)
1- Blackbird Architects (email)
1 - Project File

Oil Well Report

California Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
David Shabazian, Director
801 K Street, MS 18-05
Sacramento, CA 95814
T: (916) 445-9686

04/26/2022

Department of Conservation
Zack Nelson
195 S. Broadway Rd. Ste 221, Orcutt, CA 93455, USA
Zack.Nelson@conservation.ca.gov

Construction Site Well Review (CSWR) ID: 1012476

Assessor Parcel Number(s): 041350024

Property Owner(s): Pamela and Ralf Pohl

Project Location Address: 2315 Edgewater Way Santa Barbara, California 93109

Project Title: 2315 Edgewater Way, Santa Barbara, APN 041-350-024

Public Resources Code (PRC) § 3208.1 establishes well reabandonment responsibility when a previously plugged and abandoned well will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil, gas, and geothermal wells.

The California Geologic Energy Management Division (CalGEM) has received and reviewed the above referenced project dated 4/21/2022. To assist local permitting agencies, property owners, and developers in making wise land use decisions regarding potential development near oil, gas, or geothermal wells, the Division provides the following well evaluation.

The project is located in Santa Barbara County, within the boundaries of the following fields:

N/A

The Mesa Oil Field was discovered in 1929. Review of historical aerial imagery in this area identified wooden oil derricks, oil well drilling and production sumps, and other accessory oilfield equipment. Any

excavation may encounter oilfield impacted soil.
There are several plugged and abandoned oil wells located in close proximity to the project site. According to Division records the nearest plugged and abandoned well to the project is Well #5 (API 0408303618). This well is located approximately 360 feet north-east of the subject parcel. The Division recommends that any wells in close proximity to the property be researched to verify the location and ensure that any construction does not impede access. If any well locations are found to differ from Division records an updated plot plan identifying the well locations relative to the proposed structure(s) is expected to be provided, prior to conducting construction. The Division's online well mapping tool, Well Finder, can be accessed at wttps://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx

Our records indicate there are no known oil or gas wells located within the project boundary as identified in the application.

- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0

The Division categorically advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access including, but not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, roadways, and decking. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment to reach a well from a public street or access way, solely over the parcel on which the well is located. A well servicing unit, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure.

There are no guarantees a well abandoned in compliance with current Division requirements as prescribed by law will not start leaking in the future. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. The Division acknowledges wells plugged and abandoned to the most current Division requirements as prescribed by law have a lower probability of leaking in the future, however there is no guarantees that such abandonments will not leak.

The Division advises that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations should be provided to the Division in Latitude and Longitude, NAD 83 decimal format. The Division expects any wells found leaking to be reported to it immediately.

Failure to plug and reabandon the well may result in enforcement action, including an order to perform reabandonment well work, pursuant to PRC § 3208.1, and 3224.

PRC § 3208.1 give the Division the authority to order or permit the re-abandonment of any well where it has reason to question the integrity of the previous abandonment, or if the well is not accessible or visible. Responsibility for re-abandonment costs may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general advice set forth in this letter. The PRC continues to define the person or entity responsible for reabandonment as:

1. The property owner - If the well was plugged and abandoned in conformance with Division requirements at the time of abandonment, and in its current condition does not pose an immediate danger to life, health, and property, but requires additional work solely because the owner of the property on which the well is located proposes construction on the property that would prevent or impede access to the well for purposes of remedying a currently perceived future problem, then the owner of the property on which the well is located shall obtain all rights necessary to reabandon the well and be responsible for the reabandonment.

2. The person or entity causing construction over or near the well - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and the property owner, developer, or local agency permitting the construction failed either to obtain an opinion from the supervisor or district deputy as to whether the previously abandoned well is required to be reabandoned, or to follow the advice of the supervisor or district deputy not to undertake the construction, then the person or entity causing the construction over or near the well shall obtain all rights necessary to reabandon the well and be responsible for the reabandonment.

3. The party or parties responsible for disturbing the integrity of the abandonment - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and after that time someone other than the operator or an affiliate of the operator disturbed the integrity of the abandonment in the course of developing the property, then the party or parties responsible for disturbing the integrity of the abandonment shall be responsible for the reabandonment.

No well work may be performed on any oil, gas, or geothermal well without written approval from the Division. Well work requiring approval includes, but is not limited to, mitigating leaking gas or other

fluids from abandoned wells, modifications to well casings, and/or any other re-abandonment work. The Division also regulates the top of a plugged and abandoned well's minimum and maximum depth below final grade. CCR §1723.5 states well casings shall be cut off at least 5 feet but no more than 10 feet below grade. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this regulation, a permit from the Division is required before work can start.

The Division makes the following additional recommendations to the local permitting agency, property owner, and developer:

1. To ensure that present and future property owners are aware of (a) the existence of all wells located on the property, and (b) potentially significant issues associated with any improvements near oil or gas wells, the Division recommends that information regarding the above identified well(s), and any other pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property.

2. The Division recommends that any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

As indicated in PRC § 3106, the Division has statutory authority over the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to the Division's authority to order work on wells pursuant to PRC §§ 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC §§ 3236, 3236.5, and 3359 for violations within the Division's jurisdictional authority. The Division does not regulate grading, excavations, or other land use issues.

If during development activities, any wells are encountered that were not part of this review, the property owner is expected to immediately notify the Division's construction site well review engineer in the Coastal district office, and file for Division review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency.

Should you have any questions, please contact me at (805) 937-7246 or via email at Miguel.Cabrera@conservation.ca.gov.

Sincerely,

Miguel Cabrera
Northern District Deputy

cc: Zack Nelson - Submitter

Provided for Reference Only

blackbird architects

Edgewater Residence

2315 Edgewater Way
Santa Barbara

041-350-024

PLN2021-00584

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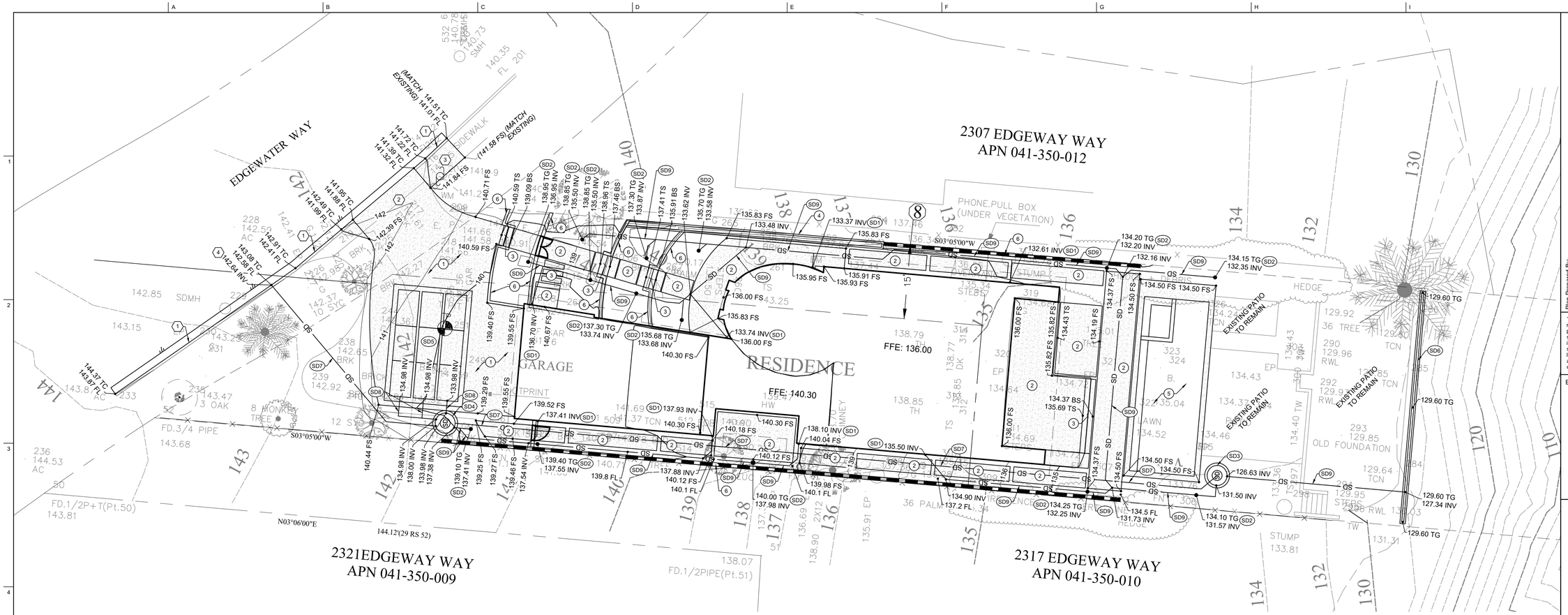


DIGALERT
DIAL TOLL FREE
811 OR
(1-800-422-4133)
AT LEAST TWO DAYS
BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

STORM DRAIN CONSTRUCTION NOTES:

- SD1 INSTALL ROOF DRAIN CONNECTION
- SD2 INSTALL PEDESTRIAN RATED ATRIUM GRATE DRAIN
- SD3 INSTALL STORM DRAIN SUMP PUMP
- SD4 INSTALL STORM DRAIN SUMP PUMP W/ IRRIGATION PUMP
- SD5 CONSTRUCT UNDERGROUND RETENTION CHAMBERS W/ IMPERMEABLE LINER PER DETAIL 1, THIS SHEET.
- SD6 INSTALL ACO KLASSIKDRAIN K100 TRENCH DRAIN W/ K1-901G IN-LINE CATCH BASIN AT OUTLET PER MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS
- SD7 INSTALL SCH-40 FORCE MAIN
- SD8 INSTALL DUAL WALL HDPE WT STORM DRAIN LINE PER MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS
- SD9 INSTALL INCH SDR35 PVC STORM DRAIN LINE PER MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS

RIGHT OF WAY CONSTRUCTION NOTES:

1. CONSTRUCT CONCRETE CURB AND GUTTER WITH 6" CONCRETE CURB AND 18" GUTTER PER CITY OF SANTA BARBARA STANDARD DETAILS H-01.0, H-02.0 AND 02.1.
2. CONSTRUCT RESIDENTIAL DRIVEWAY PER CITY OF SANTA BARBARA STANDARD DETAILS H-01.0 AND H-03.0.
3. CONSTRUCT CONCRETE SIDEWALK PER CITY OF SANTA BARBARA STANDARD DETAILS H-01.0 AND H-06.0.
4. CONSTRUCT TYPE A CURB OUTLET PER CITY OF SANTA BARBARA STANDARD DETAIL D-05.0.

SITE CONSTRUCTION NOTES:

1. CONSTRUCT CONCRETE DRIVEWAY SECTION
2. CONSTRUCT CONCRETE WALKWAY SECTION
3. CONSTRUCT CONCRETE STAIRWAY
4. CONSTRUCT PLANTER PER ARCHITECTURAL PLANS.
5. CONSTRUCT POOL PER ARCHITECTURAL PLANS.
6. CONSTRUCT CONCRETE RETAINING WALL PER STRUCTURAL PLANS.

GENERAL NOTES:

SEE DEMOLITION AND PROTECTION PLAN FOR ADDITIONAL INFORMATION.

TIER 3 BMP COMPLIANCE REQUIREMENT:
BEFORE THE BUILDING INSPECTOR WILL GRANT CERTIFICATE OF OCCUPANCY AND FINALIZE THE BUILDING PERMIT, THE CONTRACTOR IS TO HAVE THE BUILDING AND SAFETY DIVISION CERTIFY POST-CONSTRUCTION BMP'S WERE INSTALLED AS APPROVED AND THAT THEY COMPLY WITH THE CITY OF SANTA BARBARA'S TIER 3 STORM WATER REQUIREMENTS.

GRADING INFORMATION*

ONSITE EARTHWORK:

CUT QUANTITY:	400 CUBIC YARDS
FILL QUANTITY:	60 CUBIC YARDS
NET QUANTITY:	340 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.

ONSITE BMP DESCRIPTION:

ALL ROOF SURFACES ARE COLLECTED IN A STORM DRAIN SYSTEM AND DIRECTED TO UNDERGROUND RETENTION CHAMBERS FOR TREATMENT. THE UNDERGROUND RETENTION CHAMBERS WILL RETAIN THE 1-INCH 24 HOUR STORM VOLUME.

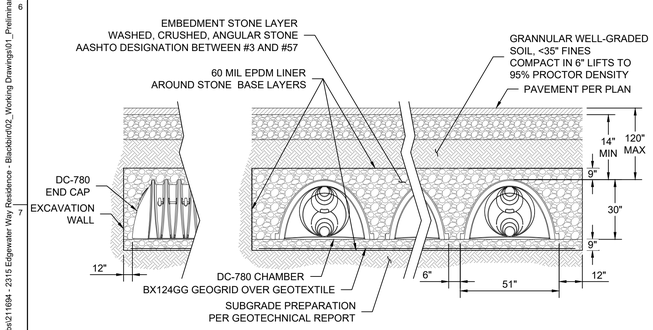
PROPOSED NEW IMPERVIOUS AREA:	1,194 SF
PROPOSED REPLACED IMPERVIOUS AREA:	4,856 SF
PROPOSED REMOVED IMPERVIOUS AREA:	1,332 SF
EXISTING IMPERVIOUS AREA TO REMAIN:	750 SF
WATERSHED 1-INCH 24 HOUR STORM VOLUME:	615 CF
UNDERGROUND RETENTION TREATMENT CAPACITY:	615 CF

MAINTENANCE CERTIFICATION:

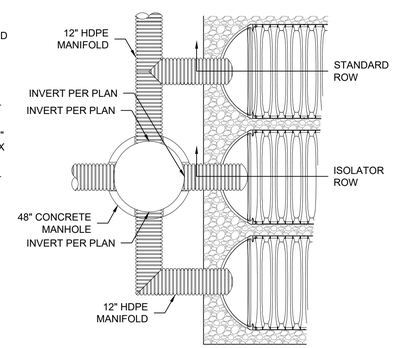
PROPERTY OWNER SHALL BE FULLY RESPONSIBLE FOR THE MAINTENANCE OF THE FOLLOWING STRUCTURAL BMP'S PURSUANT TO SBMC 22.87.050:

UNDERGROUND RETENTION CHAMBERS

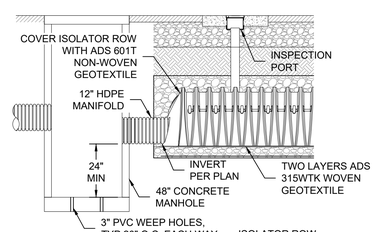
OWNER SIGNATURE DATE



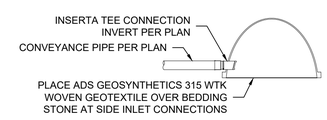
1 STORMTECH RETENTION CHAMBER DETAIL



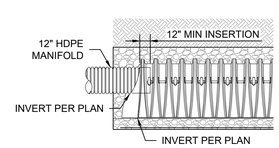
SYSTEM MANIFOLD



ISOLATOR ROW



INSERTA TEE DETAIL



STANDARD ROW

NTS

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

Ashley&Vance ENGINEERING, INC.
210 East Cota Street
Santa Barbara, CA 93101
(805) 962-5966
www.ashleyvance.com
CIVIL • STRUCTURAL

Plan Prepared By:

Engineer of Record:

REGISTERED PROFESSIONAL ENGINEER JASON J. GOMEZ C 61991 CIVIL STATE OF CALIFORNIA
PLAN REVIEW SET NOT FOR CONSTRUCTION

2315 EDGEWATER WAY RESIDENCE

2315 EDGEWATER WAY
SANTA BARBARA, CA 93109

Revisions:
1 .
2 .
3 .
4 .
5 .

Project Engineer: BWV	Ext: 130
Project Manager: JJG	
Date: 06.30.2022	Scale: PER PLAN
AV Job No: 211694	Sheet Size: 24" x 36"

GRADING AND DRAINAGE PLAN

C-2.1

2315 EDGEWATER WAY RESIDENCE

PRELIMINARY LANDSCAPE PLANS

2315 EDGEWATER WAY
SANTA BARBARA, CA 93109

PROJECT CONTACTS

LANDSCAPE ARCHITECT
CJM::LA, INC.
CONTACT: COURTNEY MILLER
805.698.2120
courtney@cjm-la.com

ARCHITECT
BLACKBIRD ARCHITECT
CONTACT: SHAHEEN GHAZVINIZADEH
805.957.7429 x108
shaheen@bbird.com

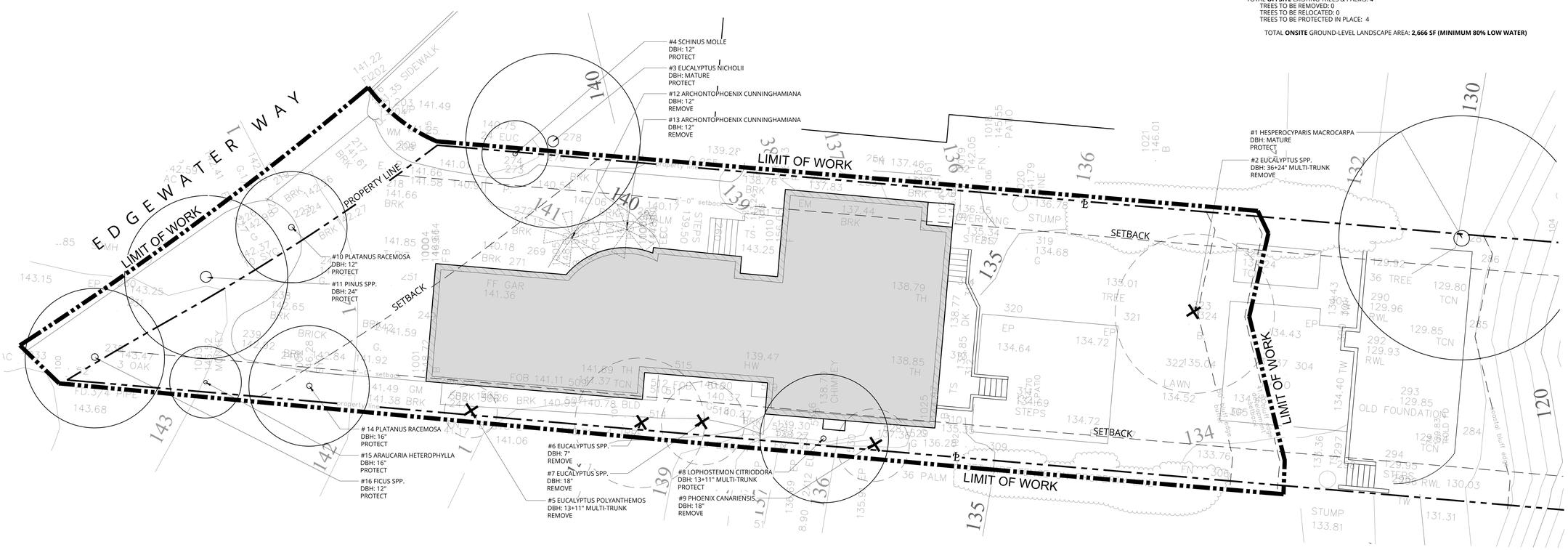
SHEET INDEX

SITE STATISTICS

TOTAL **ONSITE** EXISTING TREES & PALMS: **12**
TREES TO BE REMOVED: 7
TREES TO BE RELOCATED: 0
TREES TO BE PROTECTED IN PLACE: 5

TOTAL **OFFSITE** EXISTING TREES & PALMS: **4**
TREES TO BE REMOVED: 0
TREES TO BE RELOCATED: 0
TREES TO BE PROTECTED IN PLACE: 4

TOTAL **ONSITE** GROUND-LEVEL LANDSCAPE AREA: **2,666 SF (MINIMUM 80% LOW WATER)**



TREE PROTECTION GENERAL NOTES

1. EXISTING TREES LOCATED ON SITE SHALL BE PROTECTED TO THE MAXIMUM EXTENT FEASIBLE.
2. NO GRADING OR DEVELOPMENT SHALL OCCUR WITHIN THE DRIPLINES OF TREES WHICH OCCUR IN THE CONSTRUCTION AREA. THIS INCLUDES TREE CANOPIES WHICH OVERHANG INTO THE LIMIT OF WORK FROM ADJACENT PROPERTIES.
3. ALL TREES WITHIN 25 FEET OF PROPOSED GROUND DISTURBANCES SHALL BE TEMPORARILY FENCED WITH CHAIN-LINK OR OTHER MATERIAL SATISFACTORY TO THE CITY OF SANTA BARBARA THROUGHOUT ALL GRADING AND CONSTRUCTION ACTIVITIES. AT A MINIMUM, THE FENCING SHALL BE INSTALLED SIX FEET OUTSIDE THE DRIPLINE OF EACH TREE WHERE FEASIBLE. THE FENCE SHALL BE STAKED EVERY SIX FEET. FENCING SHOWN ON THIS PLAN SHALL TAKE PRECEDENCE OVER THIS MINIMUM.
4. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED, STORED, OR OPERATED WITHIN SIX FEET OF TREE DRIPLINES, OR WITHIN THE LIMITS OF THE TREE PROTECTION FENCING.
5. NO FILL SOIL, ROCKS, OR CONSTRUCTION MATERIALS SHALL BE STORED OR PLACED WITHIN SIX FEET OF TREE DRIPLINES, OR WITHIN THE LIMITS OF THE TREE PROTECTION FENCING.
6. ROOTS ENCOUNTERED THAT ARE ONE INCH IN DIAMETER OR GREATER SHALL BE CLEANLY CUT. THIS SHALL BE DONE UNDER DIRECTION OF THE PROJECT ARBORIST.
7. TRENCHING OR OTHER CONSTRUCTION ACTIVITY REQUIRED WITHIN THE DRIPLINE OR SENSITIVE ROOT ZONE OF TREES SHALL BE DONE BY HAND AND UNDER THE SUPERVISION OF THE PROJECT ARBORIST.
8. TREES LOCATED WITHIN 25 FEET OF PROPOSED BUILDINGS SHALL BE PROTECTED FROM STUCCO OR PAINT DURING CONSTRUCTION.

CJM::LA
LANDSCAPE ARCHITECTURE
office 805 698 2120 email INFO@CJM-LA.COM
1221 STATE STREET SUITE 206
SANTA BARBARA CA 93101

NOT FOR CONSTRUCTION

TREE DISPOSITION PLAN

2315 EDGEWATER WAY

2315 Edgewater Way
Santa Barbara, CA 93109

LICENSED LANDSCAPE ARCHITECT
Courtney Jayne Miller, LIC. No. 5641
Signature
Renewal Date
Date
STATE OF CALIFORNIA

REVISIONS
06/30/22 Planning Commission

PROJECT NUMBER
2204
DRAWN BY
JC
DATE DRAWN
06/10/22
SCALE
1/4" = 1'-0"
PRINT DATE
7/14/22

SHEET NUMBER
L-0

Tree Inventory(continued)

Tree Number	Name	Health	Trunk Diameter at 4.5' up (DBH)	Location	Comments
4	Peruvian Pepper, *Schinus molle*	Poor	Approx. 12" DBH	Paired with #3.	Not to be disturbed by construction.
5	Silver Dollar Eucalyptus, *Eucalyptus polyanthemos*	Good	6"	Northernmost tree of five trees in a line along the western property line.	Remove for construction purposes.
6	Silver Dollar Eucalyptus,	Poor	7"	Next tree to the south from #5 along property line.	Remove due to poor health.
7	Silver Dollar Eucalyptus,	Good	18"	Next tree to the south from #6 along property line.	Proposed for removal without mitigation.
8	Lemon Scented Eucalyptus, *Lophostemon citriodora*	Fair: shows die out in canopy.	13+11"	Next tree to the south from #7 along property line.	Preserve in place though may be a liability for the new house..
9	Canary Island Palm *Phoenix canariensis*	Good	Approx. 12' tall	Last tree in the row to the south.	A seedling specimen which will be intrusive to new construction. To be removed.

Duke McPherson, Arborist
201 East Mountain Drive
Santa Barbara, CA 93108
Phone 805 705-9529
E-mail: treemanduke@cox.net

June 19, 2022

Ralf and Pamela Pohl
2315 Edgewater Way
Santa Barbara, CA 93117

Arborist Report

Regarding: 2315 Edgewater Way, Santa Barbara, California

Introduction

I was first introduced to the owner, Ralf Pohl, by Shaheen Ghazvinizadeh, architect for Blackbird Architects, Inc. on March 21 of this year to become familiar with the property and its trees. The present residence building will be demolished and a new structure built in its place. This along with a swimming pool and associated hardscape.

The Site and Its Trees

The property is located on a sea cliff bluff edge at elevations spanning 130-141'. Two non-native specimen trees stand out: a mature Eucalyptus variety of unknown name and a Monterey Cypress, *Hesperocyparis macrocarpa*. Both are located in the rear yard facing the ocean. The Cypress will not be disturbed by construction, the Eucalyptus has been proposed for removal due to the installation of a swimming pool and associated hardscape.
A number of other semi mature trees line the western property line very close to the existing building. They appear to be more of a liability to the proposed building rather than an asset.

Mitigation Measures

The only tree which I could regard as a specimen tree worth providing mitigation for is the non-native Eucalyptus located in the rear yard. The owner is proposing to mitigate for its loss by planting a fruit orchard in the northwest section after building and hardscape construction has been completed. I recommend a minimum of four fruit trees to be planted there. Each tree will reach a trunk diameter of from 6-8" at maturity.
Because of its placement, the removal of tree #7 will not be considered for mitigation.

Tree Protection Measures to be Taken During the Construction Phase

There will not be a need to protect the specimen Monterey Cypress located on the ocean bluff edge. The trunks of trees along the western edge of the property should be wrapped in 5' high orange plastic fencing material or its equal. The mature *Eucalyptus nicholii*, tree #3 should be protected in the same manner. A portable tool washout basin can be placed in the existing driveway/parking area.

Report prepared by:

Duke McPherson

Certified Arborist with the
International Society of Arboriculture
Certification # WE-0690A

Site Plan.

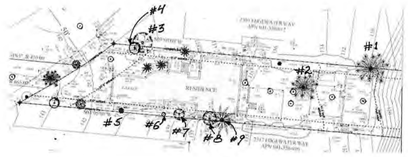


Figure 1. The property is narrow, running north to south with an assortment of tree species lining its edges. Tree # 2 is the mature specimen Eucalyptus which is proposed for removal. It appears that tree #7, because of its intimate placement with the present and future residence building will, of necessity, have to be removed also. (Refer to section titled Mitigation Measures on page 4 for a further discussion of these two trees).

Tree Inventory
The stumps of any trees removed from the property must be ground out.

Tree Number	Name	Health	Trunk Diameter at 4.5' up (DBH)	Location	Comments
1	Monterey Cypress, *Hesperocyparis macrocarpa*	Good	A mature tree.	South east corner of property on edge of beach cliff.	Not to be disturbed by construction.
2	Eucalyptus sp.	Good	36+24"	South end of property in the middle of a lawn.	To be removed for construction purposes and mitigated for by planting 4 orchard fruit trees.
3	Willow Leafed Peppermint, *Eucalyptus nicholii*	Good	A mature tree.	Northeast corner of property.	Not to be disturbed by construction.

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LANDSCAPE ARCHITECTURE
office 805 698 2120 email INFO@CJM-LA.COM
1221 STATE STREET SUITE 206
SANTA BARBARA CA 93101

NOT FOR CONSTRUCTION

ARBORIST REPORT

2315 EDGEWATER WAY

2315 Edgewater Way
Santa Barbara, CA 93109

LICENSED LANDSCAPE ARCHITECT
Courtney Jane Miller, Inc. No. 5491
Signature
Renewal Date
Date
STATE OF CALIFORNIA

REVISIONS
06/30/22 Planning Commission

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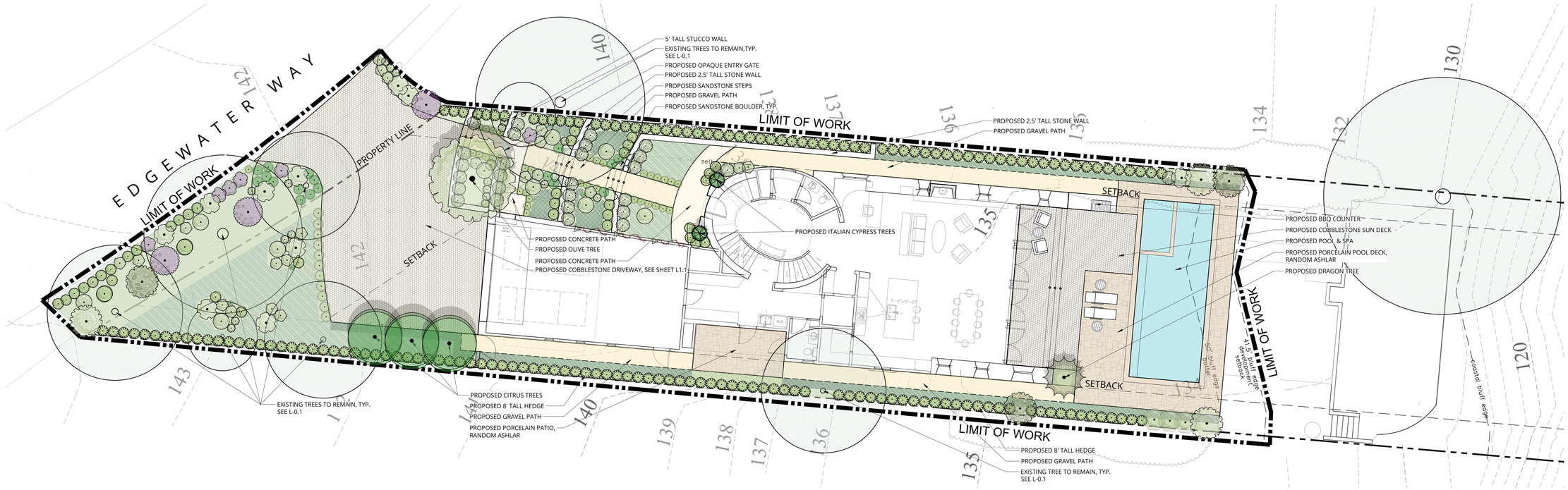

SITE PLAN

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

PRELIMINARY PLAN - PLANTING AND DESIGN

1. CJM::LA STRIVES TO UPHOLD THE ARCHITECTURAL AND CULTURAL HERITAGE OF THE SANTA BARBARA COMMUNITY THROUGH THE DEVELOPMENT OF ENGAGING SPACES. OUR APPROACH RESPONDS TO CONTEXT, HISTORY AND OUTLOOK IN ORDER TO PROVIDE OUTDOOR SPACES WHICH QUIET THE MIND AND ACTIVATE THE SENSES. THE BUILT ENVIRONMENT IS PARAMOUNT IN REPRESENTING THE IDENTITY OF A COMMUNITY, AND WE SEEK TO PROVIDE RESPONSIBLE DESIGN SOLUTIONS THAT RESPECT THE BALANCE OF PAST AND FUTURE. WE PRIDE OURSELVES IN DESIGN THAT IS UNIQUE AND SPECIFIC; ENDURING AND AUTHENTIC.
2. THIS PLAN ENGAGES BOTH SUSTAINABLE BUILDING PRACTICES AS WELL AS AESTHETIC AND FORWARD-THINKING DESIGN SOLUTIONS TO CREATE A UNIQUE ADDITION TO MESA NEIGHBORHOOD.
3. EXISTING TREES ON SITE WILL BE PROTECTED TO THE MAXIMUM EXTENT FEASIBLE WITHIN THE PROJECT REQUIREMENTS.
4. THE PLANT PALETTE WILL CONSIST OF INDIGENOUS SPECIES IN COMBINATION WITH BE MEDITERRANEAN PLANTS SUITABLE TO THE SANTA BARBARA REGIONAL CLIMATE. ALL PLANT MATERIAL WILL BE LOW-WATER AND LOW-MAINTENANCE. ONLY ORGANIC FERTILIZERS AND SOIL AMENDMENTS WILL BE USED.
5. ALL PLANTING AREAS HAVE BEEN CAREFULLY DESIGNED TO RESPECT THE COASTAL BLUFF EDGE CONDITION. PLANTING AREAS ARE LIMITED TO THE AREA OUTSIDE THE 41.5' BLUFF EDGE DEVELOPMENT SETBACK, AND ARE DESIGNED TO PREVENT AN INCREASE IN WATER PERCOLATION OR EXCESSIVE WEIGHT NEAR THE BLUFF EDGE.
6. IRRIGATION WILL BE LIMITED TO THE AREA OUTSIDE THE 41.5' BLUFF EDGE DEVELOPMENT SETBACK AND WILL INCLUDE A COMBINATION OF LOW-VOLUME SPRAY HEADS, BUBBLERS AND DRIP SYSTEMS AS APPLICABLE. ALL IRRIGATION WILL BE CONTROLLED BY AN AUTOMATIC TIMER WITH A SEASONAL ADJUSTMENT CAPACITY TO APPLY LESS WATER DURING THE RAINY SEASON.

REFERENCE IMAGES

PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME	COMMON NAME	CONT	WATER USE	
	CED BLU	CEDRUS ATLANTICA `GLAUCA` L.B.	BLUE ATLAS CEDAR	48" BOX, 10` TALL MIN.	LOW	
	CIT SW2	CITRUS X SPP.	ORANGE	36"BOX	MEDIUM	
	CUP SEM	CUPRESSUS SEMPERVIRENS `GLAUCA`	BLUE ITALIAN CYPRESS	36" BOX, 12` TALL MIN.	LOW	
	DRA DRA	DRACAENA DRACO	DRAGON TREE	48"BOX	VERY LOW	
	LAU NOB	LAURUS NOBILIS L.B.	SWEET BAY	36"BOX	LOW	
	LEP LAE	LEPTOSPERMUM LAEVIGATUM	AUSTRALIAN TEA TREE	48"BOX	LOW	
	OLE SWA	OLEA EUROPAEA `SWAN HILL` TM	SWAN HILL OLIVE	60"BOX	LOW	
SHRUBS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING
	ATR LEN	ATRIPLEX LENTIFORMIS	BIG SALTBUSH	5 GAL	VERY LOW	48" o.c.
	ECH CAN	ECHIUM CANDICANS	PRIDE OF MADEIRA	15 GAL	LOW	60" o.c.
	GAR ELL	GARRYA ELLIPTICA `EVIE`	COAST SILKTASSEL	24"BOX	LOW	72" o.c.
	GRE MOO	GREVILLEA X `MOONLIGHT`	GREVILLEA	24"BOX	LOW	72" o.c.
	LAV VPX	LAVANDULA X INTERMEDIA 'NIKO' TM	PHENOMENAL LAVENDIN	5 GAL	LOW	30" o.c.
	PIT GOL	PITTOSPORUM TENUIFOLIUM 'GOLF BALL'	GOLF BALL TAWHIWHI	15 GAL	MEDIUM	36" o.c.
	RHA DWA	RHAPHIOLEPIS UMBELLATA 'MINOR'	DWARF YEDDA HAWTHORN STANDARD	5 GAL	LOW	36" o.c.
	WES MDI	WESTRINGIA FRUTICOSA `MUNDI`	MUNDI COAST ROSEMARY	2 GAL	LOW	30" o.c.
	WES MOR	WESTRINGIA FRUTICOSA 'MORNING LIGHT'	MORNING LIGHT COAST ROSEMARY	5 GAL	LOW	42" o.c.
HEDGES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING
	POD GRA	PODOCARPUS GRACILIOR COLUMN	FERN PINE	15 GAL	LOW	24" o.c.
ORNAMENTAL GRASSES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING
	CAR DIV	CAREX DIVULSA	EUROPEAN GREY SEDGE	1 GAL	MEDIUM	24" o.c.
	CAR FLA	CAREX FLACCA	BLUE SEDGE	1 GAL	LOW	18" o.c.
	LEY CAN	LEYMUS CONDENSATUS 'CANYON PRINCE'	CANYON PRINCE GIANT WILD RYE	5 GAL	LOW	36" o.c.
	LOM NYA	LOMANDRA LONGIFOLIA `NYALLA`	NYALLA BREEZE GRASS	5 GAL	LOW	36" o.c.
	VET ZIZ	VETIVERIA ZIZANIOIDES	VETIVER ROOT	1 GAL	MEDIUM	24" o.c.

PERENNIALS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING
	ANE AND	ANEMONE X HYBRIDA 'ANDREA ATKINSON'	ANDREA ATKINSON JAPANESE ANEMONE	1 GAL	MEDIUM	24" o.c.
	ERI WAY	ERIGERON GLAUCUS 'WR'	WAYNE RODERICK SEASIDE DAISY	5 GAL	LOW	24" o.c.
	FRA CHI	FRAGARIA CHILOENSIS	BEACH STRAWBERRY	5 GAL	MEDIUM	12" o.c.
	GAU LIN	GAURA LINDHEIMERI	WHITE GAURA	1 GAL	LOW	18" o.c.
VINE/ESPALIER	CODE	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING
	CLE ARM	CLEMATIS ARMANDII	EVERGREEN CLEMATIS	15 GAL	MEDIUM	48" o.c.
	RHO EVE	RHOICISSUS CAPENSIS	EVERGREEN GRAPE	5 GAL	MEDIUM	48" o.c.
GROUND COVERS	CODE	BOTANICAL NAME	COMMON NAME	CONT	WATER USE	SPACING
	ARC MIS	ARCTOSTAPHYLOS X `PACIFIC MIST`	PACIFIC MIST MANZANITA	1 GAL	LOW	36" o.c.
	CAS CO2	CASUARINA GLAUCA `COUSIN IT`	COUSIN IT SWAMP OAK	2 GAL	LOW	
	CHR INC	CHRYSANTHEMOIDES INCANA	VAALBIETOU BUSH	FLAT	MEDIUM	
	DIC ARG	DICHONDRA ARGENTEA	SILVER DICHONDRA	FLAT	MEDIUM	
	DYM MAR	DYMONDIA MARGARETAE	SILVER CARPET DYMONDIA	FLAT	LOW	
	FAL CRE	FALKIA REPENS	CREEPING FALKIA	FLAT	MEDIUM	
	MYO PUC	MYOPORUM X 'PUTAH CREEK'	PUTAH CREEK MYOPRORUM	1 GAL	LOW	
	ROS LOC	ROSMARINUS OFFICINALIS 'LOCKWOOD DE FOREST'	LOCKWOOD DWARF ROSEMARY	1 GAL	VERY LOW	36" o.c.

HARDSCAPE

SUN DECK
- COBBLESTONE
- MANUF: ECO OUTDOOR
- COLOR: ENDICOTT
- PATTERN: RUNNING BOND
- SIZE: 4"x4" - 2" THICK

POOL DECK
- TECHNIFIRMA
- MANUF: ECO OUTDOOR
- COLOR: LIDO
- PATTERN: ASHLAR
- SIZE: VARIOUS - 3/4" THICK

PATIO
- TECHNIFIRMA
- MANUF: ECO OUTDOOR
- COLOR: LIDO
- PATTERN: ASHLAR
- SIZE: VARIOUS - 3/4" THICK

DRIVEWAY
- COBBLESTONE
- MANUF: ECO OUTDOOR
- COLOR: ENDICOTT
- PATTERN: RUNNING BOND
- SIZE: 4" x 4" -2" THICK

SIGHT VISIBILITY NOTES

1. REFER TO SHEET A1.0 FOR SIGHT VISIBILITY TRIANGLE EXTENTS.
2. EXISTING TREES LOCATED WITHIN THE SIGHT VISIBILITY TRIANGLE SHALL BE PRUNED SO THAT THE LOWEST BRANCH IS A MINIMUM OF 7'-6" ABOVE THE FINISH GRADE.
3. NO NEW TREES SHALL BE PLANTED WITHIN THE SIGHT VISIBILITY TRIANGLE.
4. SHRUBS AND GROUND COVERS LOCATED WITHIN THE SIGHT VISIBILITY TRIANGLE SHALL BE PRUNED AND MAINTAINED SO THAT THE MAXIMUM HEIGHT DOES NOT EXCEED 2'-0" ABOVE THE FINISH GRADE.
5. NO FENCE, WALL, GATE, SCREEN OR HEDGE SHALL EXCEED A MAXIMUM HEIGHT OF 3'-6" WITHIN THE VISIBILITY TRIANGLE.

CJM::LA
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1221 STATE STREET SUITE 206
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PRELIMINARY LANDSCAPE PLAN

2315 EDGEWATER WAY

2315 Edgewater Way
Santa Barbara, CA 93109

LICENSED LANDSCAPE ARCHITECT
Courtney Jane Miller, Inc. No. 6497
Signature
Renewal Date
Date
STATE OF CALIFORNIA

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1/8" = 1'-0"
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L-1

City of Santa Barbara Landscape Compliance Requirements

LANDSCAPE DESIGN FOR WATER CONSERVATION COMPLIANCE STATEMENT

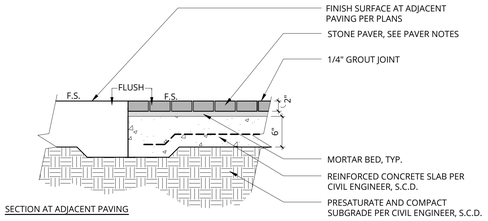
MANDATORY MEASURES *(Show calculations of required areas on referenced sheets)*	SHEET #
No turf in parkways, medians or other areas with any dimension of <8 feet	L-1
No turf on > 20% slope.	L-1
For residential,mixed-use and institutional projects 80% or > of landscape area water wise plants. For commercial, 100% of landscape area water wise plants.	L-1
For residential, <20% of area in turf of high-water using plants	L-1
Three inches of mulch specified as required.	L-1
Areas of sprinkler coverage avoid over spray and runoff, including optimum distribution uniformity, head-to-head spacing and setback from walkways and pavement.	(IRRIGATION PLANS NOT COMPLETED YET)
Sprinklers have matched precipitation rates within each valve and circuit	(IRRIGATION PLANS NOT COMPLETED YET)
Valves separated for individual hydrozones based on plant water needs & sun/shade requirements	(IRRIGATION PLANS NOT COMPLETED YET)
Weather based irrigation controller with a rain shutoff sensor for the entire irrigation system including an automatic irrigation system	(IRRIGATION PLANS NOT COMPLETED YET)
Areas less than 8' wide irrigated only with bubblers, rotating nozzles on pop-up bodies, sub-surface, or drip irrigation	(IRRIGATION PLANS NOT COMPLETED YET)
Drip/low volume irrigation system on >25% of landscaped area	(IRRIGATION PLANS NOT COMPLETED YET)
Check valves at low end of irrigation lines to prevent unwanted draining of irrigation lines	(IRRIGATION PLANS NOT COMPLETED YET)
Pressure regulators, unless the Public Works Director determines one is not necessary	(IRRIGATION PLANS NOT COMPLETED YET)
Grading encourages water retention and infiltration by preserving open space and creating depressed areas/swales	L-1
Grading mimics natural, pre-development hydrologic flow paths and maintains and/or increases the width of flow paths in order to decrease flow rates	L-1

I state that I am familiar with the Landscape Design Standards for Water Conservation as recently adopted by the Santa Barbara City Council and that the landscape design for this project complies with those standards. It is my understanding that verification of compliance will be necessary upon final building inspection. I shall inspect the completed installation and I will submit in writing that the installation substantially conforms to the approved plans.

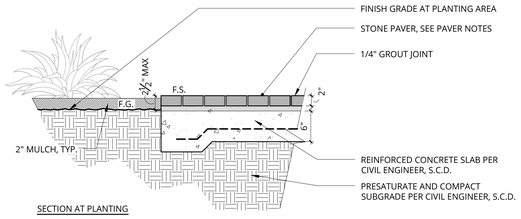
Signature	COURTNEY JANE MILLER Name
5581 License#	09/30/22 Exp. Date

INSTALLATION NOTE:
INSTALL PAVERS SUCH THAT FINISHED SURFACE OF PAVER AREA IS FLUSH WITH ALL ADJACENT PAVED SURFACES. CHANGES IN LEVEL SHALL NOT EXCEED 1/4".

PAVER NOTES:
1. SEE PAVING SCHEDULE ON CONSTRUCTION PLANS FOR COLOR & FINISH, SEALANT
2. SUBMIT STONE & GROUT SAMPLES TO LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION
3. SEE CONSTRUCTION PLANS FOR PAVING PATTERN AND ORIENTATION



SECTION AT ADJACENT PAVING



SECTION AT PLANTING

1 COBBLESTONE PAVING ON CONCRETE SLAB - VEHICULAR

1" = 1'-0" P-2204-01

CJM::LA
LANDSCAPE ARCHITECTURE
office 805 698 2120 email INFO@CJM-LA.COM
1221 STATE STREET SUITE 206
SANTA BARBARA CA 93101

NOT FOR CONSTRUCTION

PRELIMINARY
LANDSCAPE DETAIL

2315 EDGEWATER WAY

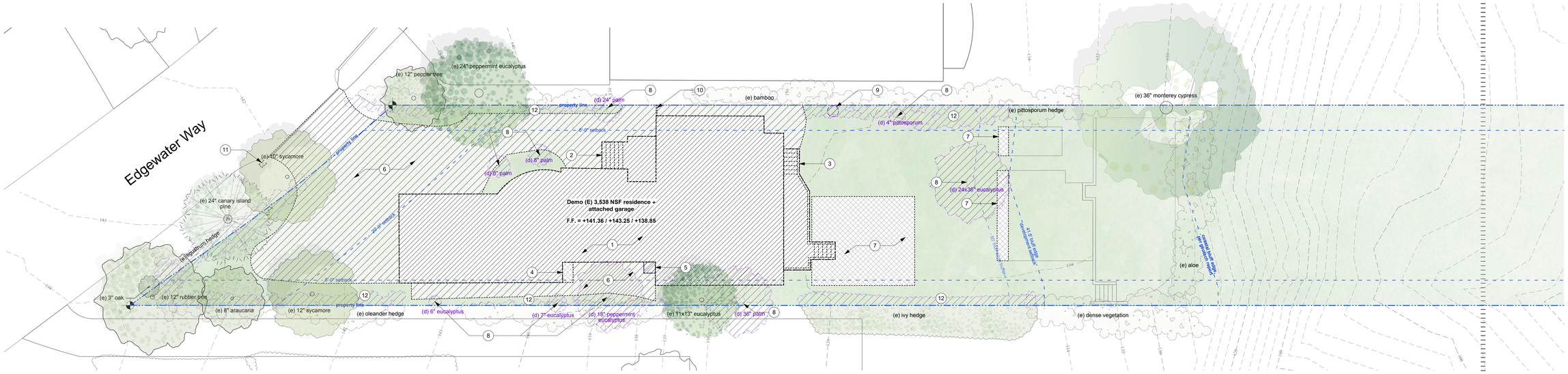
2315 Edgewater Way
Santa Barbara, CA 93109

LICENSED LANDSCAPE ARCHITECT
Courtney Jane Miller, Lic. No. 5581
Signature
Renewal Date
Date
STATE OF CALIFORNIA

REVISIONS
06/30/22 Planning Commission

PROJECT NUMBER
2204
DRAWN BY
JC
DATE DRAWN
06/10/22
SCALE
PRINT DATE
7/14/22

SHEET NUMBER
L-1.1



Demolition Plan 1

feet 0 5' 10' 20' 1"=10'-0"

GENERAL NOTES: DEMOLITION PLAN

A. See Civil Plans for Grading, Drainage, Storm Water Management, Tree Protection, and Site Utilities.

B. See Landscape sheets for Irrigation, Planting, Landscape Screening, Groundcover, Materials, Features, Tree Protection and Hardscape information.

C. See landscape drawings for Arborist Report and Tree Protection Recommendations.

D. See BMP sheets for construction staging, erosion control.

E. See Electrical sheets for electrical panels, fixtures and applicable notes.

F. See Mechanical sheets for mechanical equipment and applicable notes.

G. See Plumbing sheets for plumbing equipment and applicable notes.

H. Utility coordination has not been completed. The contractor shall be responsible for coordinating all service requirements with the respective utilities companies and the existing site conditions.

I. Site access shall comply with Santa Barbara City Fire Department, Fire Prevention Division Private Road and Driveways Standards:

1) The private roadways and driveways providing access to this structure shall comply with Section 503 of the 2016 CFC.

2) Brush clearance and hazard abatement shall be in compliance with the 2016 CFC as adopted by the District.

J. Coordinate extent of site fence with Client, Landscape and Civil. Coordinate site fence maintenance with Client.

K. All fences, screens, walls & hedges must meet the requirements of the City of Santa Barbara "Fence, Screen, Wall, Hedge Guidelines".

KEY NOTES: DEMO PLAN

1. Existing building to be removed
2. Existing front concrete steps with tile finish to be removed
3. Existing wood patio with wood handrails and wood steps to be removed
4. Existing concrete step to be removed
5. Existing exterior utility closet to be removed
6. Existing brick pavers to be removed.
7. Existing foundation to be removed
8. Existing non-specimen trees to be removed; see arborist report
9. Existing stump to be removed
10. Existing wrought iron gate to be removed
11. Existing mailbox with brick base to be removed
12. Existing vegetation to be removed

LEGEND: DEMO PLAN

- property line
- setback
- 176 (E) contour
- feature above
- feature below
- (E) building and site feature to be removed
- (E) permeable paving to be removed
- (E) impermeable paving to be removed
- (E) tree
- (E) non-specimen tree to be removed

blackbird architects

Edgewater Residence

2315 Edgewater Way
Santa Barbara

041-350-024

PLN2021-00584

architect:

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geotech engineer:

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civil engineer:

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Revisions

NOT FOR CONSTRUCTION

Demolition Site Plan

D1.0

Planning Submittal 07.15.22

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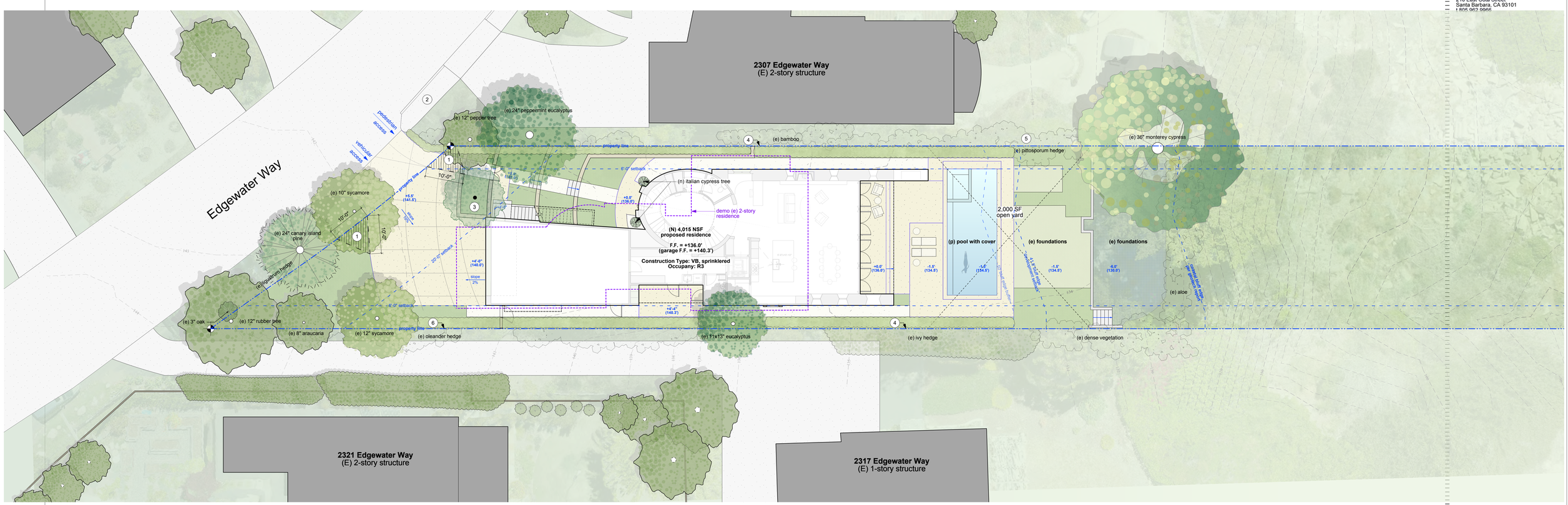


feet 0 5' 10' 20' 1"=10'-0"

Proposed Site Plan 1

EXTERIOR LIGHTING NOTES

A. All exterior sconces shall be full cut-off.
B. All exterior light fixtures shall be dark sky friendly.
C. All exterior lighting shall be LED with a warm (2700K) color temperature.
D. Landscape accent lights shall be less than 3 watts and focused on landscape elements.
E. Path and driveway border lights shall be full cut-off.
F. All exterior ceiling recessed lighting fixtures shall be LED and less than 3 watts.

GENERAL NOTES: SITE PLAN

A. See Civil Plans for Grading, Drainage, Storm Water Management, Tree Protection, and Site Utilities.
B. See Landscape sheets for Irrigation, Planting, Landscape Screening, Groundcover, Materials, Features, and Tree Protection.
C. See Arborist Report on sheet A0.2 for Tree Protection Recommendations.
D. See BMP sheets for construction staging, erosion control.
E. See Electrical & Landscape sheets for electrical panels, fixtures and applicable notes.
F. See Mechanical sheets for mechanical equipment and applicable notes.
G. See Plumbing sheets for plumbing equipment and applicable notes.
H. Site drainage shall comply with 2019 CRC R401.3 (refer to Civil drawings for additional information):

1) Surface drainage shall be diverted to a storm water conveyance or other approved point of collection that does not create a hazard. Lot shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches within the first 10 feet.

2) Exception: where lot lines, walls, slopes or other physical barriers prohibit 6 inches of fall within 10 feet, drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2% away from the building.

I. Refer to Finish Schedule (A7.Xs) for interior finishes.
J. Refer to Elevations (A3.Xs) for exterior finishes.
K. Refer to Sections (A4.Xs) and Details (A6.Xs) for construction assemblies.
L. Dimensioning:
1) all dimensions are to face of stud U.N.O.
M. Roof covering, valleys, and gutters per 2019 CBC Section 705A (High Fire Hazard - Chapter 7A)
N. Exterior wall protection and openings per 2019 CBC Section 707A (High Fire Hazard)
O. Roof pitch for roof covering per 2019 CBC Chapter 15.
P. F.F. (finish floor) refers to top-of-finish-floor, U.N.O.
Q. Utility coordination has not been completed. The contractor shall be responsible for coordinating all service requirements with the respective utilities companies and the existing site conditions.
R. Exterior building materials, systems and/or assemblies shall meet 2019 CBC Chapter 7A, CRC Section R327 & S.B. Ordinance No. 5639 requirements (High Fire Hazard)
S. Pool is under seperate permit. Pool drawings communicate the basis of design and installation is design build. Coordinate with pool contractor. Install per current applicable codes.
T. Coordinate extent of site fence with Client, Landscape and Civil. Coordinate site fence design with Client.
U. All fences, screens, walls & hedges must meet the requirements of the SFDB Guidelines.

KEY NOTES: SITE PLAN

1. 10' x 10' visibility triangle - no fence, screen, wall, hedge or other landscaping material exceeding a height of 3'-6" shall be located within the visibility triangle
2. existing sidewalk, curb, and gutter
3. proposed landscaping to be drought resistant
4. existing 66" wood fence to remain as is (and if necessary replaced with like for like)
5. existing hedge on property to be thinned for hardscape access
6. existing 42" chain link fence to remain as is (and if necessary replaced with like for like)

LEGEND: SITE PLAN

- property line
- setback
- 176 (E) contour
- feature above
- feature below
- (E) building footprint
- low site wall
- proposed hardscape, see landscape drawings
- (E) tree
- (P) tree
- (E) non-specimen tree to be removed, see D1.0

Revisions

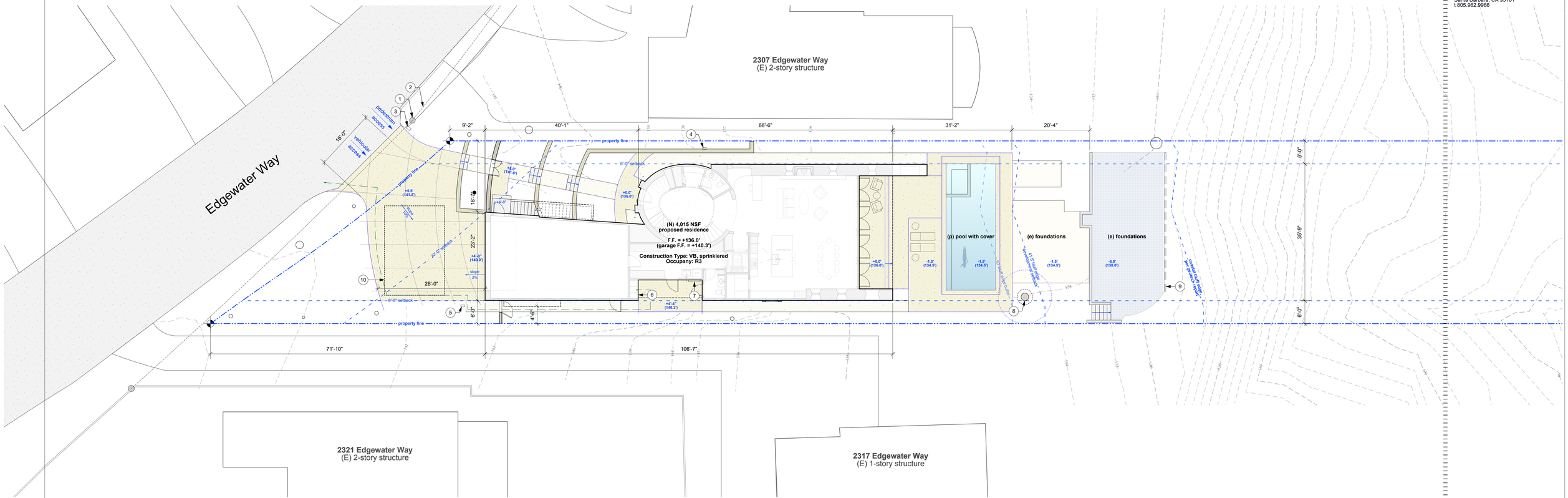
NOT FOR CONSTRUCTION

Site Plan

Proposed Site Plan

A1.0

Planning Submittal 07.15.22



Utility & Hardscape Plan 1

feet 0 5' 10' 20' 1"=10'-0"

KEY NOTES: HARDSCAPE & UTILITY

1. existing telephone pole
2. existing electrical lines above
3. existing water meter (5/8 inch). If a larger water meter is needed a Public Works Work Order will be required and Water and Wastewater Capacity Charges will apply. Note that all water usage for ADU to be measured by a separate dedicated water meter. General contractor to coordinate.
4. existing electric meter, general contractor to coordinate relocation
5. existing gas meter
6. proposed trash, recycling, green waste bins in outdoor enclosure area (35 gal. each)
7. proposed utility P.O.C.
8. proposed sump pump, see civil drawings
9. proposed linear trench drain, see civil drawings
10. proposed underground retention chamber, see civil drawings

LEGEND: SITE PLAN

-·-·-	property line	○	(E) tree
- - - -	setback	●	(P) tree
— 176 —	(E) contour		
-------	feature above		
-------	feature below		
-------	(E) building footprint		
— — →	trash path of travel		
▭	site wall		
▭	low site wall		
▨	proposed hardscape		

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Utility & Hardscape Plan

Hardscape Plan
Utility Plan

A1.1

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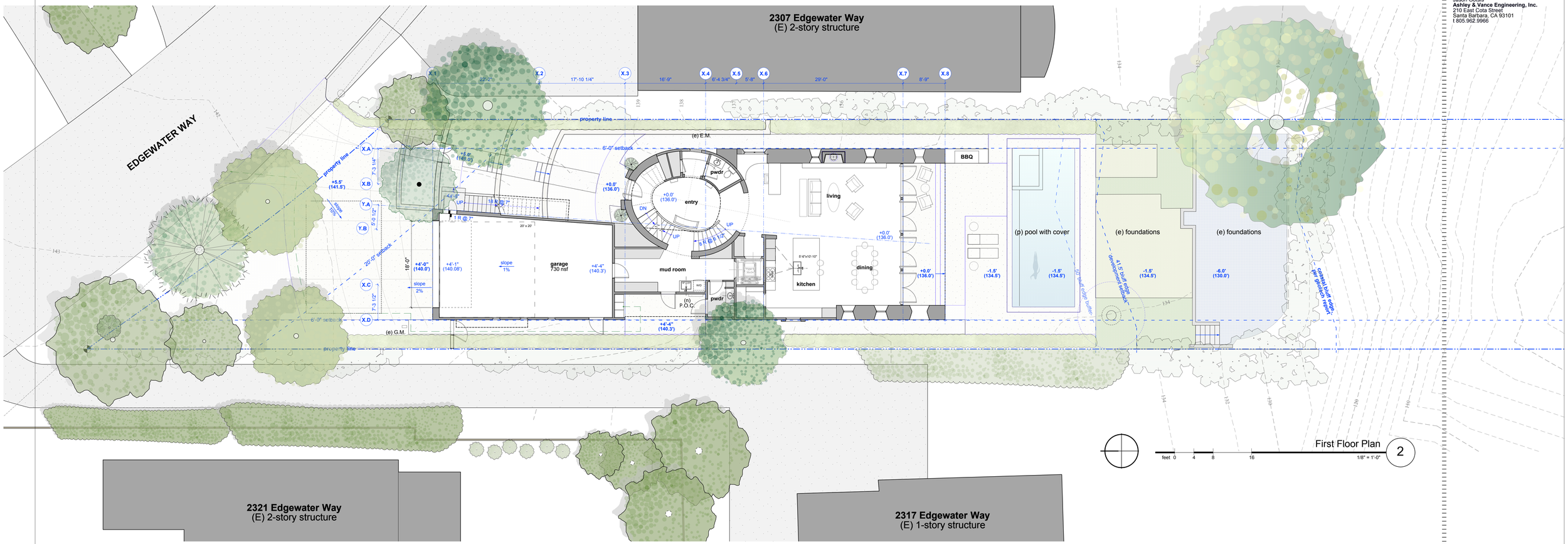
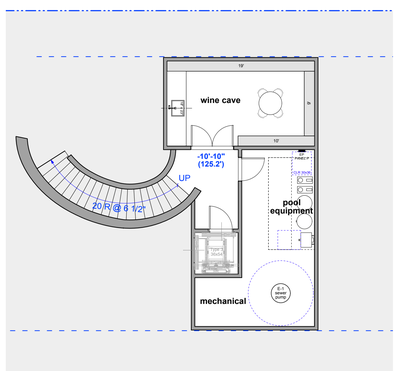


First Floor Plan 2

feet 0 4 8 16 1/8" = 1'-0"



Basement Plan 1

feet 0 4 8 16 1/8" = 1'-0"

WALL TYPE LEGEND: FLOOR PLAN

- wood stud wall
- partial height wall

LEGEND: FLOOR PLAN

- moveable furniture
- feature below
- feature above
- built-in cabinetry, full height, coordinate w/ interior elevations
- built-in cabinetry, low height, coordinate w/ interior elevations
- downspout
- proposed hardscape

Revisions

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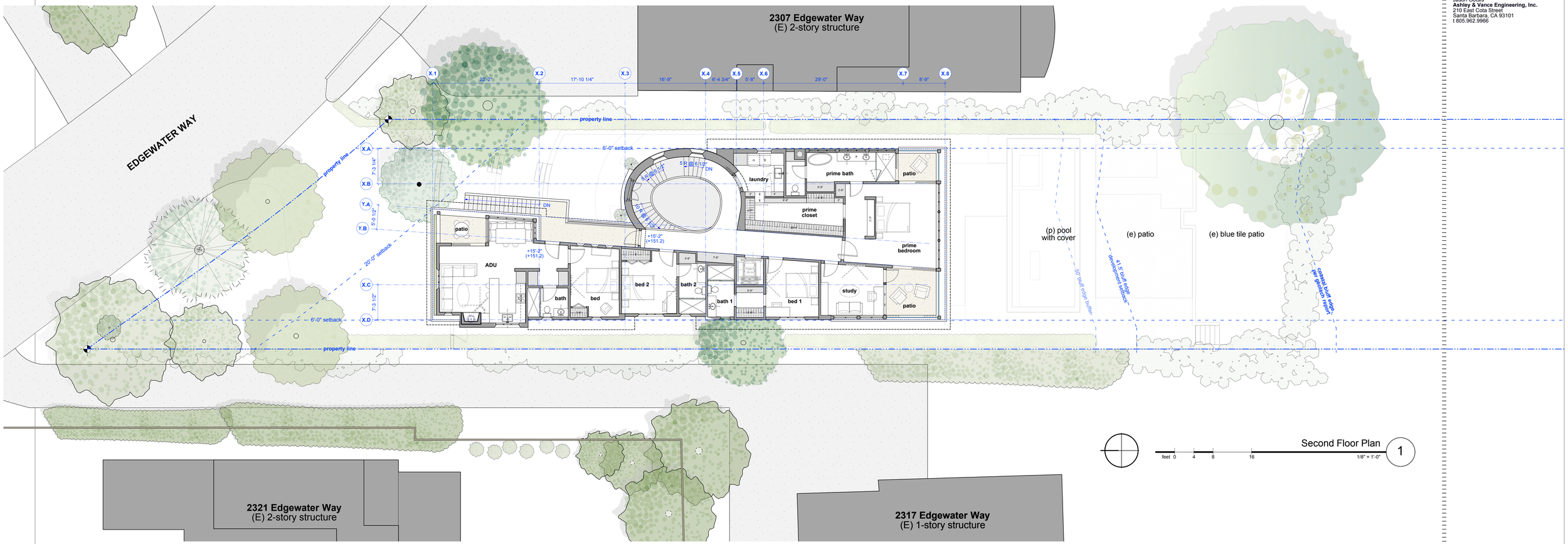
First Floor Plan

A2.1

Planning Submittal 07.15.22



Second Floor Plan 1

WALL TYPE LEGEND: FLOOR PLAN

- wood stud wall
- partial height wall

LEGEND: FLOOR PLAN

- moveable furniture
- feature below
- feature above
- built-in cabinetry, full height, coordinate w/ interior elevations
- built-in cabinetry, low height, coordinate w/ interior elevations
- downspout
- proposed hardscape

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Revisions

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Second Floor Plan

A2.2

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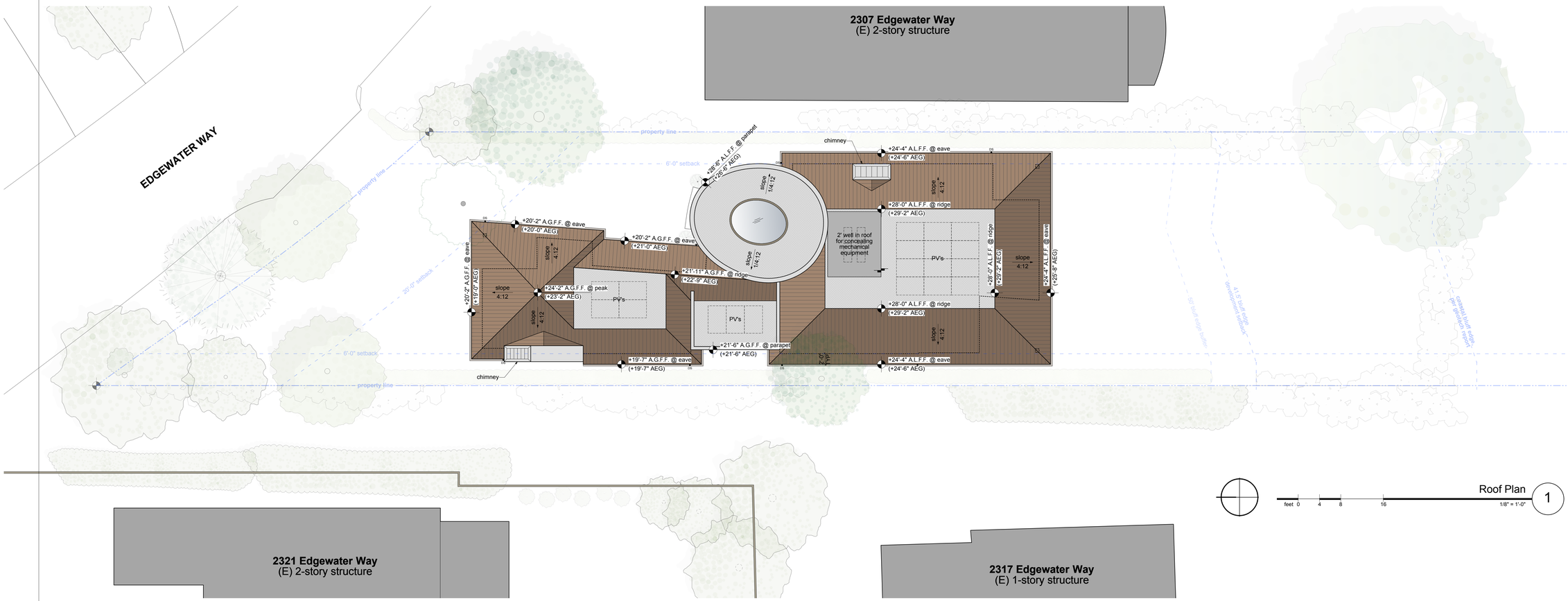

Roof Plan 1

LEGEND: ROOF PLAN

- feature below
- terracotta tile roof
- single-ply roofing membrane
- parapet wall
- metal gutter, painted to match fascia
- DS — downspout, painted to match fascia or wall
- skylight

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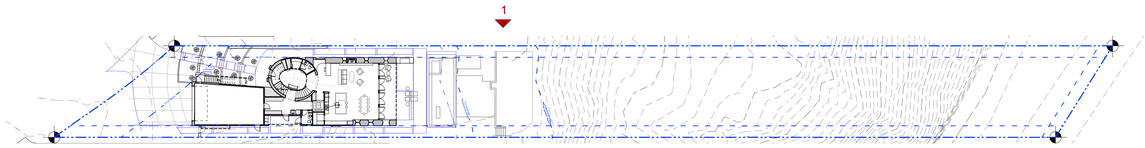
Roof Plan

A2.3

Planning Submittal 07.15.22

Site Elevation 1

feet 0 10 20 40 1/20" = 1'-0"



KEY PLAN

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Site Elevation

A3.0

Planning Submittal 07.15.22

Front Entry Elevation 2B

feet 0 4 8 16 1/8" = 1'-0"

North Elevation 2A

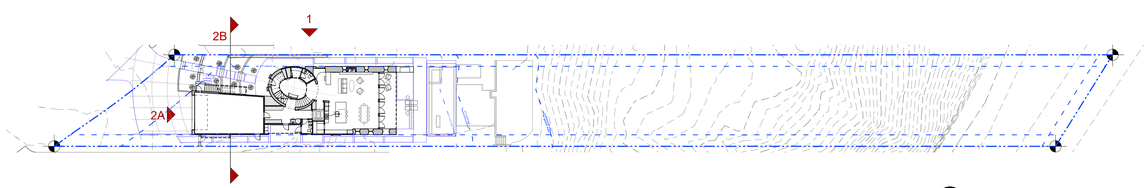
feet 0 4 8 16 1/8" = 1'-0"

East Elevation 1

feet 0 4 8 16 1/8" = 1'-0"

EXTERIOR FINISH SCHEDULE

1. **Plaster Wall**
   smooth plaster, integral color
   color: warm sandy beige
2. **Stone**
   sandstone
3. **Stone**
   terracotta
4. **Exposed Wood**
   stained fire resistant wood (class A)
   stain: mission brown
5. **Roofing**
   terracotta tile roof
6. **Fenestrations (doors & windows)**
   steel frames (bronze), ultra clear (low iron) insulated glazing
7. **Railings**
   wrought iron (bronze)
8. **Railings**
   laminated glazing, ultra clear
9. **Site Gates**
   wrought iron (bronze)
10. **Exterior Screen**



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Elevations

A3.1

Planning Submittal 07.15.22

South Elevation 2

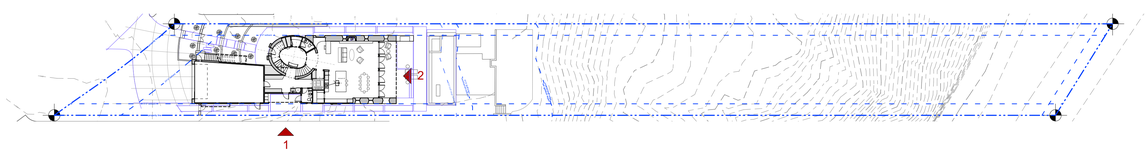
feet 0 4 8 16 1/8" = 1'-0"

West Elevation 1

feet 0 4 8 16 1/8" = 1'-0"

EXTERIOR FINISH SCHEDULE

1. **Plaster Wall**
   smooth plaster, integral color
   color: warm sandy beige
2. **Stone**
   sandstone
3. **Stone**
   terracotta
4. **Exposed Wood**
   stained fire resistant wood (class A)
   stain: mission brown
5. **Roofing**
   terracotta tile roof
6. **Fenestrations (doors & windows)**
   steel frames (bronze), ultra clear (low iron) insulated glazing
7. **Railings**
   wrought iron (bronze)
8. **Railings**
   laminated glazing, ultra clear
9. **Site Gates**
   wrought iron (bronze)
10. **Exterior Screen**



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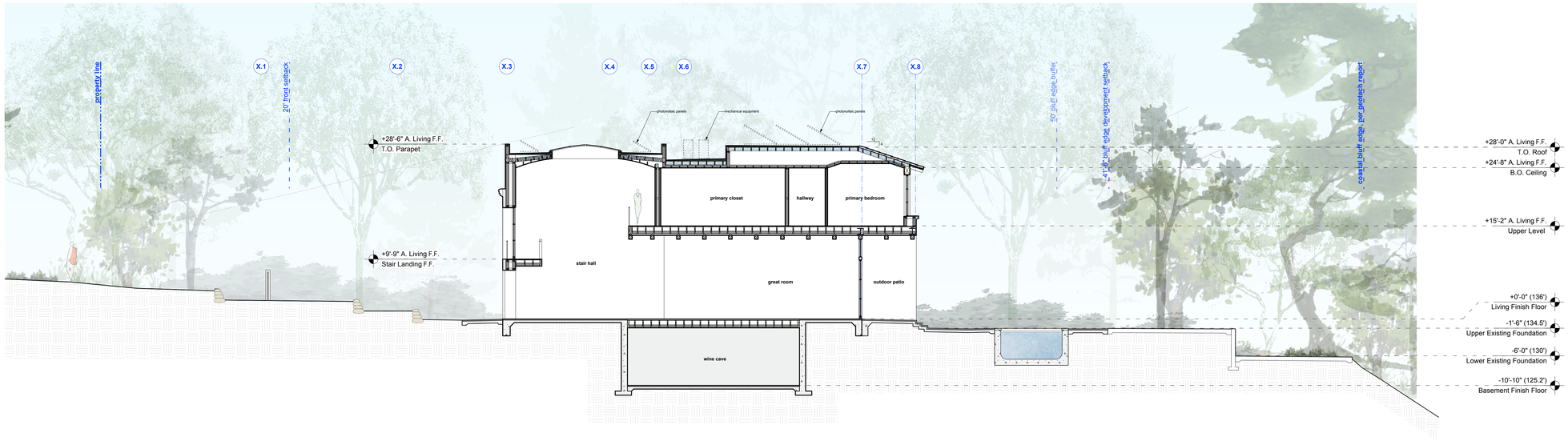
Elevations

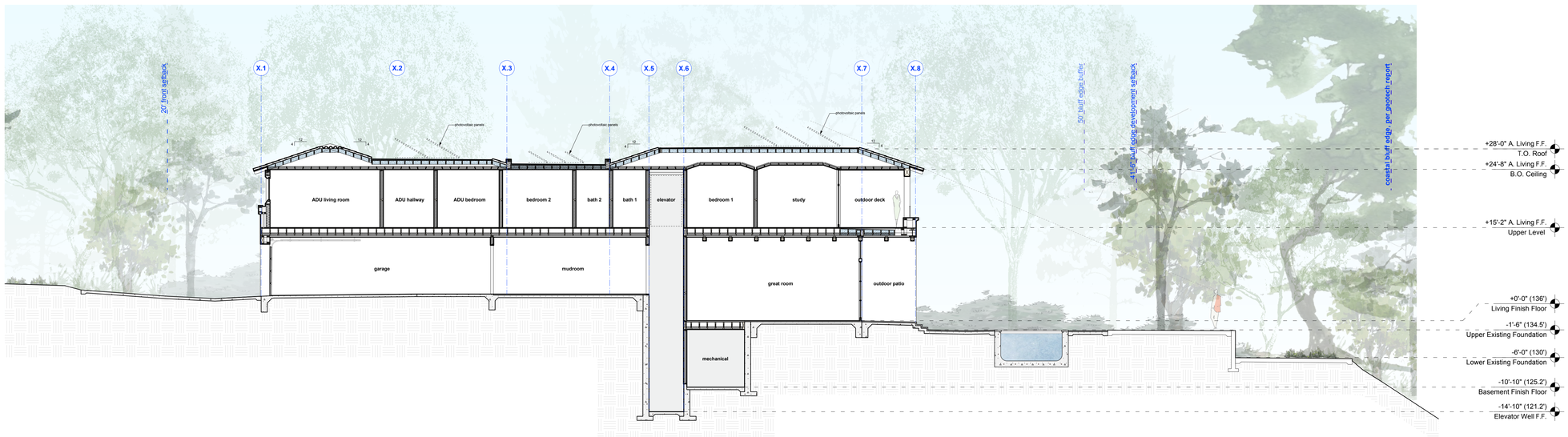
A3.2

Planning Submittal 07.15.22



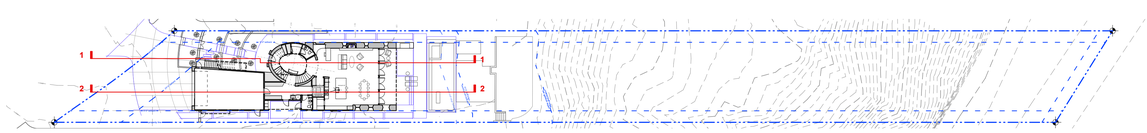
Building Section 1-1 (2)

feet 0 4 8 16 1/8" = 1'-0"



Building Section 2-2 (1)

feet 0 4 8 16 1/8" = 1'-0"



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Revisions

NOT FOR CONSTRUCTION

Building Sections

A4.1

Planning Submittal 07.15.22

HVAC Equipment

SAMSUNG

SUBMITTAL AM053TXMDCH/AA
Samsung DVM S Eco Series, Heat Pump Condensing Unit

Job Name ____ Location ____
Purchaser ____ Engineer ____
Submitted to ____ Reference ____ Approval ☐ Construction ☐
Unit Designation ____ Schedule # ____

System Specifications

Performance	US Ton (nominal)		4.42
	Capacity (Btu/h)	Nominal Cooling[1]	53,000
		Nominal Heating[1]	61,000
	System Modulation down to (Btu/h)		7,500
	SEER	Ducted / Non-Ducted	17.5 / 20.0
	EER	Ducted / Non-Ducted	9.45 / 11.5
	HSPF	Ducted / Non-Ducted	10.0 / 11.0
Power	Voltage	(ø/V/Hz)	1 / 208-230 / 60
	Maximum Circuit Breaker (MOCB/ELB/ELCB)		50
	Minimum Circuit Ampacity (MCA)		34
Indoor Units	Total Capacity (%)		50 - 130% Of Outdoor Capacity
	Maximum Indoor Unit Quantity		16
Compressor	Type		Twin BLDC Rotary X1
	RLA	A	26.0
Refrigerant	Type		R410A
	Factory Charge	lbs.	7.3
Pipe Connections	Liquid X Suction		3/8 X 3/4
	Max. Distance - ODU to IDU (feet)		492 (574 equivalent)
Installation Limitation[2]	Vertical Separation(ODU to IDU) (feet)		164 / 131
		Highest/Lowest IDU	49
	Total Refrigerant Pipe (feet)		984
Condenser Fan	Fan	Type	Propeller X 2
		Output (CFM)	3,885
	Motor	Type	BLDC
		Output (W) / FLA (A)	125 X 2 / 0.6
Dimensions	W X H X D	Inches	37 X 47 5/8 X 13
	Weight	lbs.	227
Sound Level	Max. dB (A)	Cooling / Heating	53 / 55
Operating Temperature Range	Cooling [4]	°F	0°F ~ 118°F (-18°C ~ 48°C)
	Heating	°F	-13°F ~ 75°F (-25°C ~ 24°C)
Accessories	Wind Baffles	Front	VBF-1N1
		Back	VBB-2M-B
	Wi-Fi Adapter		MIM-H04UN
	Mode Selector Switch For HP Systems	☐	MCM-C200J
	Base Pan Heater Kit		MHC-075EE
	External contact control interface module (operation and error output, night silent mode (manual activation)	☐	MIM-B14
Safety Certifications			ETL (UL 1995)
Protection Devices	Intelligent logic to ensure proper operation within unit design limitations and operational parameters		
	High pressure sensor, low pressure sensor, over-voltage protection, compressor over-current protection, current transformer, fan motor voltage protection, fan motor thermal protection, high voltage fuses		

[1] Certified in accordance with the AHRI Unitary Small Air-Source Heat Pumps (USHP) Certification Program which is based on the latest edition of AHRI Standard 210/240.
[2] Other pipe restrictions and requirements exist. Please consult installation manuals or technical data book for full details.
[3] Vertical separation: 131' when outdoor unit is lower than the indoor units, 164' when the outdoor unit is higher than the indoor units.
[4] When cooling in outside temperatures between 0°F ~ 23°F, wind baffles are required. When outside temperatures are below 0°F or above 118°F, minimum 50% operating capacity should be maintained to ensure reliability while in cooling mode.

Compatibility
Only compatible with Samsung DVM S indoor units (AM***N**N***) and MCM-C211UN Universal Communication Kit.

Construction
The unit shall be galvanized steel with a baked on powder coated finish

Refrigerant pipe connections inside unit chassis with penetrations available on front, back, right, and bottom sides for versatile installation

Heat Exchanger
The heat exchanger shall be mechanically bonded fin to copper tube.

Salt spray test method: ASTM-B117-18 - the heat exchanger showed no unusual rust or corrosion development to 2,280 hours.

Controls
The unit shall be operated via NASA Protocol with controls provided by Samsung

Control wiring shall be 16 AWG X 2 shielded wire.

Refrigerant System
The compressors shall be Samsung hermetically sealed, inverter driven, twin BLDC Rotary type.

Refrigerant flow shall be controlled by EEV (electronic expansion valve) throughout the system.

A flat plate subcooler device will improve capacity at extreme system refrigerant pipe lengths and reduce refrigerant noise.

Other Features
Optional night quiet modes to reduce outdoor unit sound

Optional snow blowing logic to prevent snow drifting on idle outdoor units

www.SamsungHVAC.com

SAMSUNG

SUBMITTAL AM030ANHDCH/AA
Samsung DVM S Series, Duct S, Ducted Unit

Job Name ____ Location ____
Purchaser ____ Engineer ____
Submitted to ____ Reference ____ Approval ☐ Construction ☐
Unit Designation ____ Schedule # ____

Specifications

Performance	Nominal Capacity[1]	Cooling (Btu/h)	30,000
		Heating (Btu/h)	34,000
Power	Voltage (ø / V / Hz)		1 / 208-230 / 60
	Nominal Running Current (A)		1.20
	MCA		2.95
	MOP		15
Fan	Type		Sirocco (3)
	Motor	Type	BLDC (1)
		Output (W)	153
Airflow	CFM (UL)	H/M/L	989 / 812 / 583
	Total CFM Range[2]		583 - 1300
External Static Pressure	Standard	"WC	0.2
	Min. / Max.	"WC	0.12 - 0.79
Refrigerant	Type		R410A
	Control Method		Electronic Expansion Valve
Piping Connections	Liquid (flare)	Inches	3/8
	Suction (flare)	Inches	5/8
	Drain	Inches	1 1/16" ID for 3/4" PVC
Unit Dimensions	W X H X D	Inches	47 1/4 X 9 13/16 X 27 9/16
	Weight	lbs.	77.2
	Duct Connections (inches)	Supply	45 15/16 X 8 11/16
		Return	45 15/16 X 8 11/16
Sound Level	H / M / L	dB(A)	38 / 34 / 30
Accessories	Filter Box		FB-DS2
	External Contact Control	☐	MIM-B14
	Wireless Receiver Kit		MRK-A10N
	External Temperature Sensor	☐	MRW-TA
	CN83 Pigtail (for 12VDC VENT output)		DB39-01263A
Safety Certifications			ETL (UL 1995)

[1] Nominal cooling capacities are based on: Indoor temperature: 80 °F DB, 67°F WB. Outdoor temperature: 95°F DB, 75°F WB
Nominal heating capacities are based on: Indoor temperature: 70 °F DB, 60°F WB. Outdoor temperature: 47°F DB, 43°F WB.
[2] Refer to technical data book for fan performance details and settings.
Samsung HVAC maintains a policy of ongoing development, specifications are subject to change without notice.

- Compatible with Samsung DVM S, DVM S Water, and DVM S Eco systems (AM**********AA).
- Horizontal discharge airflow
- The indoor unit shall have a removable EEPROM that stores system programming information, unit name, and other data
- All indoor unit addressing and option settings shall be done digitally; the indoor unit does not contain rotary dials or setting switches.
- The indoor unit shall have static pressure scanning for simple setup and optimized comfort settings for the occupant.
- The indoor unit shall have smart-tuning function that can provide optimized comfort by allowing the occupant to offset the fan CFM curve with a wired remote controller (MWR-SH10N, MWR-SH11UN, MWR-WE13*N, MWR-WG00J*N) to increase or decrease airflow.
- The indoor unit shall allow service access from four sides (top, bottom, left, right).
- The indoor unit shall have an internal condensate pump as standard with float switch (maximum 29" lift from bottom of unit).
- High-voltage terminal block temperature sensor to disable unit in the event overheating of power connection.
- Discharge air temperature sensor with target discharge temperature control capability

Construction
The unit shall be constructed of insulated, galvanized steel

Heat Exchanger
The heat exchanger shall be mechanically bonded fin to copper tube

Indoor Fan
Indoor fan is a centrifugal type with a single fan motor

Three fan speed settings and auto setting

Fan output can be configured during commissioning for various external static pressure ranges

Controls
The unit shall be operated via a wireless or wired remote control with DDC type signal

Controls shall integrate with a BMS system

Control wiring shall be 2X 16 AWG shielded wire

Air Filtration
No air filtration provided

Pressure drop across field-provided filter must be factored into the total ESP.

www.SamsungHVAC.com
888-699-6067

SAMSUNG

SUBMITTAL AM018ANMDCH/AA
Samsung DVM S Series, Duct S, Ducted Unit

Job Name ____ Location ____
Purchaser ____ Engineer ____
Submitted to ____ Reference ____ Approval ☐ Construction ☐
Unit Designation ____ Schedule # ____

Specifications

Performance	Nominal Capacity[1]	Cooling (Btu/h)	18,000
		Heating (Btu/h)	20,000
Power	Voltage (ø / V / Hz)		1 / 208-230 / 60
	Nominal Running Current (A)		0.50
	MCA		2.14
	MOP		15
Fan	Type		Sirocco (2)
	Motor	Type	BLDC (1)
		Output (W)	153
Airflow	CFM (UL)	H/M/L	671 / 565 / 459
	Total CFM Range[2]		459 - 1170
External Static Pressure	Standard	"WC	0.04
	Min. / Max.	"WC	0 - 0.79
Refrigerant	Type		R410A
	Control Method		Electronic Expansion Valve
Piping Connections	Liquid (flare)	Inches	1/4
	Suction (flare)	Inches	1/2
	Drain	Inches	1 1/16" ID for 3/4" PVC
Unit Dimensions	W X H X D	Inches	47 1/4 X 9 13/16 X 27 9/16
	Weight	lbs.	77.2
	Duct Connections (inches)	Supply	45 15/16 X 8 11/16
		Return	45 15/16 X 8 11/16
Sound Level	H / M / L	dB(A)	33 / 29 / 26
Accessories	Filter Box		FB-DS2
	External Contact Control	☐	MIM-B14
	Wireless Receiver Kit		MRK-A10N
	External Temperature Sensor	☐	MRW-TA
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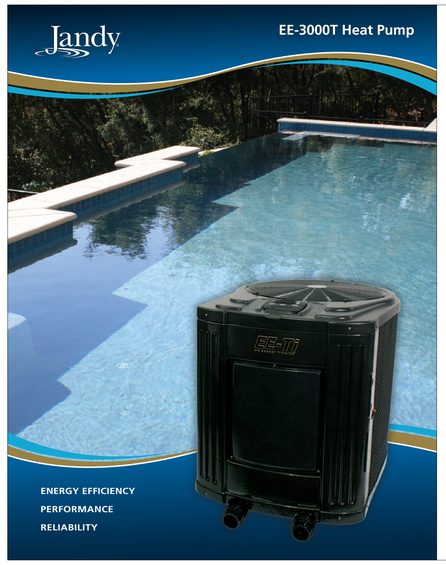
www.SamsungHVAC.com
888-699-6067

Pool Equipment



SPECIFICATIONS

Output*	140,000 BTUs
Input*	6.7 kW
COP	6.1
Output, Standard Rating Conditions**	132,000 BTUs
COP, Standard Rating Conditions**	5.82
Output, Low Ambient**	90,000 BTUs
C.O.P. Low Ambient**	4.1
Voltage	230/60/1
Minimum Circuit Ampacity	37 A
Max Over Current Protection***	60 A
LRA	145
RLA	26.9
Compressor	Scroll
Heat Exchanger	Titanium
Optimal Water Flow	60 GPM
Minimum Water Flow	30 GPM
Maximum Water Flow	125 GPM
Weight	325 lbs
Sound Pressure Per ISO 3471	58.9 dBa

* Outside the scope of AHRI Standard 1160 (I-P)
** Rated in accordance with AHRI Standard 1160 (I-P)

FEATURES & BENEFITS

Control Our advanced control offers programmable features for pool and spa, self diagnostics, and multilingual capability. Patented Auto-Heat feature maintains pool temperature automatically and efficiently 24 hours per day.

Convenience Independent Pool and Spa set points. Indoors or out – Jandy's exclusive control system allows monitoring heat pump functions from wherever is most convenient for you.

Dependability Our titanium heat exchanger provides superior hydraulic flow and is backed by a lifetime warranty against corrosion. UV-resistant cabinet is rust and corrosion free for life.

Automation Ready Allows easy connection to Jandy controls and other pool/spa automation systems and adjustment settings.

Autohp Kit (Optional) Automatic Pool/Spa switching for systems that share the same filtration.

Customer Service All Jandy pool and spa products are backed by our highly trained and dedicated technical support team.

Cost Effective Save as much as 80% to heat your pool over alternate heating methods.

AHRI CERTIFIED Product Performance — Use of the AHRI Certified mark indicates a manufacturer's participation in the certification program. For verification of certification for individual products, go to www.ahridirectory.org.

ENERGY EFFICIENT SWIMMING POOL HEAT PUMP

YOU CAN HAVE IT ALL

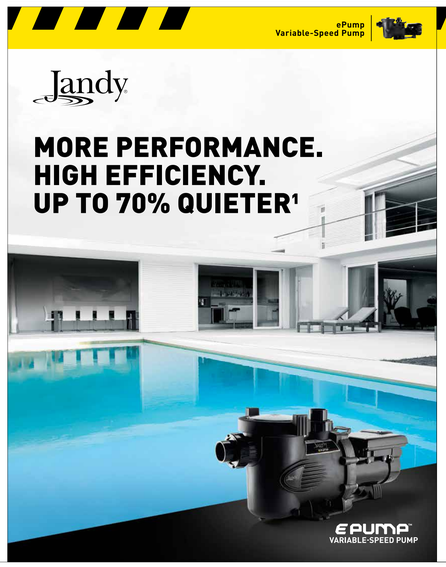
Jandy's new energy efficient heat pumps simply absorb free heat from the air and transfer it to the water, making the heating process efficient, ecological, and most of all, cost effective.

- Environmentally Friendly (410A Refrigerant)
- Low Heating Costs
- Titanium Heat Exchanger (Proprietary)
- Digital Self-Diagnostic Control Panel (Proprietary)
- Programmable Pool/Spa Thermostats
- Maintain Temp Mode, 24/7
- AquaLink® Automation-Ready
- Air Defrost
- Commercial Grade Quiet Scroll Compressor
- Built-In Bypass Flow Assembly
- Available in Heat and Cool Models

Jandy
www.jandy.com

Zodiac Pool Systems, Inc.
P 800.822.7933 | F 800.478.8324
www.zodiacpoolsystems.com

ePump Variable-Speed Pump



Save over $1,100 per year on energy costs with the ePump™ Variable-Speed Pump[2]

The ePump's high-efficiency, fully programmable variable-speed motor allows pool owners to cut back on energy usage and save substantially.

» Ultra-Efficient Operation
Features an energy-saving totally enclosed fan-cooled (TEFC) permanent magnet brushless DC variable-speed motor for cooler, quieter operation and extended life.

» Stealth™ Pump Technology
Features powerful, efficient operation with a whisper-quiet motor and the largest smooth surface trap basket on the market for reduced maintenance. Packed with more user-friendly features including ergonomic handles and easy-to-read indicators.

» Multiple Control System Options Available
Completely programmable and customizable with the Jandy® AquaLink® line of automation systems, iQPUMP01, or the JEP-R controller.

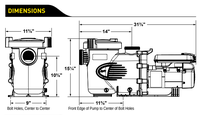
» VGB-Compliant SVRS Model Available
Utilizes an ANSI[3]/ASME® A112.19.17 certified Safety Vacuum Release System to aid in the prevention of full body entrapment hazards on compliance with the VGB Pool & Safety Act (P&SS Act).

» Complies with Appliance Efficiency Standards (CEC Title 20 & ANSI[4]/APSP-15) and Qualifies for Utility Rebates[3]

[1] Up to 70% quieter than single-speed pumps. Results based on testing conducted by Zodiac Pool Systems LLC to ANSI S12.31-2012/ISO 3471:2010 standards.
[2] Based on a 28,000 gallon pool with 2 turnovers per day at an average power cost of $0.175/kWh vs. comparable single-speed pumps; when tested in accordance with the applicable requirements of 10 CFR 429.
[3] Where offered
[4] Auxiliary Relay rated up to 230V/11AMPS

Jandy.com | 1.800.822.7933

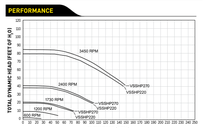
DIMENSIONS



SPECIFICATIONS

Model No.	THP	WEF	Voltage	Watts	Recommended Pipe Size	Carton Weight	Overall Length
VSSHP250AUT	2.25	7.5	208-230VAC	2,100 W	2½–3"	71.5 lbs.	31¾"
VSSHP275AUT	2.70	7.0	208-230VAC	2,300 W	2½–3"	71.5 lbs.	31¾"
JEPO 05VRS	2.70	7.2	208-230VAC	2,300 W	2½–3"	71.5 lbs.	31¾"

PERFORMANCE



» Auxiliary relay for managing additional equipment[4]
This pump features an auxiliary relay which, when combined with iQPUMP01, enables instant automation for the pump — plus one additional piece of equipment — using the iAquaLink app. This feature eliminates the need for an additional time clock to control equipment such as a booster pump or salt chlorinator.

Technical Specification

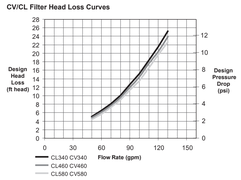
Jandy Pro Series by ZODIAC®

CV/CL Series Filters

Part No.	Description	Size
CV340	CV Cartridge Filter	340 Sq. Ft.
CV460	CV Cartridge Filter	460 Sq. Ft.
CV580	CV Cartridge Filter	580 Sq. Ft.

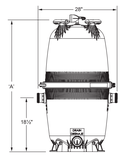
Part No.	Description	Size
CL340	CL Cartridge Filter	340 Sq. Ft.
CL460	CL Cartridge Filter	460 Sq. Ft.
CL580	CL Cartridge Filter	580 Sq. Ft.

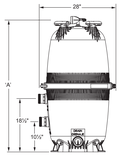
CV/CL Filter Head Loss Curves



www.ZodiacPoolSystems.com

CV/CL Filter Specification





Specifications and Dimensions, CV Series Filters			
Model No.	CV340	CV460	CV580
Filter Area	340 ft²	460 ft²	580 ft²
Design Flow Rate	.37 gpm/ft²	.33 gpm/ft²	.26 gpm/ft²
Maximum Flow	127 gpm	150 gpm	150 gpm
Six (6) Hour Capacity	45,720 gallons	54,000 gallons	54,000 gallons
Eight (8) Hour Capacity	60,960 gallons	72,000 gallons	72,000 gallons
Maximum Working Pressure	50 psi	50 psi	50 psi
Cartridges Required	4 (858² each)	4 (1158² each)	4 (1458² each)
Shipping Weight	106 lbs.	106 lbs.	112 lbs.
Height ("A")	41"	41"	47"
Footprint	25" diameter circle	25" diameter circle	25" diameter circle

Specifications and Dimensions, CL Series Filters			
Model No.	CL340	CL460	CL580
Filter Area	340 ft²	460 ft²	580 ft²
Design Flow Rate	.37 gpm/ft²	.33 gpm/ft²	.26 gpm/ft²
Maximum Flow	127 gpm	150 gpm	150 gpm
Six (6) Hour Capacity	45,720 gallons	54,000 gallons	54,000 gallons
Eight (8) Hour Capacity	60,960 gallons	72,000 gallons	72,000 gallons
Maximum Working Pressure	50 psi	50 psi	50 psi
Cartridges Required	4 (858² each)	4 (1158² each)	4 (1458² each)
Shipping Weight	93 lbs.	95 lbs.	101 lbs.
Height ("A")	41"	41"	47"
Footprint	25" diameter circle	25" diameter circle	25" diameter circle
Distance Between Inlet and Outlet	8½"	8½"	8½"

blackbird architects

Edgewater Residence

2315 Edgewater Way
Santa Barbara

041-350-024

PLN2021-00584

architect:

Ken Radtkey
Blackbird Architects
235 Palm Ave
Santa Barbara, CA 93101
t 805.957.1315

geotech engineer:

Todd Tranby
Earth Systems Pacific
1731-A Walter Street
Ventura, CA 93003
t 805.826.1474

civil engineer:

Jason Gotsis
Ashley & Vance Engineering, Inc.
210 East Cota Street
Santa Barbara, CA 93101
t 805.962.9966

Revisions

NOT FOR CONSTRUCTION

Cut Sheets

HVAC Equipment
Pool Equipment

M0.1

Planning Submittal 07.15.22

blackbird architects

July 15th, 2022

Planning Division
City of Santa Barbara
630 Garden Street
Santa Barbara, CA 93101

RE: Planning Application – Application Letter
2315 Edgewater Way, APN: 041-350-024; Planning Application # PLN2021-00584

On behalf of the property owners, Ralf and Pamela Pohl (2315 Edgewater, LLC), we are pleased to provide for your review and consideration this application letter/project description as part of the Planning Application submittal.

Existing Conditions

The subject property is located at 2315 Edgewater Way (APN 041-350-024). The property lot size is 0.52 acres/22,651 square feet, on a lot with an average slope of 35% and is located in the West Mesa General Plan neighborhood. The property is currently developed with a 3,538 net square foot two-story single-family residence and attached garage originally constructed in 1967.

In 1975, the original structure was relocated 100 feet to the north, leaving the original structural foundations and retaining wall in its place along the bluff edge. Please reference the *Existing Foundation Exhibit* submitted with this letter for California Coastline imagery from before and after the structure's relocation. Please reference the *Geotech Report - Addendum* for additional information regarding this as-built foundation feature and recommendations supporting leaving these features in place.

Project Description

The applicant is proposing to demolish the existing relocated residence and garage and construct a new 4,015 NSF two-story single-family residence with an attached 2-car garage; a new 600 NSF basement; and a new 625 NSF attached ADU. The project includes a new pool, driveway replacement, removal of several non-specimen trees, and hardscape & landscape improvements. The as-built features along the bluff (original foundations and retaining wall) are noted as existing to remain. The subject property is zoned RS-7.5 (E-3) (Residential Single Unit) and is located in the California Coastal Commission appeals jurisdiction.

Planning Commission/SFDB

The CDP/PLN project will request review and approval by the City Single-Family Design Board (SFDB) and the Planning Commission.

The project received SFDB Concept review approval on May 23rd, 2022; and it was stated & noted by the SFDB Board that story poles would not be necessary for the project.

235 Palm Avenue
Santa Barbara, CA
93101 USA
805.957.1315

www.bbird.com

Architectural Design Approach

The project is a site-sensitive redevelopment of the property to provide a well-designed single-family home with an attached ADU. The objective is to allow the inhabitants of the home to have wonderful indoor-outdoor living opportunities, and strong connections with amazing views to the Pacific Ocean. The site contains a bluff edge, and a geotechnical report has identified that a 41'-6" bluff edge development setback be maintained from the bluff edge (the bluff edge is approximately along the 128' to 126' contour line as noted by the Geotech engineer). The site slopes about 6' between the northern property line along Edgewater Way and the bluff edge development setback, and the house has been designed in such a manner to not require significant modification of the grades for the improvements. Driveway access is proposed in the same location as currently exists along Edgewater Way, with modification only to the slope (± 10% slope) of the driveway before reaching the garage. This allows the garage to be better screened from the main front view of the home while also helping to minimize grading impacts elsewhere on site. The proposed plan seeks to maintain the existing fencing and vegetation and replace the vegetative screening around the perimeter of the property north of the bluff edge development setback line.

The site design locates the massing of the building as a linear and compact element with the front entry set back 39' from the front garage façade. A series of descending terraced gardens leads to the front door from the street with tall linear Italian Cypress trees flanking each side of the entry massing. This allows the landscaping and planting to be the visual focus of the project from Edgewater Way, as the building serves as a backdrop. The stepped and carved-out massing consists of a series of two-story hipped roof and parapet elements and provides well situated view-decks.

The style of the building is sustainability-oriented warm-contemporary Spanish style. The surrounding Mesa Terrace neighborhood's origins as a 1960's pseudo-ranch style tract development has evolved into an eclectic current mix of ranch, craftsman, and modern styles. The proposed project's varied massing, integral-color smooth plaster, warm sandstone and terra-cotta accents, rooftop solar panels, and native landscape fit well into the neighborhood context and will preserve and enhance the character of Edgewater Way.

Site Coverage & Open Yard

This Planning Application (PLN) includes project plans and details that have not been completely developed. All required site coverage statistics and open yard calculations are schematically noted on the plans.

Landscape and Hardscape

New landscaping is comprised of drought tolerant species, sculptural Italian cypress trees and smaller plants. Complementary hardscape and site features include impermeable pavers, ornamental pots, boulders and decorative pebbles. The proposed plan also seeks to maintain as much of the existing vegetative screening as feasible around the perimeter of the property.

Grading & Stormwater Management

This Planning Application (PLN) includes approximate grading quantities for both the surrounding site and the building. This project will meet Tier 3 SWMP requirements per the City of Santa Barbara Creeks Division December 2020 Storm Water BMP Guidance Manual. Per coordination with project Geotechnical Engineer, direct infiltration BMPs will cause potential bluff instability and will not be allowed for this project. Through coordination with Creeks, all stormwater must be

captured, including stormwater within the bluff edge development setback area.

Therefore, all site stormwater will be captured directly into site area drains throughout the property, and - due to the natural slope of the property - tying into a southern sump pump. In addition, per Creeks direction, a trench drain is proposed along the bluff edge to capture stormwater before running down the bluff edge and will tie into the same southern sump pump. From here all water is pumped up to the northern side of the property into the underground retention chamber which is designed to retain the 1-inch 24-hour storm with sump pumps conveying runoff in excess of this to the street. An irrigation pump will be installed to drain and use the 1-inch retained storm for irrigation.

Construction

Construction of the improvements, including demolition, is expected to take approximately 12 months. Standard Best Management Practices shall be incorporated into the project as a condition of approval and will be required prior to Building Permit issuance.

Anticipated Required Discretionary Approvals

We appreciate the City's feedback and would be happy to answer any questions City staff may have during review. Please feel free to contact me at 805-957-1315 or shaheen@bbird.com.

Sincerely,
Shaheen Ghazvinizadeh
Blackbird Architects

235 Palm Avenue
Santa Barbara, CA
93101 USA
805.957.1315

www.bbird.com

1972 Photo (Enlarged)

Original House & Garage Structures

1979 Photo (Enlarged)

Relocated Original House & Garage Structures

1979 Photo (Enlarged) - HIGHLIGHTED FOUNDATIONS

Relocated Original House & Garage Structures

Date: May 31, 2022

Photo 1 - view from existing raised deck looking south towards existing foundations A & B; foundation C is not visable

Photo 2 - view from existing foundation B looking northeast towards existing house and existing foundation A

Photo 3 - view from existing foundation B looking east towards existing foundations B and C

Photo 4 - view from existing foundation C looking northwest towards existing foundation B, retaining wall, and site stair as-built features

Photo 5 - view from existing foundation C looking north towards existing house and foundation B

Photo 6 - view of existing foundation B, retaining wall (with cast-in anchor bolts) and foundation C as-built features

Date: May 31, 2022

ENGINEERING GEOLOGY AND
GEOTECHNICAL ENGINEERING REPORT
PROPOSED RESIDENTIAL CONSTRUCTION
2315 EDGEWATER WAY
SANTA BARBARA, CALIFORNIA

PROJECT NO.: 304467-001
JULY 20, 2021

PREPARED FOR
2315 EDGEWATER LLC

BY
EARTH SYSTEMS PACIFIC
1731-A WALTER STREET
VENTURA, CALIFORNIA 93003

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

July 20, 2021

Project No.: 304467-001
Report No.: 21-7-51

Mr. Ralf Pohl
2315 Edgewater LLC
1536 Brook Drive
Downers Grove, IL 60515

Project: 2315 Edgewater Way
Santa Barbara, California
Subject: Engineering Geology and Geotechnical Engineering Report

As authorized, Earth Systems Pacific (Earth Systems) has performed an engineering geology and geotechnical engineering study for proposed residential construction at 2315 Edgewater Way in Santa Barbara, California. The accompanying Engineering Geology and Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, and our conclusions and recommendations pertaining to geotechnical aspects of project design. This report completes Phase 1 of the scope of services described within our Proposal SBA-21-02-004 dated February 17, 2021 and authorized by you on March 1, 2021.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or if we can be of further service.

Respectfully submitted,
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INTRODUCTION

Project Description

This report presents results of an Engineering Geology and Geotechnical Engineering study performed for a proposed replacement residence at 2315 Edgewater Way in Santa Barbara, California (see Vicinity Map in Appendix A). Earth Systems understands that an existing residence will be demolished prior to the construction of the proposed replacement residence.

Purpose and Scope of Work

The purpose of the geologic/geotechnical study that led to this report was to analyze the soil/bedrock conditions of the project site and to provide geologic/geotechnical recommendations for construction. The soil/bedrock conditions include surface and subsurface soil/bedrock types, expansion potential, soil/bedrock strength, settlement potential, bearing capacity, slope stability, erosional retreat estimation; and the presence or absence of subsurface water. The scope of work included:

- Performing a reconnaissance of the project site.
- Drilling, sampling, and logging one bucket-auger boring (BA-1) to study bedrock, soil, and groundwater conditions.
- Excavating, sampling, and logging two exploratory test pits (TP-1 and TP-2) to study bedrock, soil, and groundwater conditions.
- Hand-augering, sampling, and logging two exploratory borings (HA-1 and HA-2) to study bedrock, soil, and groundwater conditions
- Laboratory testing soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
- Consulting with owner representatives and design professionals.
- Analyzing the geotechnical data obtained.
- Preparing this report.

Contained in this report are:

- Descriptions and results of field and laboratory tests that were performed.
- Conclusions and recommendations pertaining to site grading and structural design.

Site Setting

An existing residence currently occupies the project site. The site is about 50 feet wide in its west-east orientation and about 500 feet long in its north-south orientation. The northern about 200 feet of the site is relatively flat and it is here that existing improvements are located. The southern about 300 feet of the site descends to the Pacific Ocean and terminates on a sandy beach. The descending slope is about 120 feet high and has a variable gradient of between 1-horizontal to 1-vertical (1H:1V) to about 6H:1V.

The project site is bounded by Edgewater Way to the north, residential lots to the west and east, and the before-mentioned approximately 120-foot high descending slope to the south. The area surrounding the existing residence is covered by landscaping (planters and trees) and hardscaping (walkways and driveways). The geographic coordinates of the project site are 34.3972˚ North Latitude and 119.7295° West Longitude.

REGIONAL GEOLOGY

The site lies atop an ocean bluff in the western portion of the Transverse Ranges geologic province. Numerous east-west trending folds and reverse faults indicative of active north-south transpressional tectonics characterize the region. The ongoing regional compression produces the east-west trending faults that deform early Pleistocene to Tertiary aged marine and non-marine sedimentary bedrock units. These sedimentary bedrock units underlie the property at an unknown depth.

Both Regional Geologic Map 1 (T.W. Dibblee, Jr, Geologic Map of the Santa Barbara Quadrangle, 1986) and Regional Geologic Map 2 (USGS, Geologic Map of the Santa Barbara Coastal Plain, 2009) indicate that the northwest-southeast trending Lavigia Fault is about 4,700 feet north of the site (see Appendix A).

The site is mapped by T.W. Dibblee, Jr. and the USGS to be underlain by Marine Terrace deposits (a.k.a. older alluvium). Our field study encountered artificial fill overlying Marine Terrace deposits, which is underlain by Monterey Formation bedrock.

AERIAL PHOTO REVIEW

An aerial photograph study was performed at by Dr. Larry Gurrola (subcontracted geologist) on April 6, 2021. The following table summarizes the aerial photographs that were reviewed for the subject property:

Year	Flight and Frame Numbers	Scale
1928	C-311 C-Section: A10, A11	18,000
1929	C-430: A12, A13	24,000
1938	C-4950: SF-72, SF-73	24,000
1943	BTM-1943: 4B-148, 4B-149	20,000
1947	GS-EM: 6-160, 6-161	24,000
1953	CC: 1-45, 1-46	14,400
1954	BTM-1954 7K-66, 7K-67	20,000
1954	CM: I-66, I-67	14,400
1956	HA-AN: 1-7, 1-8	9,600
1959	HA-GN: 67, 68	15,600
1961	BTM-1961: 7B-89, 7B-90	20,000
1962	HA-OI: 81 (non-stereo)	12,000
1967	HB-JW: 121, 122	12,000
1969	AN-AM: 37, 38	24,000
1969	HB-QD: 109, 110	24,000
1975	HB-XQ: 239, 240	12,000
1992	PW-SB-8: 8-2, 8-4	24,000
1995	PW-55010: 26, 27	12,000
2001	CCC-BQK-C: 72-2, 72-3	12,000

Google Earth images dated: 2006-2007 and 2010-2018.

The aerial photographs listed in the above table were supplemented with Google Earth images to observe evidence related to the presence of a landslide on the subject property and to observe the performance of the subject slopes in the last ninety years. A mirrored stereoscope with 3X magnification was used to view the subject property in 3-D and map areas of instability of the subject slopes. Areas of instability such as flows and slides, in addition to development history of the site vicinity were recorded.

The subject property is situated on an elevated terrace (bench feature) with a descending slope in the earliest 1920's and 1930's aerials. The elevated terrace area and surrounding vicinity appear to be used as agricultural fields. The descending sea cliff slope was sub-vertical and mostly vegetated with few barren areas. A prominent lineation was expressed as a topographic step down to the south, and this feature traverses the site which is likely a buried sea cliff. The buried sea cliff daylights near or on the subject property at the top of bluff.

Development of Edgewater Way was observed in 1947 and a small building was observed on or near the subject property. Artificial fill may have been pushed over the top of bluff that was associated with the development of the structure as fill was observed on the upper bluff face. A translational landslide was observed in the early 1950's and part of the head scarp extended to the southeast portion of the subject slope. The lateral margin of the slide formed a northeast-southwest scarp that extended down the slope face of the subject property. The landslide mass re-mobilized down slope over the course of the following years.

The landslide mass was graded and a haul road from Edgewater Way located east of the site allowed access to the slope in 1956. However, re-mobilization of the slide occurred shortly thereafter. A new head scarp formed on the graded landslide mass in 1967 and earth flow slides were observed on the landslide mass in 1969.

Two structures were present on the subject property in 1973 with the largest structure situated near the top of slope. Artificial fill had been pushed over the bluff top in an apparent attempt to fill in the recently formed head scarp graben on the bluff face and apparently extended the pad southward forming a new top of bluff composed of fill. A landslide was observed in 1975 that formed a new head scarp that extended to the structure near the top of bluff. This slide mobilized the artificial fill observed at the top of bluff in 1973 and possibly mobilized part of the intact bluff top.

Due to a lack of available aerial photo images, observations were not made in the late 1970's and the 1980's. Runoff related erosion was observed on the slope face in the 1990's and a small slide occurred on the lower part of the slope along the west property line. Runoff related erosion has repeatedly occurred in the lower part of the slope along the west property line in the 2000's.

SEISMICITY AND SEISMIC DESIGN

Although the project site is not within a State-designated "fault rupture hazard zone", it is located in an active seismic region where large numbers of earthquakes are recorded each year. Historically, major earthquakes felt in the vicinity of the project site have originated from faults outside the area. These include the 1857 Fort Tejon earthquake, the 1872 Owens Valley earthquake, and the 1952 Arvin-Tehachapi earthquake. An exception is the December 21, 1812 "Santa Barbara Region" earthquake, that was presumably centered in the Santa Barbara Channel. The June 25, 1925 Santa Barbara earthquake had an estimated magnitude of 6.8 and is not considered a "major" earthquake. However, it did cause widespread damage around Santa Barbara because of poor construction techniques.

It is assumed that the 2019 CBC and ASCE 7-16 guidelines will apply for the seismic design parameters. The 2019 CBC includes several seismic design parameters that are influenced by the geographic site location with respect to active and potentially active faults, and with respect to subsurface soil or rock conditions. The “general procedure” (i.e., probabilistic) seismic design parameters presented below were retrieved from the U.S. Seismic Design Maps web services using the SEAOC/OSHPD website which presents the data in a report format. The data were retrieved for the ASCE 7-16 design code, site coordinates 34.3972° North Latitude and 119.7295° West Longitude, Soil Site Class C, and Occupancy (Risk) Category II. The 2019 California Building Code (CBC) and ASCE 7-16 seismic parameters to be used for structural design are included in Appendix C and summarized in the following table.

Summary of Seismic Parameters (2019 CBC)

Seismic Design Category	E
Site Class (Table 20.3-1 of ASCE 7-10 with 2013 update)	C
Occupancy (Risk) Category	II
Maximum Considered Earthquake (MCE) Ground Motion	
Site Modified Peak Ground Acceleration – PGA_m	1.227 g
Spectral Response Acceleration, Short Period – S_s	2.320 g
Spectral Response Acceleration at 1 sec. – S_1	0.822 g
Site Coefficient – F_a	1.2
Site Coefficient – F_v	1.4
Site-Modified Spectral Response Acceleration, Short Period – S_{MS}	2.784 g
Site-Modified Spectral Response Acceleration at 1 sec. – S_{M1}	1.151 g
Design Earthquake Ground Motion	

Short Period Spectral Response – S_{DS}	1.856 g
One Second Spectral Response – S_{D1}	0.768 g

The values presented in the table above are appropriate for a 2 percent probability of exceedance in 50 years. A listing of the calculated 2019 CBC and ASCE 7-16 seismic parameters is included in Appendix D. The Fault Parameters table in Appendix D lists the significant "active" and "potentially active" faults within a 42-mile radius of the project site.

The distance between the project site and the nearest portion of each fault is shown, as well as the respective estimated maximum earthquake magnitudes, and the deterministic mean site peak ground accelerations.

SOIL/BEDROCK AND GROUNDWATER CONDITIONS

Evaluation of the subsurface indicates that much of the project site is underlain by artificial fill (silty sand to sandy silt, thicknesses ranging from zero to about 3.5 feet) overlying marine terrace deposits (silty sand to sandy silt, thicknesses of up at least 2 feet), which overlies Monterey formation bedrock.

Testing indicates that anticipated bearing soils lie in the "Very Low" expansion range based on a measured expansion index (EI) of 2. A version of this classification of soil expansion is incorporated into a Minimum Foundation Design Table, which is included in Appendix C of this report. It appears that soils can be cut by normal grading equipment.

Groundwater was not encountered in any of the test borings drilled for this study. It should be noted that fluctuations in groundwater levels may occur because of variations in rainfall, regional climate, and other factors.

A sample of near-surface soil was tested for pH, resistivity, soluble sulfates, and soluble chlorides. The test results provided in Appendix B should be distributed to the design team for their interpretations pertaining to the corrosivity or reactivity of various construction materials (such as concrete and piping) with the soils. It should be noted that the sulfate content (58 mg/Kg) is in the "S0" exposure class (i.e. "Negligible" severity range) of Table 19.3.1.1 of ACI 318-14. Therefore, special concrete designs will not be necessary for the measured sulfate content according to Table 19.3.2.1 of ACI 318-14.

Based on criteria established by the County of Los Angeles, the measured resistivity of a near-surface soil sample (11,000 ohms-cm) indicates that near-surface soils are "Mildly Corrosive" to ferrous metal (i.e. cast iron, etc.) pipes. It should be noted that Earth Systems does not practice soil corrosion engineering.

HYDROCOLLAPSE POTENTIAL

Hydrocollapse is a phenomenon in which naturally occurring soil deposits, or non-engineered fill soils, collapse when wetted. Natural soils that are susceptible to this phenomenon are typically aeolian, debris flow, alluvial, or colluvial deposits with high apparent strength when dry. Loosely compacted fills can also be susceptible to this phenomenon. The dry strength is attributed to salts, clays, silts, and in some cases capillary tension, "bonding" larger soil grains together. So long as these soils remain dry, their strength and resistance to compression are retained. However, when wetted, the salt, clay, or silt bonding agent is weakened or dissolved, or capillary tension reduced, eventually leading to collapse. Soils susceptible to this phenomenon are found throughout the southwestern United States.

A consolidation test was performed on a sample of artificial fill collected at a depth of 3 feet in Boring BA-1. The test specimen exhibited about 2.3% of hydrocollapse when the sample was loaded to wetted. Based on the laboratory test results, there is the potential for hydrocollapse of the artificial fill soils should they become wetted; however, all existing artificial fill soils will be removed and replaced with compacted engineered fill beneath all future improvements. The existing artificial fill is underlain by marine terrace deposits and Monterey Formation bedrock, which are typically not susceptible to hydrocollapse. Therefore, it is our opinion the potential for hydrocollapse is low.

LIQUEFACTION POTENTIAL

Earthquake-induced cyclic loading can be the cause of several significant phenomena, including liquefaction in fine sands and silty sands. Liquefaction results in a loss of soil strength and can cause structures to settle and, in extreme cases, to experience bearing failure.

The potential hazard posed by liquefaction is considered to be low at the project site because:

- Groundwater was not encountered in either boring to a depth of about 40 feet below the ground surface.

- The project site is underlain at shallow depths by Monterey Shale that is typically not susceptible to liquefaction.

SEISMIC-INDUCED SETTLEMENT OF DRY SANDS

Dry (unsaturated) soils tend to settle and densify when subjected to earthquake shaking. The amount of settlement is a function of relative density, cyclic shear strain magnitude, and the number of strain cycles. A procedure to evaluate this type of settlement was developed by Seed and Silver (1972) and later modified by Pyke, et al. (1975). Tokimatsu and Seed (1987) presented a simplified procedure that has been reduced to a series of equations by Pradel (1998). Research on this subject is continuing (Stewart, et al., 2004).

Potential of this phenomenon is considered to be low at the project site because the project site is underlain at shallow depths by Monterey Formation bedrock which are typically not susceptible to seismic-induced settlement of dry sands, and the existing artificial fill soils will be removed and replaced beneath all future improvements with compacted engineered fill which is also not susceptible to seismic-induced settlement of dry sands.

FAULT RUPTURE HAZARD

A fault is a break in the earth's crust upon which movement has occurred in the recent geologic past and at which future movement is expected. A summary of nearby active faults is presented in Appendix C under Table 1 Fault Parameters.

The project site does not lie within a State of California designated active fault hazard zone. The activity of faults is classified by the State of California based on the Alquist-Priolo Earthquake Fault Zoning Act (1972, Revised 1999). An active fault has had surface rupture with Holocene time (the past 11,000 years). A potentially active fault shows evidence of surface displacement during Quaternary time (last 1.6 million years). An inactive fault has no evidence of movement within the Quaternary time.

As previously discussed in the Regional Geology section of this report, all nearby faults (as shown on both reviewed Regional Geologic Maps) are at least about 4,700 feet away from the project site. Therefore, the potential for fault rupture at the project site is considered low.

ROCKFALL

Loose boulder-sized rocks and/or weathering bedrock outcrops located upslope from construction can lead to a rockfall hazard. Because of the project site's location on top of a slope area, the potential for rockfall onto the project site appears to be low.

EARTHQUAKE-INDUCED FLOODING

Earthquake-induced flooding types include tsunamis, seiches, and reservoir failure. The potential for earthquake-induced tsunamis is not considered a hazard because the project site is not located in a tsunami inundation area according to Tsunami Inundation Map for Emergency Planning, Santa Barbara Quadrangle, Effective January 31, 2009 (CalEMA/CGS/USC).

Because of the project site's relative position away from any reservoirs, the potential for seiche and reservoir failure should be considered low.

OTHER FLOODING

The project site is not within any of the flood hazard areas mapped by Federal Emergency Management Agency (FEMA), FEMA Flood Map for City of Santa Barbara, effective September 28, 2018, Map No. 06083C1388H.

GROSS (GLOBAL) SLOPE STABILITY

Slope stability analyses were performed for Section A-A', which is shown on the Site Plan/ Geologic Map in Appendix A. This Section A-A' is located within the property lines and is believed to represent the steepest descending slope below the southern portion of the project site.

Strength Parameters

The unit weights and shear strength values of the Monterey Formation bedrock for the slope stability analyses were selected based on results of laboratory testing on samples obtained from the project site. The direct shear tests were performed with the samples saturated. The shear data were composited to determine the average shear strength parameters of the relatively undisturbed samples of Monterey Formation bedrock that were tested.

For the Monterey Formation bedrock, peak shear strength parameters were used for both static and seismic (earthquake, pseudostatic) conditions. Groundwater was not considered in the slope stability analyses because it is located substantially below the ground surface.

Results of the composite shear strength graphs are included in Appendix B. The composited results are summarized in the following table:

Composited Parameters that are Used in the Slope Stability Analyses

Unit	Unit Weight (pcf)	Cohesion (psf)	Friction Angle
Monterey Formation Bedrock (peak)	93.5 (Moist)	321.8	38.1°

Therefore, it is our professional opinion that the geotechnical parameters presented below are appropriate for use in the slope stability analyses. The strength parameters of the Fill Material were based on a direct shear test performed on a remolded sample (BA-1@0'-5'). The peak shear strengths of the Monterey Formation bedrock were based on direct shear testing of onsite samples. The residual shear strengths for the Monterey Formation bedrock were based on a Sea Cliff Retreat Study report prepared for a nearby project site (2215 and 2305 Edgewater Way) that was explored by Earth Systems Southern California in 2008 (Project No. VT-23780-01, Report No. 08-2-32, Dated February 20, 2008). See Appendix B for the Site Plan, Boring Log, and Direct Shear Test from the referenced site. The strength parameters of the Landslide Mass were assumed based on experiences and judgements.

Unit	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (degrees)
Fill Material	122 (moist)	300 (peak)	29 (peak)
		120 (ultimate)	30 (ultimate)
Native Bedrock (Monterey Formation)	93.5 (moist)	321.8 (peak)	38.1 (peak)
		0 (residual)	34 (residual)
Landslide Mass (Qls)	110 (moist)	200 (peak & ultimate)	28 (peak & ultimate)

Slope Stability Analyses Criteria

The stability of Section A-A' was analyzed for adverse bedding conditions with apparent bedding dipping south at between 22˚ and 38˚. Stability analyses were performed using the previously-presented strength parameters.

The City of Santa Barbara allows the use of a seismic coefficient of 0.15 g in pseudo-static slope stability analyses when the proximity of active faults did not warrant the use of higher values. Earth Systems' opinion is that a higher value is not warranted at this site because there is no

active fault within about 4,700 feet of the project site based on review of regional geologic maps. Hence, pseudostatic analyses were performed using the SLIDE2 computer program with seismic coefficient of 0.15 g. The City of Santa Barbara requires a minimum safety factor for gross static stability is 1.50 for static loads, and a minimum safety factor for pseudostatic stability is 1.10 for loading due to seismic shaking.

Results of Slope Stability Analyses

The slope stability plots and printouts are included in Appendix E. The following table summarizes the minimum safety factors that were computed for gross (global) stability analyses of Section A-A':

Minimum Safety Factors Obtained from Different Conditions

Cross-Section Analyzed	Case	Minimum Safety Factor
A-A'	Static, Circular	1.05
A-A'	Seismic, Circular, k=0.15g	0.82
A-A'	Static, Planar	1.65
A-A'	Seismic, Planar, k=0.15g	1.06

As shown in the table above, all of the minimum safety factors obtained, with the exception of a planar failure surface on the bluff face under static conditions, were greater than the required threshold. No failure surface with factors of safety less than the required minimums projects into the building pad area. Hence, the proposed replacement residence does not appear to be impacted by gross (global) slope instability.

RATE OF RETREAT

The rate of retreat was analyzed for the top of the bluff for the southern slope of the subject property. The analysis was performed along one survey transect located on the eastern portion of the property. The survey utilized measurements on large scale aerial photographs and a County of Santa Barbara Flood Control topographic map, dated 1997. The aerial photographs and map acquired data was supplemented with field measurements taken on April 7, 2021.

It is necessary to utilize the same geographic reference point to accurately determine the amount of retreat that has occurred for a given time period. Horizontal distances were measured from the geographic reference points to the top of bluff along the survey transect. The earliest measurements of the distance to top of bluff on the eastern side of the property

were made on large scale 1975 aerial photos. It is noted that measurements prior to 1975 were not included in the survey as the bluff top was extended southward by artificial fill and was not visible due to tree cover.

Utilizing the distance to the bluff top in 1975 photos as a base reference in comparison to the field survey in 2021, the estimated total amount of retreat from 1975 to 2021 is approximately 15 feet. Therefore, the long-term rate of retreat for the eastern survey is approximately 0.33 feet per year (4 inches per year).

Based on a rate of retreat of 0.33 feet per year, the projected amount of retreat of the top of bluff is estimated to be approximately 25 feet in 75 years. The rate of retreat represents an average annual rate for bluff top erosion that is episodic in nature.

The estimated amount of retreat in 75 years does not account for accelerated rates of bluff retreat due to sea level rise. The following section presents the analysis and accounts for accelerating sea level rise in the Santa Barbara area for the next 75-year period.

SEA LEVEL RISE AND RATE OF RETREAT

Because of climatic changes over the past 100 years, average worldwide sea level has been rising approximately 1 to 2 millimeters per years since the end of the “Little Ice Age” in the 19th century (USGS, 2000 and Douglas, 1995). This rise is not globally uniform and there is considerable debate regarding the accuracy of predicted future sea level changes. However, there is general scientific consensus that sea levels will rise at an accelerating rate in the coming decades. A recently adopted California Coastal Commission guidance document, the “Sea Level Rise Policy” dated November 7, 2018 contains future sea level rise projections under various time scales and risk scenarios, which were developed in a 2017 report by the California Ocean Protection Council under direction of the State of California (OPC, 2017).

For Santa Barbara (Appendix G, Table G-8 in the CACC 2018 document), the projected sea level rise (SLR) at the year 2100 is 3.1 feet in the “Low Risk Aversion” category, which is defined as about 17 percent likely that sea level rise will exceed the 3.1 feet estimate. In the “Medium-High Risk Aversion” category, an estimate of 0.5 percent probability that sea level rise will be higher than 6.6 feet at the year 2100. The 2018 state guidance recommends that the “Medium-High Risk” category be used for establishing setbacks for residential development given the uncertainty of the sea level rise projections, the limitation of adaptation options, and

the potential risk to life and property. The sea level rise projections are presented in 10-year increments (see Table G-8 in the Appendix F of this report) and have utilized this data for 20 year "periods" to estimate accelerated rate of sea cliff retreat, as described below.

Projected Coastal Bluff Retreat

The future rate of coastal bluff retreat is estimated by application of a percentage increase to the site-specific historical retreat rate, estimated as described above, based on the increase in the rate of bluff retreat determined by the U.S. Geological Survey's Coastal Storm Modeling System also known as CoSMoS. This widely recognized model simulates coastal hazards that predicts ocean wave data input, storm surge, tides, and sea level rise.

The CoSMoS model (current version is CoSMoS 3.0) includes a shoreline hazard map with various historic and projected bluff edge retreat rates at noted transect locations. The transects with numerical identifiers are separated by roughly 300 feet horizontally along the coastline in the Mesa Lane area. The CoSMoS transect number 4005 is located near the subject property and the aerial photography rate of retreat transect line. The data for that transect lists the historical sea cliff retreat rate at 0.27609 meters per year (0.91 feet per year). The reported CoSMoS historical retreat rate is based on the USGS's evaluation of historic regional topographic maps and regional aerial imagery (Hapke and Reid, 2007), and is not comparable to the site-specific historical retreat rate determined for the subject property.

The California Coastal Commission (CCC, 2018) "Sea Level Rise Policy Guidance" projections for the Santa Barbara area are used in conjunction with the CoSMoS projections (Appendix A). The CACC guidance projects the upper limit of sea level rise to be 1.1 feet (0.34 meter) at year 2040 under the "Medium-High Risk Aversion" category (see Table G-8 in the Appendix F of this report). The CoSMoS model at transect number 4005 shows that for a sea level that has risen by 0.25 meter (the closest value to the 0.34 meter rise projected at 2040 by the 2018 CACC document), the sea cliff retreat rate is by that time forecast to increase to 0.32275 meters per year (1.1 feet per year). An increase from 0.27609 meters per year to 0.32275 meters per year is equivalent to a 17 percent increase (0.32275/0.27609 = 1.17) in the CoSMoS model retreat rate. That percentage increase is then applied to the site-specific historical retreat rate of 0.33 ft/year to derive a new retreat rate for the 2021 to 2040 period. The following 20-year periods have been analyzed in the same way to develop an incremental percent increase in the rate of sea cliff retreat for each period.

The incremental changes in sea level (CACC, 2018) at Santa Barbara and the corresponding sea cliff retreat rate percentage change are summarized on the following matrix. Also included is the incremental percentage change in retreat rate applied to the site-specific historical retreat rate and the resulting total horizontal cliff edge retreat for the noted time increment.

CoSMoS Historical Retreat Rate (baseline) = 0.276 meters per year (0.91 feet per year) for CoSMoS Transect Station 4005 near 2315 Edgewater Way, Santa Barbara					
Time Increment (Years)	Change in Sea Level (meters/feet) CACC Medium-High Aversion	Percentage Increase in Retreat Rate from CoSMoS Historical Rate	Site Specific Historical Retreat Rate (ft/year)	Projected Average Site Specific Annual Retreat Rate (ft/year)	Incremental Estimated Retreat (feet)
2021-2040 (19 years)	0.34 m (1.1) ft	17%	0.33	0.39	7.4
2040-2060	0.76 m (2.5 ft)	40%	0.33	0.46	9.2
2060-2080	1.31 m/ 4.3 ft	78%	0.33	0.59	11.8
2080-2096 (16 years)	2.01 m/ 6.6 ft	149%	0.33	0.82	13.1
Total Retreat at 2096 = 41.5 feet					

Applying the site-specific historical retreat rate of 0.33 feet/year for the subject property to the incremental percent, bluff retreat is estimated to be approximately 41.5 feet due to anticipated, accelerating sea level rise.

CONCLUSIONS AND RECOMMENDATIONS

According to Policy 5.1-70 of the City of Santa Barbara, Local Coastal Program, Coastal Land Use Plan (August 2019), the coastal bluff edge development buffer calculation should be determined by both slope stability buffer and coastal bluff erosion buffer. The slope stability buffer is not applicable to this project because the proposed replacement residence does not appear to be impacted by gross (global) slope instability, see Gross (Global) Slope Stability section of this report. Therefore, the coastal bluff edge development buffer will be the coastal bluff erosion buffer, which is 41.5 feet in 75 years.

Based on the data provided in this report, it appears that the project site is suitable for the proposed replacement residence from an engineering geology and geotechnical engineering standpoint provided that the recommendations provided herein are properly implemented into the project.

Earth Systems believes that a conventional footing system with slab-on-grade floors will be suitable to support the proposed replacement residence. Given the site conditions encountered, we conclude that remedial grading (i.e., overexcavation and recompaction) will be needed to provide a more uniform and moisture-conditioned subgrade. However, an alternative to overexcavation and recompaction below and around new footings would be to bear new footings into the existing dense marine terrace deposits (about 0 to 3.5 feet below existing grade). The footings should have a minimum of 12 inches of embedment into the marine terrace deposits. If footings bear into the dense marine terrace deposits, then either interior raised floors or structural slabs should be used.

The foundation systems of the proposed replacement residence should satisfy the minimum setback clearances from descending slopes in accordance with Section 1808.7 of the 2019 CBC. In general, when adjacent slopes are steeper than 3-horizontal to 1-vertical, foundations should be setback from descending slopes by a distance equal to the slope height divided by three (H/3). The setback from descending slopes should not be less than 5 feet and need not exceed 40 feet. See the Slope Setbacks for Foundations on or Adjacent to Slopes in Appendix C. Earth Systems estimated the height of the descending slope on the south to be 120 feet, which indicated the minimum setback clearance should be 40 feet. The designer is encouraged to make his/her own determination of slope height and setback clearances as required. This 40 feet of minimum setback clearance should be easily attained because of the above-mentioned 41.5 feet of the coastal bluff edge development buffer

The southern portion of the project site appears to be in an area identified on the Radon Hazard Zones Map that was included in the referenced Technical Report with Evaluation Guidelines (prepared by URS Corporation for the City of Santa Barbara, April 2008) as having high Radon potential. Mitigation measures may include, but not limited to: 1) sub-slab or sub-membrane depressurization systems; 2) mechanical barriers such as sealing and caulking foundation cracks; and/or 3) improved location and sealing of air handling ducts. Earth Systems does not provide Radon Mitigation Services. The project design professional should be aware of and/or evaluate this hazard.

Specific conclusions and recommendations addressing these geologic/geotechnical considerations, as well as general recommendations regarding the geotechnical aspects of design and construction, are presented in the following sections.

A. Grading

1. Pre-Grading Considerations

a. Roof draining systems should be designed so that water is not discharged into bearing soils or near structures.

b. Final site grade should be designed so that all water is diverted away from the structures over paved surfaces, or over landscaped surfaces in accordance with current codes. Water should not be allowed to pond anywhere on the pad, nor should water be allowed to flow over the top of adjacent descending slopes/blufftops.

c. Onsite irrigation should be minimal and drought-tolerant landscape should be used.

d. Stormwater infiltration is not considered feasible onsite because of slope stability concerns. Stormwater should be treated onsite and diverted offsite.

e. Shrinkage of soils (uncertified fills) affected by compaction is estimated to be about 10 percent based on an anticipated average compaction of 92 percent. This does not include losses from removing oversized rocks.

f. Earth Systems should be retained to provide engineering geology and geotechnical engineering services during site development and grading, and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations. This will allow for timely design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

g. Plans and specifications should be provided to Earth Systems prior to grading. Plans should include the grading plans, foundation plans, and foundation details. Earth Systems will review these plans only for conformity with geotechnical parameters not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary to the proper function and performance of the structure.

h. Compaction tests should be made to determine the relative compaction of the fills in accordance with the following minimum guidelines: two tests for each

1-foot vertical lift in the areas graded; two tests for each 500 cubic yards of material placed; and two tests at finished subgrade elevation in every area of remedial grading.

2. Rough Grading/Areas of Development
   a. Grading at a minimum should conform to the 2019 California Building Code.
   b. The existing ground surface should be initially prepared for grading by removing all unwanted existing structures, concrete slabs and foundations, abandoned utility lines, vegetation, trees, large roots, debris, other organic material and non-complying fill. Organics and debris should be stockpiled away from areas to be graded, and ultimately removed from the project site to prevent their inclusion in fills. Voids created by removal of such material should be properly backfilled and compacted. No compacted fill should be placed unless the underlying soil has been observed by the Geotechnical Engineer.
   c. To provide a more uniform and moisture-conditioned building pad, overexcavation and recompaction of soils in these construction areas will be necessary. Alternatively, foundations can bear into the underlying dense marine terrace deposits as discussed in the Conventional Shallow Foundations section of this report. If footings bear into the dense marine terrace deposits, then either interior raised floors or structural slabs should be used.
   d. Soils should be overexcavated throughout the entire construction area to the greatest depth of the following: 1) 3 feet below the bottom of footings; 2) 4 feet below the finished pad grade; or 3) until all existing artificial fills are removed. Alternatively, foundations can bear into the underlying dense marine terrace deposits as discussed in the Convention Shallow Foundations section of this report. If footings bear into the dense marine terrace deposits, then either interior raised floors or structural slabs should be used.
   e. Overexcavation should be extended to a distance of at least 5 feet laterally, but not less than a distance equal to the depth of removal, beyond the outside edge of the foundation elements.
   f. The bottoms of all excavations should be observed by a representative of Earth Systems prior to processing or placing fill.
   g. The resulting surface(s) should then be scarified an additional 6 inches, uniformly moisture conditioned to above the optimum moisture content, and compacted to achieve a minimum relative compaction of 90 percent of the

ASTM D 1557 maximum dry density. Compaction of the prepared subgrade should be verified by testing prior to the placement of engineered fill.

h. Areas outside of the building to receive fill, exterior slabs-on-grade, sidewalks, or paving should be overexcavated either to 1 foot below finished pad grade, or as deep as necessary to remove all existing fill, whichever is deeper. The resulting surfaces should then be scarified an additional 6 inches, moisture conditioned, and recompacted. If the owner decides to leave any existing fill in place under and/or within the influence of proposed exterior improvements, then the owner should aware that there is a risk of settlement that may cause displacement and cracking of exterior improvements.

i. Voids created by dislodging cobbles and boulders during excavation should be backfilled and recompacted and the dislodged cobbles larger than 6 inches in diameter should be removed from the subgrade.

j. On-site soils may be used for fill once they are cleaned of all organic material, rocks, debris, and irreducible material larger than 6 inches.

k. Fill and backfill placed above optimum moisture in layers with a loose thickness not greater than 6 inches should be compacted to a minimum of 90 percent of the maximum dry density obtainable by the ASTM D 1557 test method unless otherwise recommended or specified by the Geotechnical Engineer or his/her representative. Random compaction tests by Earth Systems can assist the Grading Contractor in evaluating whether the Grading Contractor is meeting compaction requirements. However, compaction tests pertain only to a specific location and do not guaranty that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve uniform compaction in accordance with the requirements of this report and the grading ordinance.

l. Import soils used (if any) to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.

m. According to the 2019 CBC Section 1804.4, the ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than 5% for a minimum distance of 10 feet measured perpendicular to the face of the wall.

3. Utility Trenches
   a. Utility trench backfill should be governed by the provisions of this report relating to minimum compaction standards. In general, on-site service lines may be backfilled with native soils compacted to 90 percent of maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.
   b. Utility trenches running parallel to footings should be located at least 5 feet outside the footing line, or above a 1:1 (horizontal to vertical) projection downward from the outside edge of the bottom of the footing.
   c. Compacted on-site native soils should be utilized for backfill below structures. Clean sand backfill should be avoided under structures because it provides a conduit for water to migrate under foundations.
   d. Backfill operations should be observed and tested by the Geotechnical Engineer to monitor compliance with these recommendations.
   e. Although not anticipated, shoring and/or sloping of trenches may be required because of the potential presence of caving sand.
   f. Rocks greater than 6 inches in diameter should not be placed in trench zones (from 12 inches below pavement subgrade or ground surface to 12 inches above top of pipe or box); rocks greater than 2.5 inches in diameter should not be placed in pipe zones (from 12 inches above top of pipe or box to 6 inches below bottom of pipe or box exterior).
   g. Jetting should not be utilized for compaction in utility trenches.

B. Structural Design
1. Conventional Shallow Foundations
   a. The foundation systems of the proposed replacement residence should satisfy the minimum setback clearances from descending slopes in accordance with Section 1808.7 of the 2019 CBC.
   b. Conventional continuous footings and/or interior pad footings supported by recompacted fills or dense marine terrace deposits may be used to support structures. Based on the tested expansion index of zero, perimeter and interior footings should have minimum embedment depths of 12 and 18 inches for one-story and two-story structures, respectively. The expansion index should be re-evaluated at the completion of rough grading to confirm that these minimum footing depths are appropriate.

c. Footings should be embedded into firm recompacted fill or dense marine terrace deposits as recommended elsewhere in this report. Foundation excavations should be observed by a representative of this firm after excavation, but prior to placing of reinforcing steel or concrete, to verify bearing conditions.

d. Footings embedded 12 and 18 inches deep into firm recompacted fill or dense marine terrace deposits may be designed based on allowable bearing values of 2,200 and 2,600 psf, respectively. These values include a safety factor of 3. These allowable bearing values are net (weight of footing and soil surcharge may be neglected) and are applicable for dead plus reasonable live loads.

e. Bearing values may be increased by one-third when transient loads such as wind and/or seismicity are included.

f. Lateral loads may be resisted by soil friction on floor slabs and foundations and by passive resistance of the soils acting on foundation stem walls. Lateral capacity is based on the assumption that any required backfill adjacent to foundations and grade beams is properly compacted.

g. The information that follows regarding reinforcement and premoistening for footings is the same as that given in the Minimum Foundation Design Table for the "Very Low" expansion range. Actual footing designs should be provided by the project Structural Engineer, but the dimensions and reinforcement he recommends should not be less than the criteria set forth in the Minimum Foundation Design Table for the appropriate expansion range.

h. Continuous footings bottomed in soils in the "Very Low" expansion range should be reinforced, at a minimum, with one No. 4 bar along the bottom and one No. 4 bar along the top.

i. Soils should be lightly moistened prior to placing concrete. Testing of premoistening is not required.

2. <u>Slabs-on-Grade Floors</u>

a. Concrete slabs on grade should be supported by firm recompacted fills as recommended elsewhere in this report.

b. It is recommended that perimeter slabs (walkways, patios, etc.) be designed relatively independent of footing stems (i.e. free floating) so foundation adjustment will be less likely to cause cracking.

c. The information that follows regarding design criteria for slabs is generally the same as that given in the Minimum Foundation Design Table for the "Very

Low" expansion range. Actual slab designs should be provided by the project Structural Engineer, but the reinforcement and slab thicknesses he recommends should not be less than the criteria set forth in the Minimum Foundation Design Table for the appropriate expansion range, or as recommended below, whichever is more stringent.

d. Slabs bottomed on soils in the "Very Low" expansion range should be underlaid with a minimum of 2 inches of sand. Areas where floor wetness would be undesirable should be underlaid with a vapor retarder (as specified by the Project Architect or Civil Engineer) to reduce moisture transmission from the subgrade soils to the slab. The retarder should be placed as specified by the project Structural Engineer or Architect.

e. Slabs bottomed on soils in the "Very Low" expansion range should at a minimum be reinforced at mid-slab with No. 4 bars on 16-inch centers, each way. No. 4 bars acting as dowels should also extend out of the perimeter footings, and should be bent so that they extend a minimum of 3 feet into adjacent slabs.

f. Soils should be lightly moistened prior to placing concrete. Testing of premoistening is not required.

g. According to Policy 5.1-33 of the City of Santa Barbara, Local Coastal Program, Coastal Land Use Plan (August 2019), patios should be constructed no more than 10 inches above existing grade. Walkways, lighting for public safety purposes, fences are limited to 42 inches in height. Policy 5.1-33 also limits the approval of the minor improvements to a maximum 20 years from the issuance of the Coastal Development Permit.

3. <u>Frictional and Lateral Coefficients</u>

a. Resistance to lateral loading may be provided by soil friction acting on the base of foundations. A coefficient of friction of 0.58 may be applied to dead load forces. This value does not include a safety factor.

b. Passive resistance acting on the sides of foundation stems equal to 360 pcf of equivalent fluid weight may be included for resistance to lateral load. This value does not include a safety factor.

c. A minimum safety factor of 1.5 should be used when designing for sliding or overturning.

d. Passive resistance may be combined with frictional resistance provided that a one-third reduction in the coefficient of friction is used.

4. Settlement Considerations
   a. A maximum settlement (static and seismic combined) of about half of an inch (0.5”) is anticipated for: 1) foundations and floor slabs supported by recompacted fill as recommended; or 2) foundations supported by dense marine terrace deposits as recommended.
   b. Differential settlement between adjacent load bearing members could be about one-half the maximum settlement.
   c. The Project Structural Engineer will need to design the foundation system to accommodate the potential settlement values.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by Earth Systems during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

- Review of the building and grading plans during the design phase of the project.
- Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
- Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analyses and recommendations submitted in this report are based in part upon the data obtained from the on-site borings and test pits. The nature and extent of variations beyond the points of exploration may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of the client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they are because of natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structures and other improvements are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to ensure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, Earth Systems has striven to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of the Client for the purposes stated in this document for the referenced project only. No third party may use or rely on this report without express written authorization from Earth Systems for such use or reliance.

It is recommended that Earth Systems be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems is not accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretation of the recommendations contained herein.

BIBLIOGRAPHY

Al Atik, and N. Sitar, 2010, Seismic Earth Pressures on Cantilever Retaining Structures, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, October.

California Building Standards Commission, 2019, California Building Code, California Code of Regulations Title 24.

California Coastal Commission, 2018, Sea Level Rise Policy Guidance, November 7.

California Division of Mines and Geology (CDMG.), 1972 (Revised 1999), Fault Rupture Hazard Zones in California, Special Publication 42.

California Ocean Protection Council, 2017, "Rising Seas in California: An Update on Sea Level Rise Science," April 2017.

CDMG, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada to Be Used with the 1997 Uniform Building Code.

CGS, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A.

City of Santa Barbara, August 2019, Local Coastal Program, Coastal Land Use Plan

County of Los Angeles Department of Public Works, 2013, Manual for Preparation of Geotechnical Reports, July 1.

Dibblee, Jr., Thomas W., and Helmut E. Ehrenspeck, 1986, Geologic Map of the Santa Barbara Quadrangle, Santa Barbara County, California, Dibblee Foundation Map No. DF-06.

Douglas, B.C.: 1995, Global sea level change: Determination and interpretation, Revs. Geophys. (supp.), pp. 1425-1432.

Jennings, C.W. and W.A. Bryant, 2010, Fault Activity Map of California, CGS Geologic Data Map No. 6.

NOAA, 2006, "Mean Sea Level Trend, 9410660 Los Angeles, California," http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9410660.

Norris, R.M., 1995, "Southern Santa Barbara County, Gaviota Beach to Rincon Point," in "Living with the California Coast," Duke University Press.

Petersen, M.D., W.A. Bryant, C.H. Cramer, T. Cao, M.S. Reichle, A.D. Frankel, J.J. Lienkaemper, P.A. McCrory and D.P. Schwartz, 1996, Probabilistic Seismic Hazard Assessment for the State of California, CDMG. Open-File Report 96-08, USGS Open-File Report 96-706.

Petersen, M., D. Beeby, W. Bryant, C. Cao, C. Cramer, J. Davis, M. Reichle, G. Saucedo, S. Tan, G. Taylor, T. Toppozada, J. Treiman, C. Wills, 1999, Seismic Shaking Hazard Maps of California, CDMG. Map Sheet 48.

Southern California Earthquake Center (SCEC), 2002, Recommended Procedures for Implementation of DMG Special Publication 117A Guidelines for Analyzing and Mitigating Landslide Hazards in California.

United States Geological Survey (USGS), 2009, Geological Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California.

USGS, 2014, “Coastal Storm Modelling System (CoSMoS),” for the Southern California Bight, Version 3.0.

URS Corporation, 2008, Technical Report with Evaluation Guidelines, Prepared for City of Santa Barbara, April.

APPENDIX A

Vicinity Map
Regional Geologic Map 1 (Dibblee)
Regional Geologic Map 2 (USGS)
Field Study
Site Plan/Geologic Map
Geologic Cross-Section A-A'
Logs of Borings
Logs of Test Pits
Boring Log Symbols
Unified Soil Classification System

*Taken from USGS Topo Map, Santa Barbara Quadrangle, California, 2015.

Approximate Scale: 1" = 2,000'

0 2,000' 4,000'

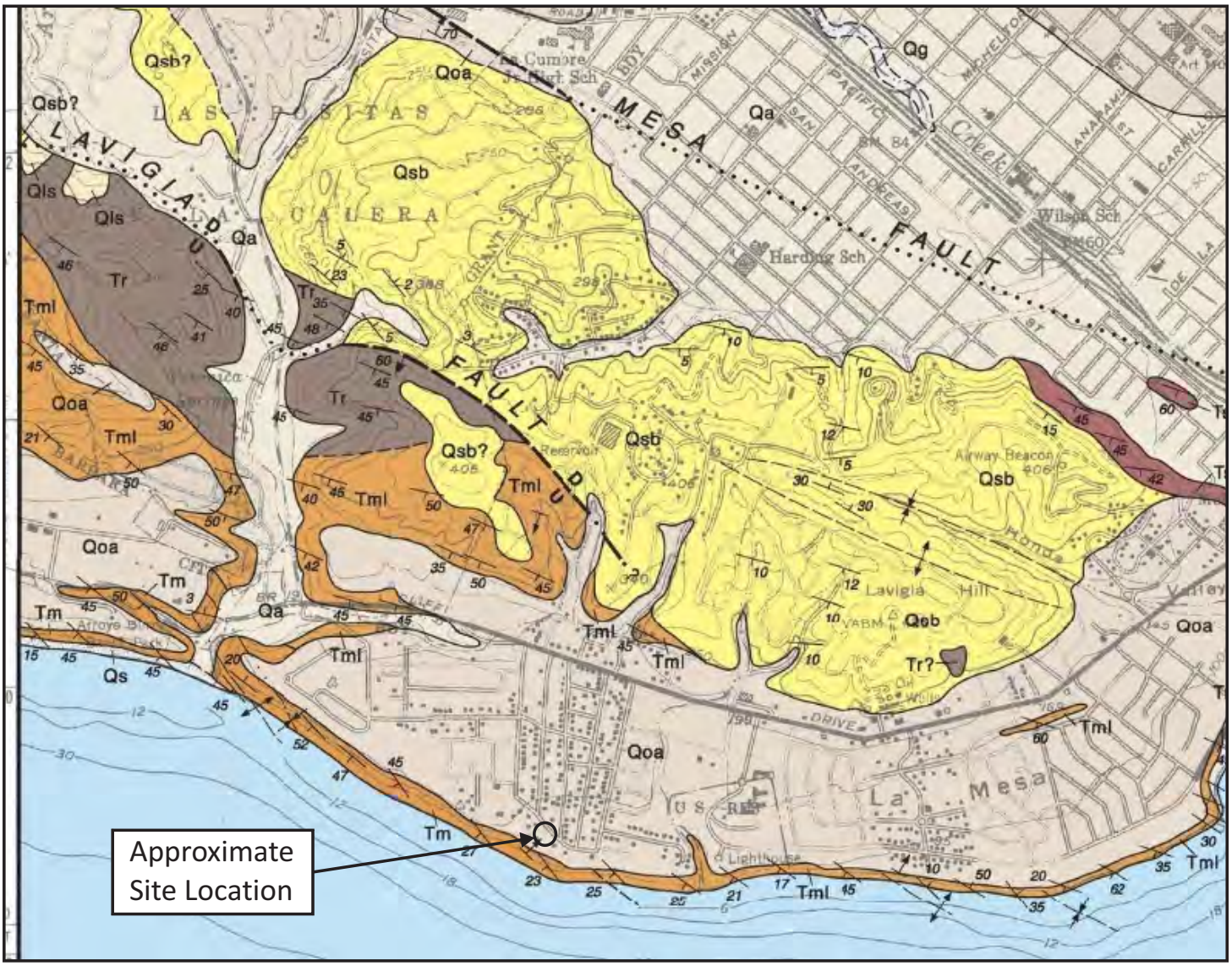
N

VICINITY MAP

2315 Edgewater Way
Santa Barbara, California

Earth Systems

July 2021	304467-001



*Taken from Dibblee, Jr., Geologic Map of The Santa Barbara Quadrangle, Santa Barbara County, California, 1986, DF-06.

GEOLOGIC SYMBOLS

not all symbols shown on each map

FORMATION CONTACT *dashed where inferred or indefinite dotted where concealed*

MEMBER CONTACT *between units of a formation* ····· Prominent bed

CONTACT BETWEEN SURFICIAL SEDIMENTS *located only approximately in places*

FAULT: *Dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful. Parallel arrows indicate inferred relative lateral movement. Relative vertical movement is shown by U/D (U=upthrown side, D=downthrown side). Short arrow indicates dip of fault plane. Sawteeth are on upper plate of low angle thrust fault.*

FOLDS: overturned — **ANTICLINE** — **SYNCLINE**

arrow on axial trace of fold indicates direction of plunge; dotted where concealed by surficial sediments

Strike and dip of sedimentary rocks: inclined (18); inclined (approximate) (20); overturned (80); horizontal; vertical

Strike and dip of metamorphic or igneous rock foliation or flow banding or compositional layers: inclined (75); inclined (approximate); vertical; overturned (80)

OTHER SYMBOLS: *Direction of landslide movement; outline of water bodies shown on map; water well; oil well; springs*

Qog / Qoa

OLDER DISSECTED SURFICIAL SEDIMENTS

Qoa *Former alluvial deposits of silt, sand and gravel, in places weakly consolidated; local unconformities at base*

Qog *Cobble-boulder fan gravel and fanglomerate deposits composed largely of sandstone detritus*

Tm / Tml

MONTEREY SHALE

Marine; early to late Miocene age

Tm *Upper shale unit: white-weathering, thin bedded, hard, platy to brittle siliceous shale; Mohnian Stage*

Tml *Lower shale unit: white weathering, soft, fissle to punky clay shale with interbeds of hard siliceous shale and thin limestone strata; lower Mohnian to uppermost Saucesian Stages*

Approximate Scale: 1" = 2,000'

0 — 2,000' — 4,000'

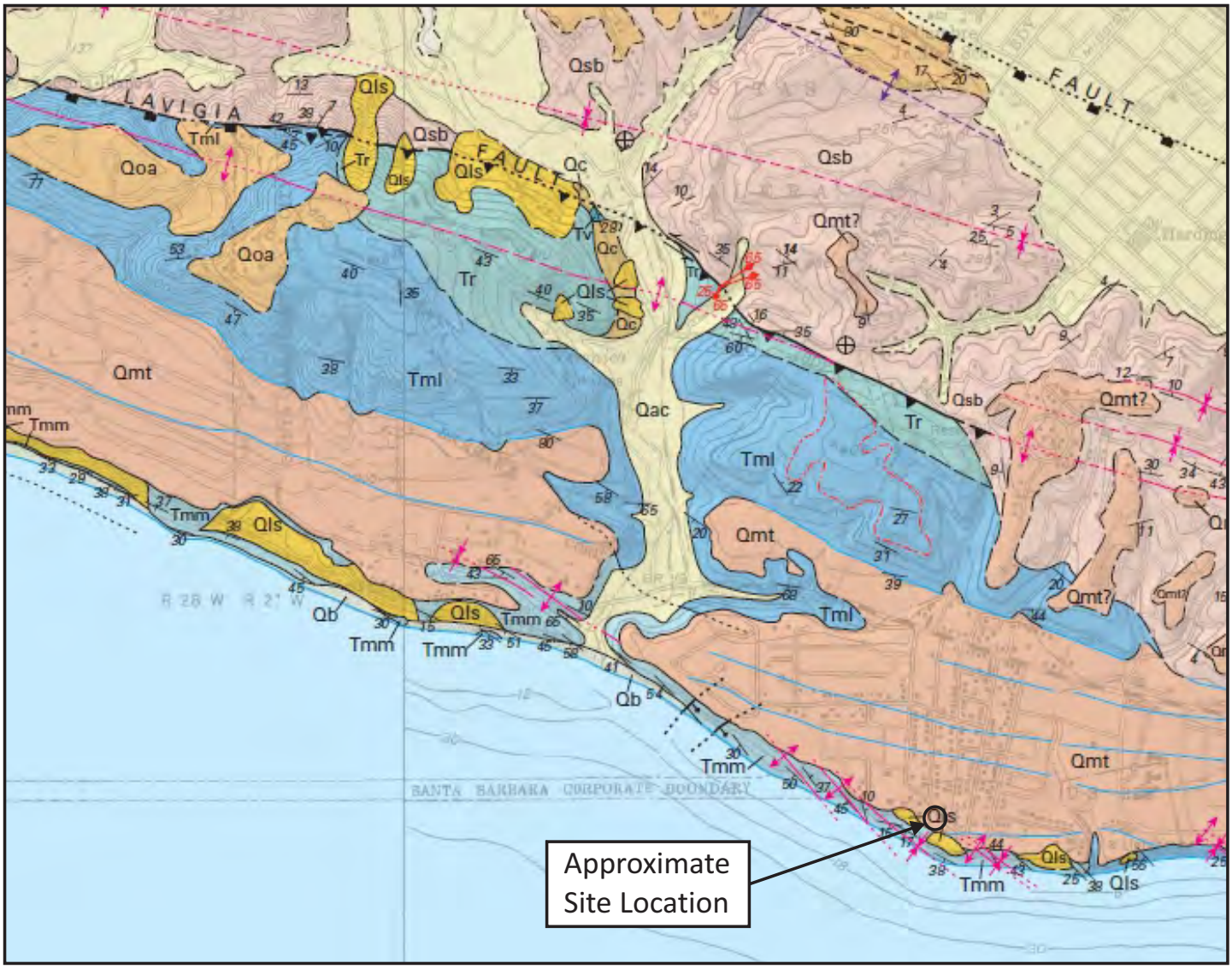
N

REGIONAL GEOLOGIC MAP 1

2315 Edgewater Way
Santa Barbara, California

Earth Systems

July 2021	304467-001



*Taken from Geologic Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California, 2009.

Contact—Long-dashed where approximately located; short-dashed where inferred; dotted where concealed; tic shows direction and angle of dip

Trace of marker bed

Outline of erosionally beveled geomorphic surface

Marine-terrace shoreline angle—Approximately located based on subtle to strong topographic steps of terrace surface; locally coincides with contact between Qmt and older units

Faults—Long-dashed where approximately located; short dashed where inferred; dotted where concealed; queried where uncertain; small red arrow shows direction and angle of dip; red diamond-headed arrow shows bearing and rake of slickenlines and inferred slip direction of hanging-wall block

Strike-slip fault—Opposing arrows show sense of strike-slip movement, queried where uncertain; bi-directional arrows indicate superposed dextral and sinistral slip on same fault

Normal fault—Ball and bar on apparent downthrown side

Reverse fault—Rectangles on apparent upthrown side

Thrust fault—Sawteeth on apparent upthrown side

Fault-line scarp—Inferred from aerial photographs; hachures point downscarp

Slide-block boundary—Inferred; hachures on slide block

Fold and warp axial traces—Long-dashed where approximately located; short-dashed where inferred; dotted where concealed

Anticline—Large arrow indicates plunge direction

Overturned anticline

Upwarp axis—Large arrow indicates plunge direction; mapped in Quaternary deposits where geomorphically expressed

Syncline—Large arrow indicates plunge direction

Overturned syncline

Downwarp axis—Mapped in Quaternary deposits where geomorphically expressed

Horizontal bedding

Inclined bedding—Showing strike and dip

Inclined bedding—Showing approximate strike and dip

Inclined bedding—Showing strike and dip of beds calculated from bedding trace

Vertical bedding—Showing strike

Overturned bedding—Showing strike and dip

(Tsq) **Concealed bedding**—Measured in unit indicated where temporarily exposed at low tide or in construction excavation

Approximate Scale: 1" = 2,000'

0 2,000' 4,000'

Qmt: Marine-terrace deposits (upper Pleistocene)

Qls: Landslide deposits (Holocene to middle Pleistocene)

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REGIONAL GEOLOGIC MAP 2

2315 Edgewater Way
Santa Barbara, California

Earth Systems

July 2021	304467-001

FIELD STUDY

A. One large-diameter boring (BA-1) was drilled to a depth of about 41.5 feet below the existing ground surface to observe the soil profile and to obtain samples for laboratory analyses. This boring was drilled on April 19, 2021, using a 24-inch diameter flight-auger and a core bucket powered by a GEAX EK110. The approximate location of this boring was determined in the field by pacing and sighting, and is shown on the Site Plan/Geologic Map in this Appendix.

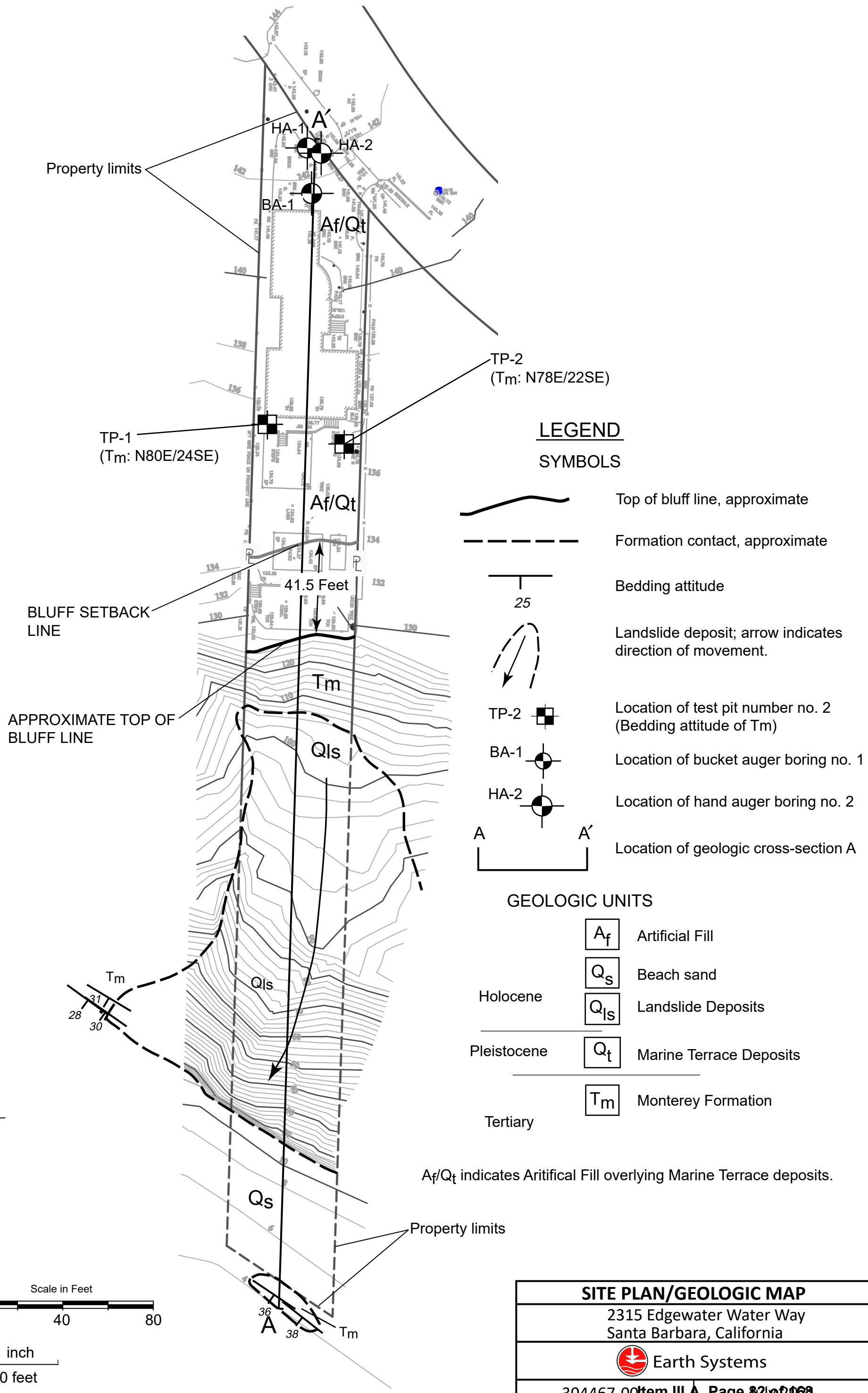
B. Two small-diameter borings (HA-1 and HA-2) were hand-augered to depths of approximately 9.5 and 9.25 feet, respectively, below the existing ground surface to observe the soil profile and to obtain samples for laboratory analyses. These borings were hand-augered on May 14, 2021. The approximate locations of the borings were determined in the field by pacing and sighting, see Site Plan/Geologic Map in this Appendix.

C. Two test pits (TP-1 and TP-2) were excavated to depths of approximately 5.0 and 5.5 feet, respectively, below the existing ground surface to observe the soil profile. The test pits were excavated on May 14, 2021. The approximate locations of the test pits were determined in the field by pacing and sighting, see Site Plan/Geologic Map in this Appendix.

D. Samples were obtained within the borings with a Modified California (M.C.) ring sampler (ASTM D 3550 with shoe similar to ASTM D 1586). The M.C. sampler has a 3-inch outside diameter, and a 2.42-inch inside diameter when used with brass ring liners (as it was during this study). Within the bucket auger boring, the samples were obtained by driving the sampler with a machine-operated hammer. Within the hand-augered borings, the samples were obtained by driving the sampler with a hand-operated, lightweight, sliding hammer. Due to the sampling method employed, blow counts were not recorded for the hand-augered borings.

E. One bulk sample was collected from the cuttings of the soils encountered in Boring BA-1 between the depths of 0 and 5 feet.

F. The final logs of the borings and test pits represent interpretations of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface study. The final logs are included in this Appendix.

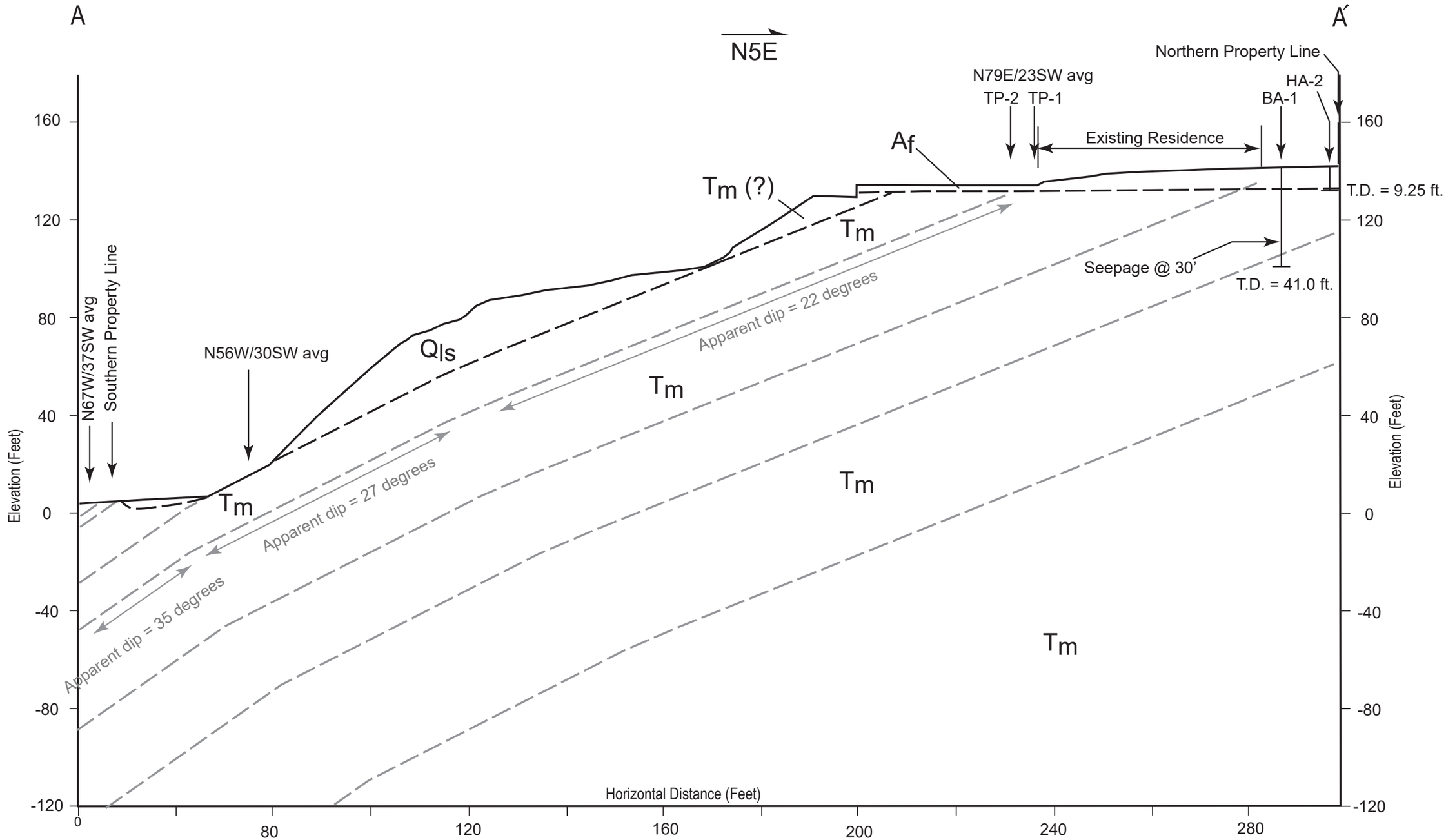


SITE PLAN/GEOLOGIC MAP

2315 Edgewater Water Way
Santa Barbara, California

Earth Systems

304467-001 July 2021



Note: Average bedding attitudes measured on the beach and the sea cliff, and in TP-1 and TP-2 are indicated at their representative locactions and inferred to represent conditions in Section A.

40

Horizontal = Vertical
1 Inch = 40 Feet

0 40

Scale in feet

LEGEND

Geologic contact, approximate

Bedding, apparent dip shown; represents average attitude for bedding intervals

GEOLOGIC UNITS

Holocene	A_f	Artificial Fill
	Q_{ls}	Landslide Deposits
Pleistocene	Q_t	Marine Terrace Deposits
Tertiary	T_m	Monterey Formation

SECTION A

2315 Edgewater Water Way
Santa Barbara, California

Earth Systems

July 2021 | 304467-001

Logs of Borings

Earth Systems
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: BA-1
PROJECT NAME: 2315 Edgewater Way
PROJECT NUMBER: 304467-001
BORING LOCATION: Per Plan

DRILLING DATE: April 19, 2021
DRILL RIG: GEAX EK110
DRILLING METHOD: 24" Flight-Auger and Core Bucket
LOGGED BY: LG

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/12"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTIONS
0	X		■	10		SM	104.7	4.3	**ATIFICIAL FILL:** Dark Brown Silty very fine Sand; damp, medium dense, roots to 1 inch thick.
5			■	10		SM			**MARINE TERRACE DEPOSITS:** Medium to Dark Brown Silty very fine to fine Sand with little Clay; miost, dense, fine roots.
10			■	10		Tm	65.1	54.6	**MONTEREY FORMATION:** Extremely Weathered Brown slightly Sandy Silty Clay to Clayey Silt; moist, firm to very firm, slightly to moderately plastic.
15			■	10		Tm	64.1	43.6	**MONTEREY FORMATION:** Extremely Weathered Orange Brown to Pale Brown Slightly Sandy Silty Clay to Clayey Silt; moist, soft to firm, highly plastic.
20			■	15		Tm	62.3	50.1	**MONTEREY FORMATION:** Moderatly Weathered Mud Shale; fractured, seams of asphaltum, friable to weak competency.
25			■	15		Tm			**MONTEREY FORMATION:** Moderatly Brown Mud Shale; moist, fractures 0.03 to 0.125 inches wide with asphultum, weak competency.
30			■	20		Tm	53.1	74.7	**MONTEREY FORMATION:** Brown Clay Shale and Mud Shale; moderately to highly weathered, weak compatency, moist with seepage.
35			■	20		Tm	60.7	38.2	**MONTEREY FORMATION:** Dark Brown to Black cemented Shale; fracture, moderately strong competency, moist, petroleum odor

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: BA-1 (Continued)
PROJECT NAME: 2315 Edgewater Way
PROJECT NUMBER: 304467-001
BORING LOCATION: Per Plan

DRILLING DATE: April 19, 2021
DRILL RIG: GEAX EK110
DRILLING METHOD: 24.0" Flight-Auger and Core Bucket
LOGGED BY: LG

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/12"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
40			■			Tm	60.7	43.1	**MONTEREY FORMATION:** Dark Brown to Black Shale; moderately strong competency, moist, fractured, platy texture.
									Total Depth: 41.5 feet.
									No Groundwater Encountered.
45									
50									
55									
60									
65									
70									
75									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: HA-1
PROJECT NAME: 2315 Edgewater Way
PROJECT NUMBER: 304467-001
BORING LOCATION: Per Plan

DRILLING DATE: May 14, 2021
DRILL RIG:
DRILLING METHOD: Hand Auger
LOGGED BY: LG

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/12"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTIONS
0						SM			**MARINE TERRACE DEPOSITS/OLDER ALLUVIUM:** Brown Silty medium to fine Sand, damp, coarse roots 0.5 to 1.5 inch.
5						ML			**MARINE TERRACE DEPOSITS/OLDER ALLUVIUM:** Pale Brown very fine Sandy Silt, firm, damp to moist.
						SM			**MARINE TERRACE DEPOSITS/OLDER ALLUVIUM:** Dark Brown Silty fine to medium Sand with some clay, medium dense, moist.
10									Total depth: 9.5 feet. Refusal on cobbles. No groundwater encountered.
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: HA-2
PROJECT NAME: 2315 Edgewater Way
PROJECT NUMBER: 304467-001
BORING LOCATION: Per Plan

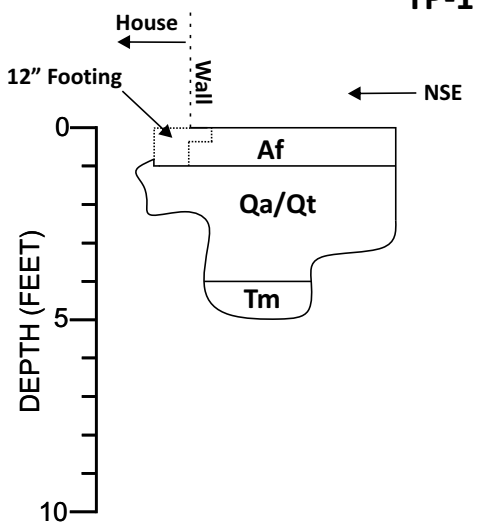
DRILLING DATE: May 14, 2021
DRILL RIG:
DRILLING METHOD: Hand Auger
LOGGED BY: LG

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/12"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTIONS
0						SM			**MARINE TERRACE DEPOSITS/OLDER ALLUVIUM:** Brown very fine Silty Sand, damp,
5						ML			**MARINE TERRACE DEPOSITS/OLDER ALLUVIUM:** Pale Brown very fine Sandy Silt, damp to moist.
						ML			**MARINE TERRACE DEPOSITS/OLDER ALLUVIUM:** Dark Brown Sandy Silt, moist.
10									Total depth: 9.25 feet. Refusal on cobbles. No groundwater encountered.
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Logs of Test Pits

TP-1



Total Depth: 5.0 feet
No Groundwater Encountered

Descriptions

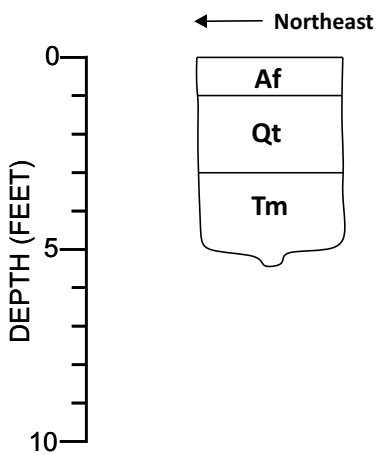
Artificial Fill: Af
Pale Brown fine Sandy Silt to Silty Sand, many roots 1/8" to 1/2", very firm/dense, damp,

Older Alluvium/Marine Terrace: Qa/Qt
Orange Brown slightly Clayey Silty Sand, streaks and 2" to 3" pods of black clay, dense, damp

Monterey Formation: Tm
Highly weathered Shale to Clayey Silt, firm, damp, occasional bedding of cemented beds, moderate cementation, thin beds

Bedding Attitudes
N78E/225E

TP-2



Total Depth: 5.5 feet
No Groundwater Encountered

Descriptions

Artificial Fill: Af
Pale Brown slightly Gravelly Silty Sand, roots up to 2 inches, dense to very dense, damp

Marine Terrace: Qt
Brown and Orangish Brown Silty Sand with little Clay to Clayey Silty Sand, streaks of black clay to 2" to 3" pods of Clay, Gravel and fine Cobbles at base

Monterey Formation: Tm
Highly to Extremely Weathered Shale, moderately cemented, weathered Silty Clay to Clayey Silt, moderately soft to firm, plastic, damp

Bedding Attitudes
N80E/24SE

Logged by LG on May 14, 2021

1 in = 5 ft

TEST PIT LOGS	
2315 Edgewater Way Santa Barbara, California	
Earth Systems	
July 2021	304467-001

BORING LOG SYMBOLS

Modified California Split Barrel Sampler

Modified California Split Barrel Sampler - No Recovery

Standard Penetration Test (SPT) Sampler

Standard Penetration Test (SPT) Sampler - No Recovery

Perched Water Level

Water Level First Encountered

Water Level After Drilling

Pocket Penetrometer (tsf)

Vane Shear (ksf)

1. The location of borings were approximately determined by pacing and/or siting from visible features. Elevations of borings are approximately determined by interpolating between plan contours. The location and elevation of the borings should be considered.

2. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

3. Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. This data has been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, tides, temperature, and other factors at the time measurements were made.

BORING LOG SYMBOLS

Earth Systems

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNTOF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

Earth Systems

APPENDIX B

Laboratory Testing
Tabulated Laboratory Test Results
Individual Laboratory Test Results
Composited Direct Shear Graphs
Referenced Residual Shear Data

LABORATORY TESTING

A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analyses were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of proposed structures. Test results are presented in graphic and tabular form in this Appendix.

B. In-situ moisture content and dry unit weight for the ring samples were determined in general accordance with ASTM D 2937.

C. A maximum density test was performed to estimate the moisture-density relationship of typical soil materials. The test was performed in accordance with ASTM D 1557.

D. The relative strength characteristics of soils were determined from the results of direct shear tests on one remolded sample and four relatively undisturbed ring samples. The specimens were placed in contact with water at least 24 hours before testing and were then sheared under normal loads ranging from 0.5 to 4.5 ksf in general accordance with ASTM D 3080.

E. Settlement characteristics were developed from the results of one-dimensional consolidation/hydrocollapse tests performed in general accordance with ASTM D 2435. The samples were incrementally loaded to their appropriate overburden pressure and then flooded with water. After monitoring for collapse, the samples were incrementally loaded up to 4 ksf. The samples were allowed to consolidate under each load increment. Rebound was measured under reverse alternate loading. Compression was measured by dial gauges accurate to 0.0001 inch. Results of the consolidation tests are presented in this Appendix in the form of percent consolidation versus log of pressure curves.

F. An expansion index test was performed on a bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144 pounds per square foot at moisture content of near 50 percent saturation. The sample was then submerged in water for 24 hours, and the amount of expansion was recorded with a dial indicator.

G. A portion of the bulk sample was sent to another laboratory for analyses of soil pH, resistivity, chloride contents, and sulfate contents. Soluble chloride and sulfate contents were determined on a dry weight basis. Resistivity testing was performed in accordance with California Test Method 424, wherein the ratio of soil to water was 1:3.

TABULATED LABORATORY TEST RESULTS

REMOLDED SAMPLE

BORING AND DEPTH	BA-1@0'-5'
USCS	SM
MAXIMUM DRY DENSITY (pcf)	122
OPTIMUM MOISTURE (%)	11
PEAK COHESION (psf)	300
PEAK FRICTION ANGLE	29°
ULTIMATE COHESION (psf)	120
ULTIMATE FRICTION ANGLE	30°
EXPANSION INDEX	2
pH	7.4
RESISTIVITY (ohms-cm)	11,000
SOLUBLE CHLORIDES (mg/Kg)	15
SOLUBLE SULFATES (mg/Kg)	58

RELATIVELY UNDISTURBED SAMPLES

BORING AND DEPTH	BA-1@3'	BA-1@10'	BA-1@20'	BA-2@30'	BA-1@40’
SOIL DESCRIPTION	Silty Sand	Siltstone	Siltstone	Siltstone	Siltstone
IN-PLACE DRY DENSITY (pcf)	104.7	65.1	62.3	53.1	60.7
IN-PLACE MOISTURE (%)	4.3	54.6	50.1	74.7	43.1
IN-PLACE VOID RATIO	0.592	N/A	N/A	N/A	N/A
PEAK COHESION (psf)	N/A	330	40	330	2960
PEAK FRICTION ANGLE	N/A	47°	37°	36°	11°
ULTIMATE COHESION (psf)	N/A	0	160	0	0
ULTIMATE FRICTION ANGLE	N/A	39°	30°	36°	39°

Individual Laboratory Test Results

File Number: 304467-001 Lab Number: 098546

MAXIMUM DENSITY / OPTIMUM MOISTURE

ASTM D 1557-12 (Modified)

Job Name: 2315 Edgewater Way
Sample ID: B A 1 @ 0-5'

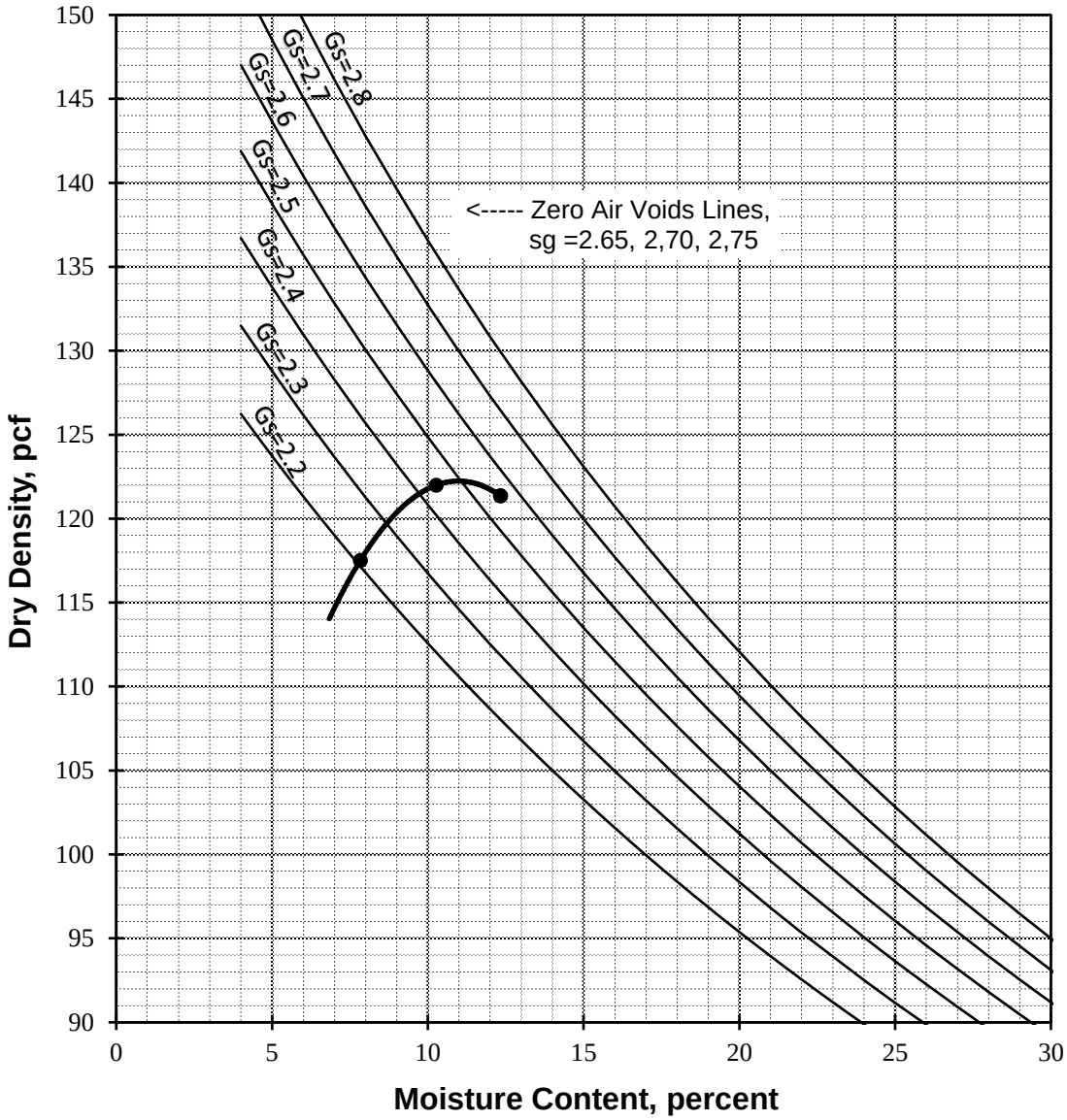
Procedure Used: B
Prep. Method: Moist

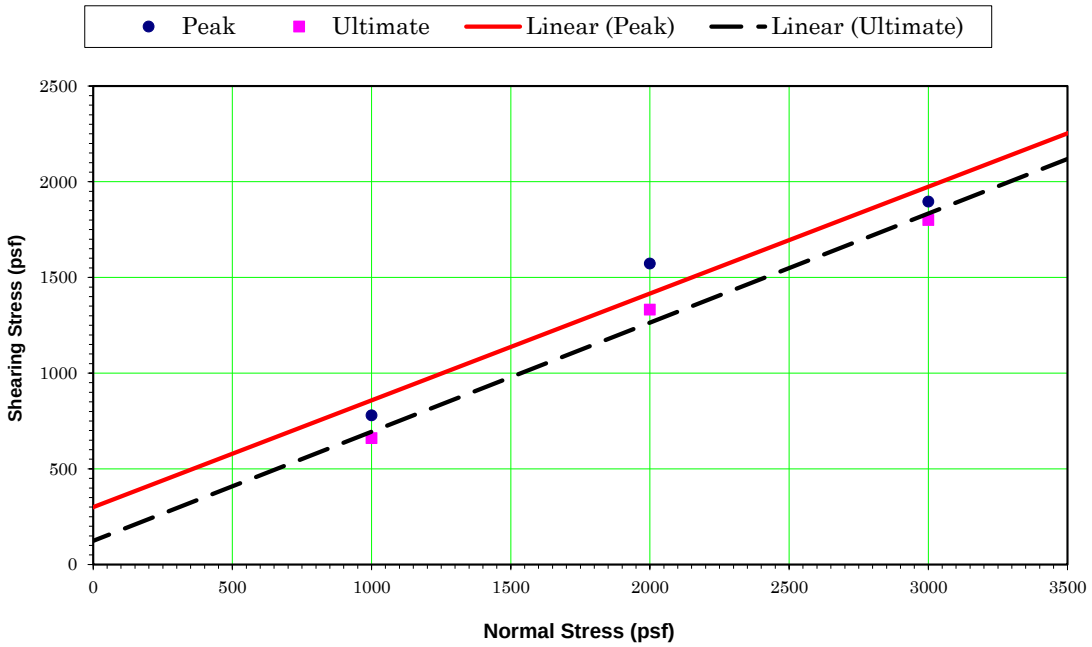
Date: 4/22/2021
Description: Brown Silty Sand

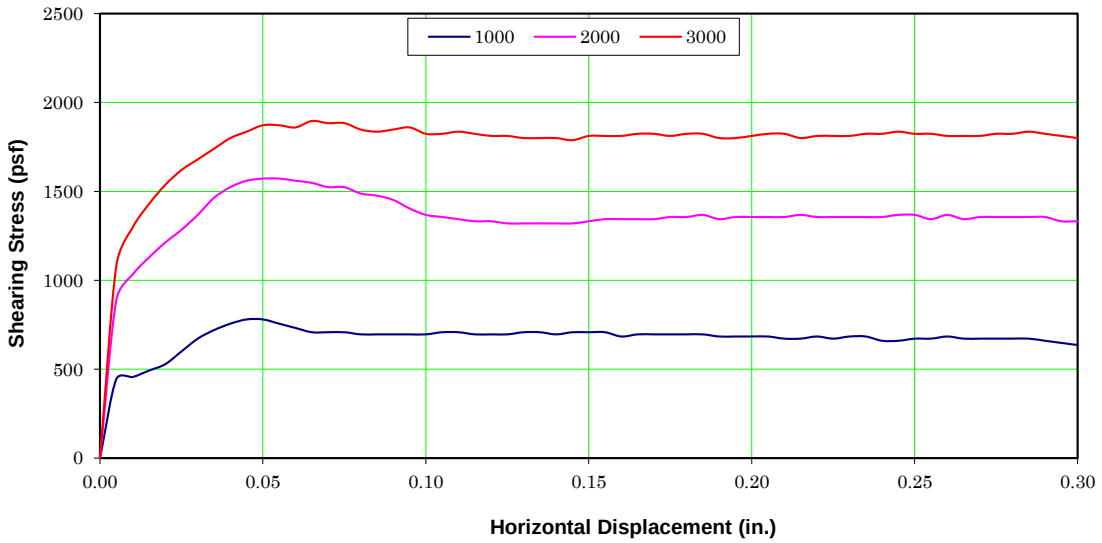
Rammer Type: Automatic

Maximum Density: **122 pcf**
Optimum Moisture: **11%**

Sieve Size	% Retained
3/4"	0.0
3/8"	1.9
#4	0.0







DIRECT SHEAR DATA*

Sample Location: B A 1 @ 0-5'
Sample Description: Silty Sand
Dry Density (pcf): 110.3
Intial % Moisture: 11
Average Degree of Saturation: 98.3
Shear Rate (in/min): 0.005 in/min

Normal stress (psf)	1000	2000	3000
Peak stress (psf)	780	1572	1896
Ultimate stress (psf)	660	1332	1800

	Peak	Ultimate
ϕ Angle of Friction (degrees):	29	30
c Cohesive Strength (psf):	300	120

Test Type: Peak & Ultimate

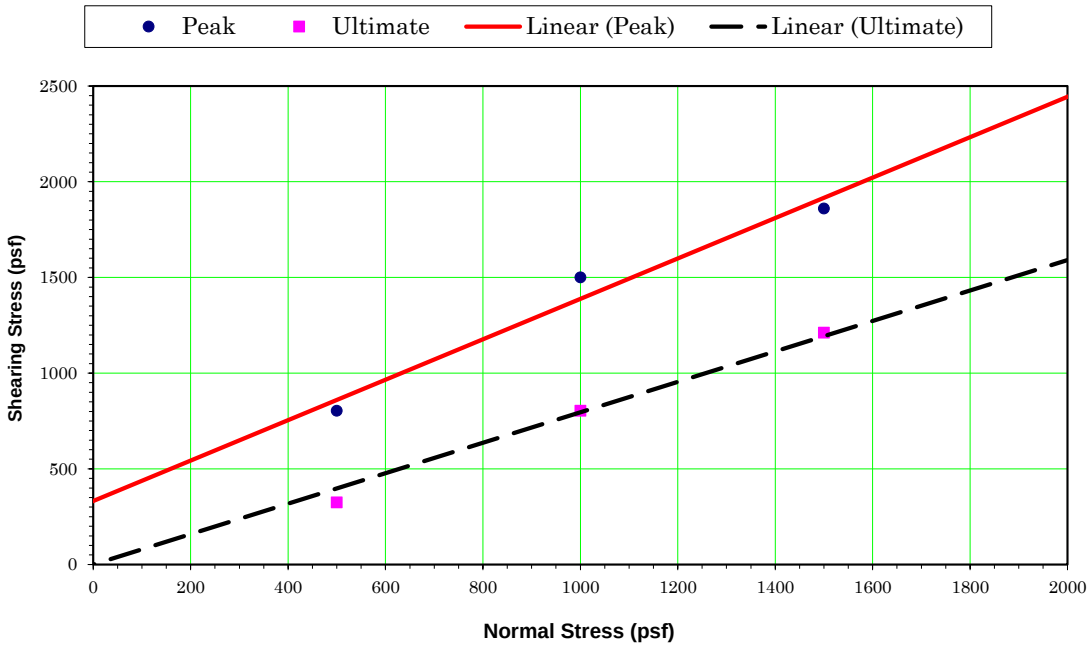
* Test Method: ASTM D-3080

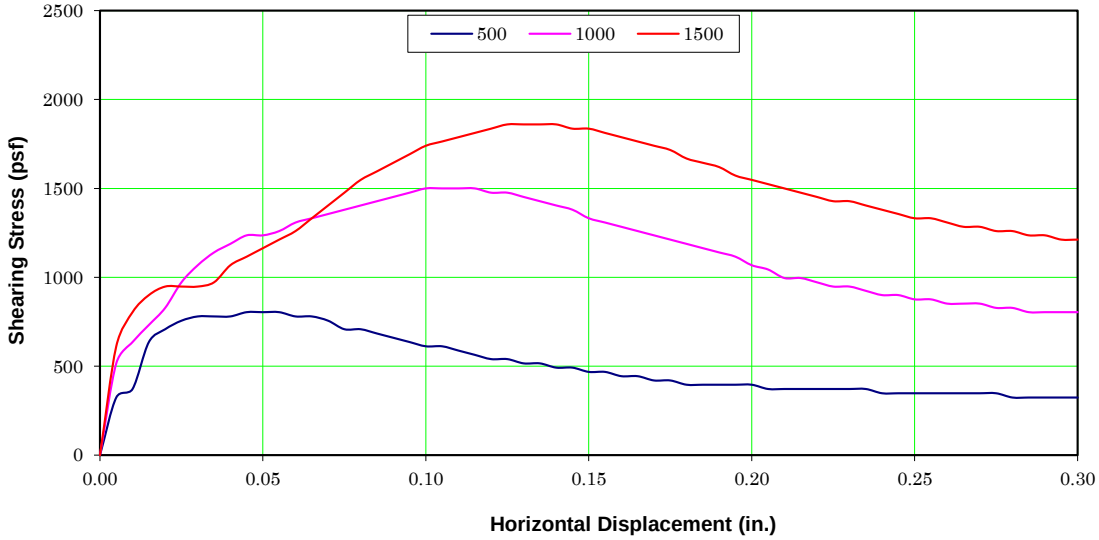
DIRECT SHEAR TEST

2315 Edgewater Way

Earth Systems

7/14/2021 | 304467-001





DIRECT SHEAR DATA*

Sample Location: B A 1 @ 10'
Sample Description: Monterey Formation Bedrock
Dry Density (pcf): 65.1
Intial % Moisture: 54.6
Average Degree of Saturation: 100.0
Shear Rate (in/min): 0.005 in/min

Normal stress (psf)	500	1000	1500
Peak stress (psf)	804	1500	1860
Ultimate stress (psf)	324	804	1212

	Peak	Ultimate
ϕ Angle of Friction (degrees):	47	39
c Cohesive Strength (psf):	330	0

Test Type: Peak & Ultimate

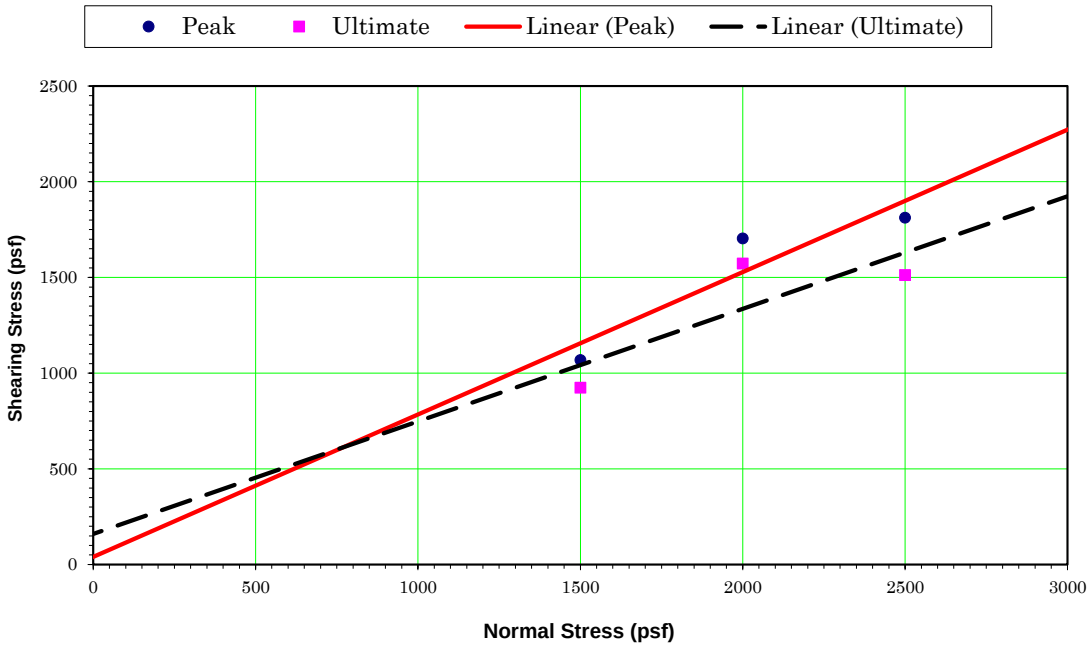
* Test Method: ASTM D-3080

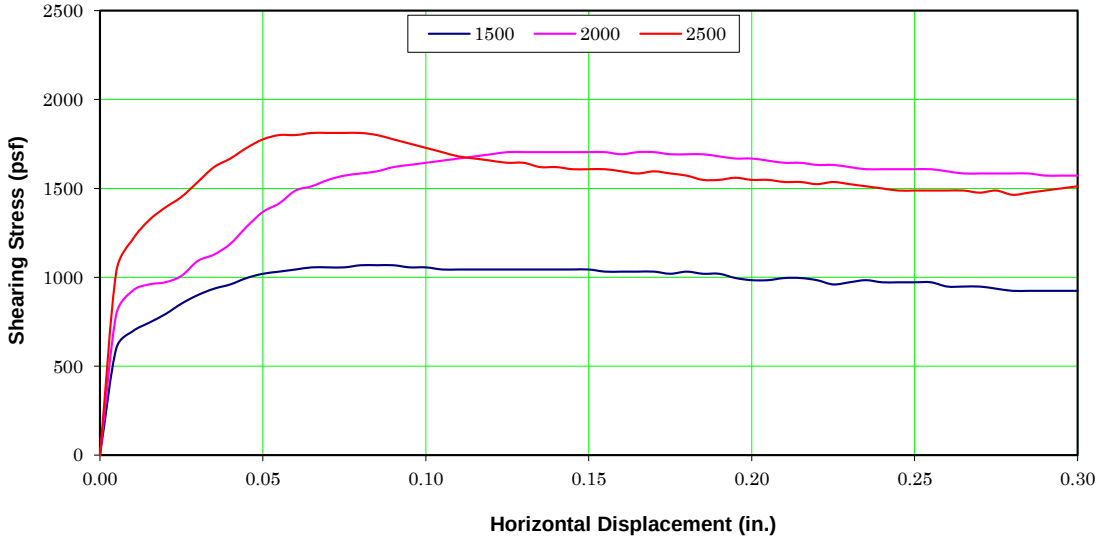
DIRECT SHEAR TEST

2315 Edgewater Way

Earth Systems

7/14/2021 | 304467-001





DIRECT SHEAR DATA*

Sample Location: B A 1 @ 20'
Sample Description: Monterey Formation Bedrock
Dry Density (pcf): 62.3
Intial % Moisture: 50.1
Average Degree of Saturation: 97.4
Shear Rate (in/min): 0.005 in/min

Normal stress (psf)	1500	2000	2500
Peak stress (psf)	1068	1704	1812
Ultimate stress (psf)	924	1572	1512

	Peak	Ultimate
ϕ Angle of Friction (degrees):	37	30
c Cohesive Strength (psf):	40	160

Test Type: Peak & Ultimate

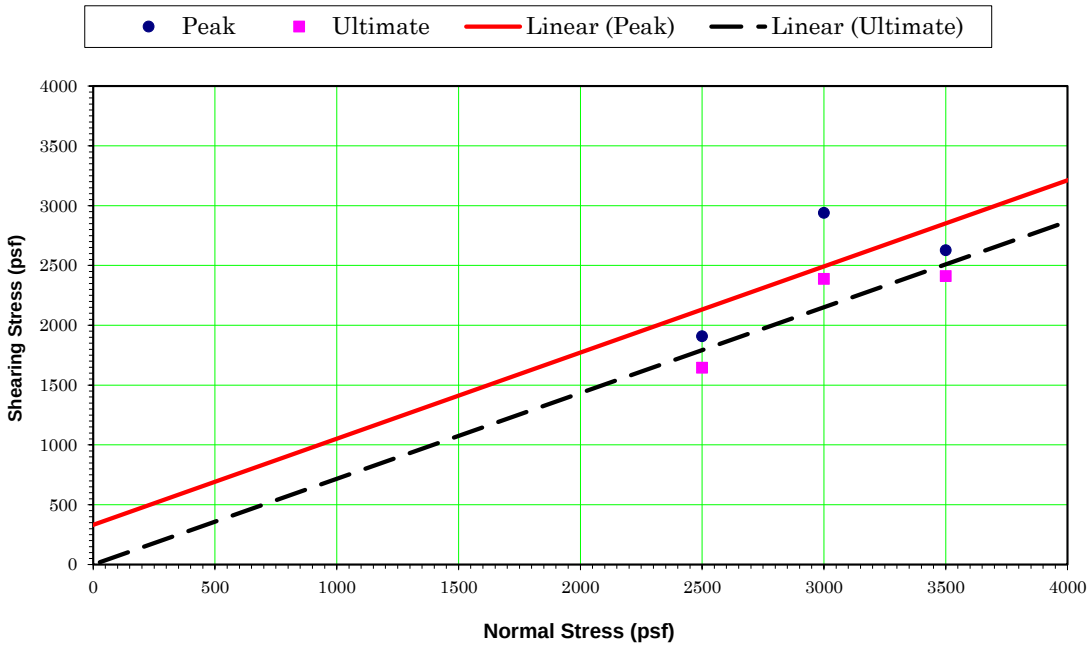
* Test Method: ASTM D-3080

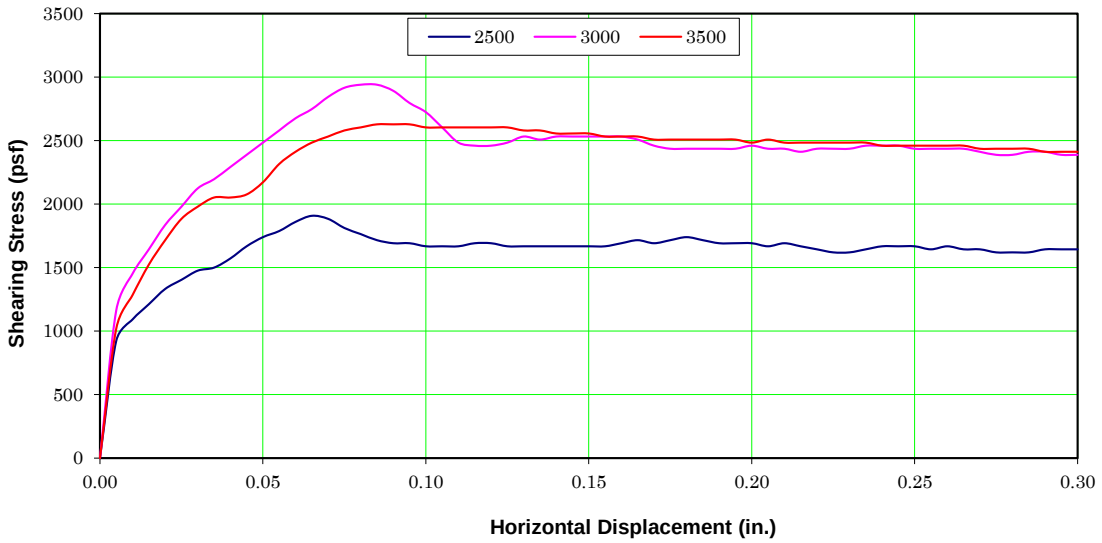
DIRECT SHEAR TEST

2315 Edgewater Way

Earth Systems

7/14/2021 | 304467-001





DIRECT SHEAR DATA*

Sample Location: B A 1 @ 30'
Sample Description: Monterey Formation Bedrock
Dry Density (pcf): 53.1
Intial % Moisture: 74.7
Average Degree of Saturation: 100.0
Shear Rate (in/min): 0.005 in/min

Normal stress (psf)	2500	3000	3500
Peak stress (psf)	1908	2940	2628
Ultimate stress (psf)	1644	2388	2412

	Peak	Ultimate
ϕ Angle of Friction (degrees):	36	36
c Cohesive Strength (psf):	330	0

Test Type: Peak & Ultimate

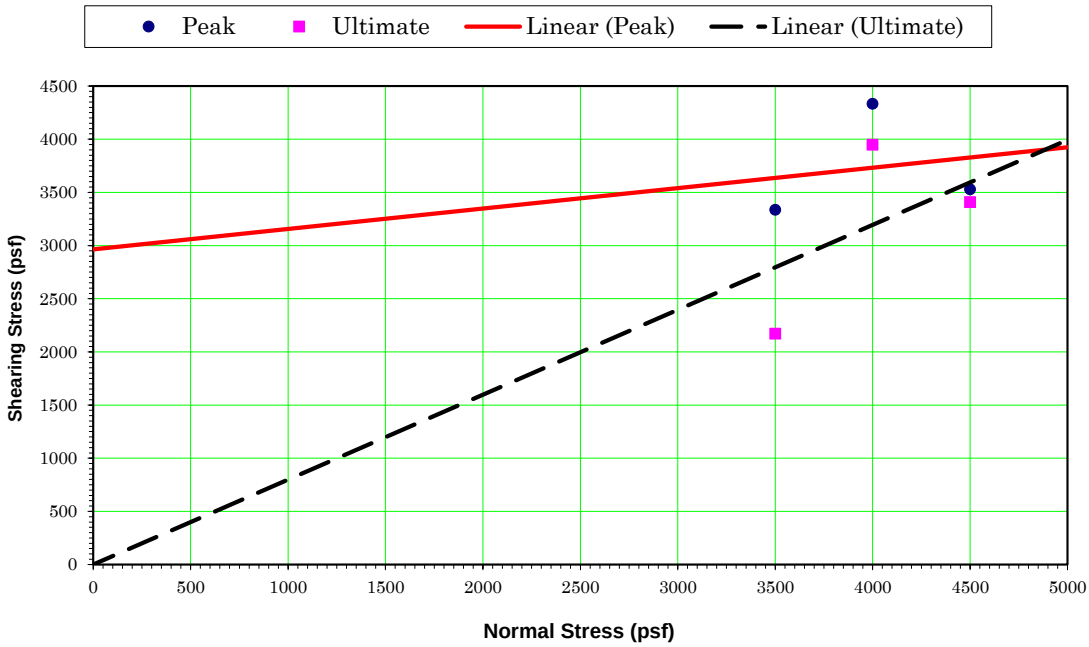
* Test Method: ASTM D-3080

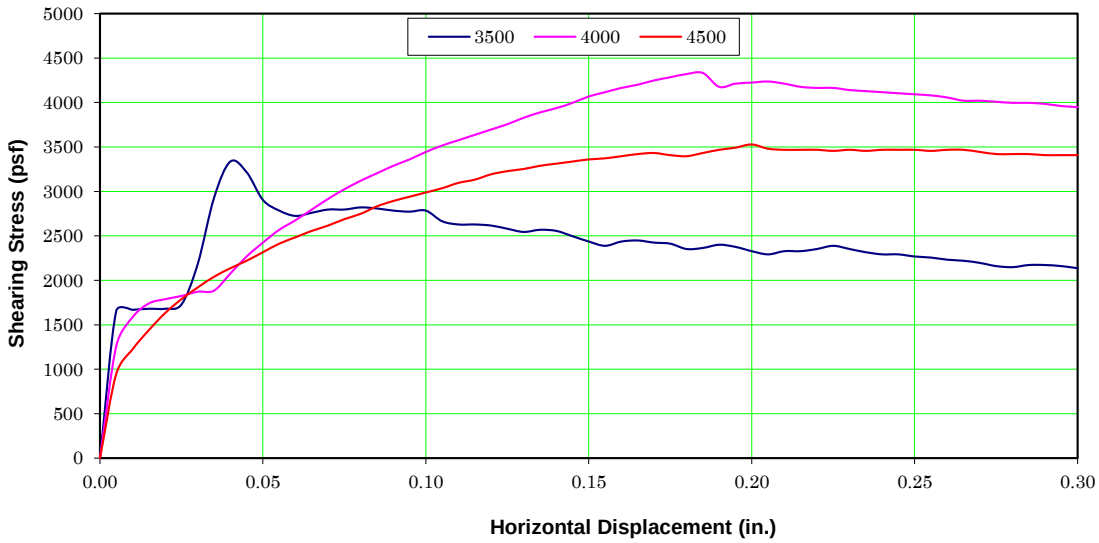
DIRECT SHEAR TEST

2315 Edgewater Way

Earth Systems

7/14/2021 | 304467-001





DIRECT SHEAR DATA*

Sample Location: B A 1 @ 40'
Sample Description: Monterey Formation Bedrock
Dry Density (pcf): 60.7
Intial % Moisture: 43.1
Average Degree of Saturation: 87.6
Shear Rate (in/min): 0.005 in/min

Normal stress (psf)	3500	4000	4500
Peak stress (psf)	3336	4332	3528
Ultimate stress (psf)	2172	3948	3408

	Peak	Ultimate
ϕ Angle of Friction (degrees):	11	39
c Cohesive Strength (psf):	2960	0

Test Type: Peak & Ultimate

* Test Method: ASTM D-3080

DIRECT SHEAR TEST

2315 Edgewater Way

Earth Systems

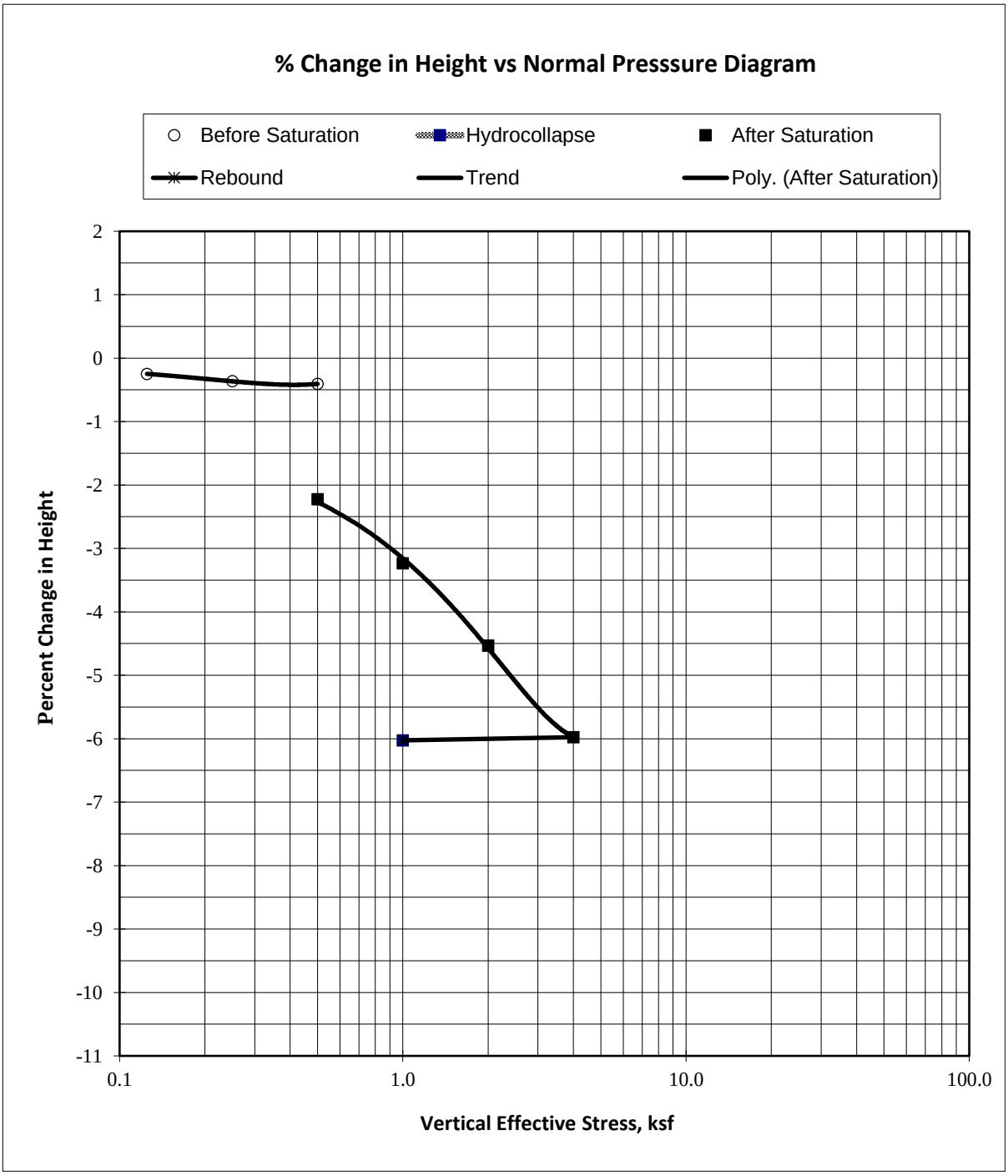
7/14/2021 | 304467-001

CONSOLIDATION TEST

ASTM D 2435-90 & D5333

2315 Edgewater Way
B A 1 @ 2.5'
Silty Sand
Ring Sample

Initial Dry Density: 104.7 pcf
Initial Moisture, %: 4.3%
Specific Gravity: 2.67 (assume
Initial Void Ratio: 0.592



File No.: 304467-001

EXPANSION INDEX

ASTM D-4829, UBC 18-2

Job Name: 2315 Edgewater Way
Sample ID: B A 1 @ 0-5'
Soil Description: SM

Initial Moisture, %:	10.0
Initial Compacted Dry Density, pcf:	110.4
Initial Saturation, %:	52
Final Moisture, %:	21.1
Volumetric Swell, %:	0.2
Expansion Index:	**2** **Very Low**

EI	UBC Classification
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
130+	Very High

Prepared for: Earth Systems Pacific
1731 A Walter Street
Ventura, CA 93003
Attn: Todd Tranby

Report Date: May 3, 2021
Laboratory Number: 210673
Project Name: 2315 Edgewater Way
Project No: 304467-001
Sampled by: Stephen DeBolt

Enclosed are the analysis results for samples received April 22, 2021 with the Chain of Custody document. The samples were received in good condition, at 26.1°C, and they were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BA1@0-5'	210673-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Marcos Ramirez-Laboratory Director

If you have any further questions or concerns, please contact me at your convenience. This report consists of 2 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Earth Systems Pacific
CAS LAB NO: 210673-01
Sample ID: BA1@0-5'
Analyst: GP

Date Sampled: 04/22/21
Date Received: 04/22/21
Sample Matrix: Soil

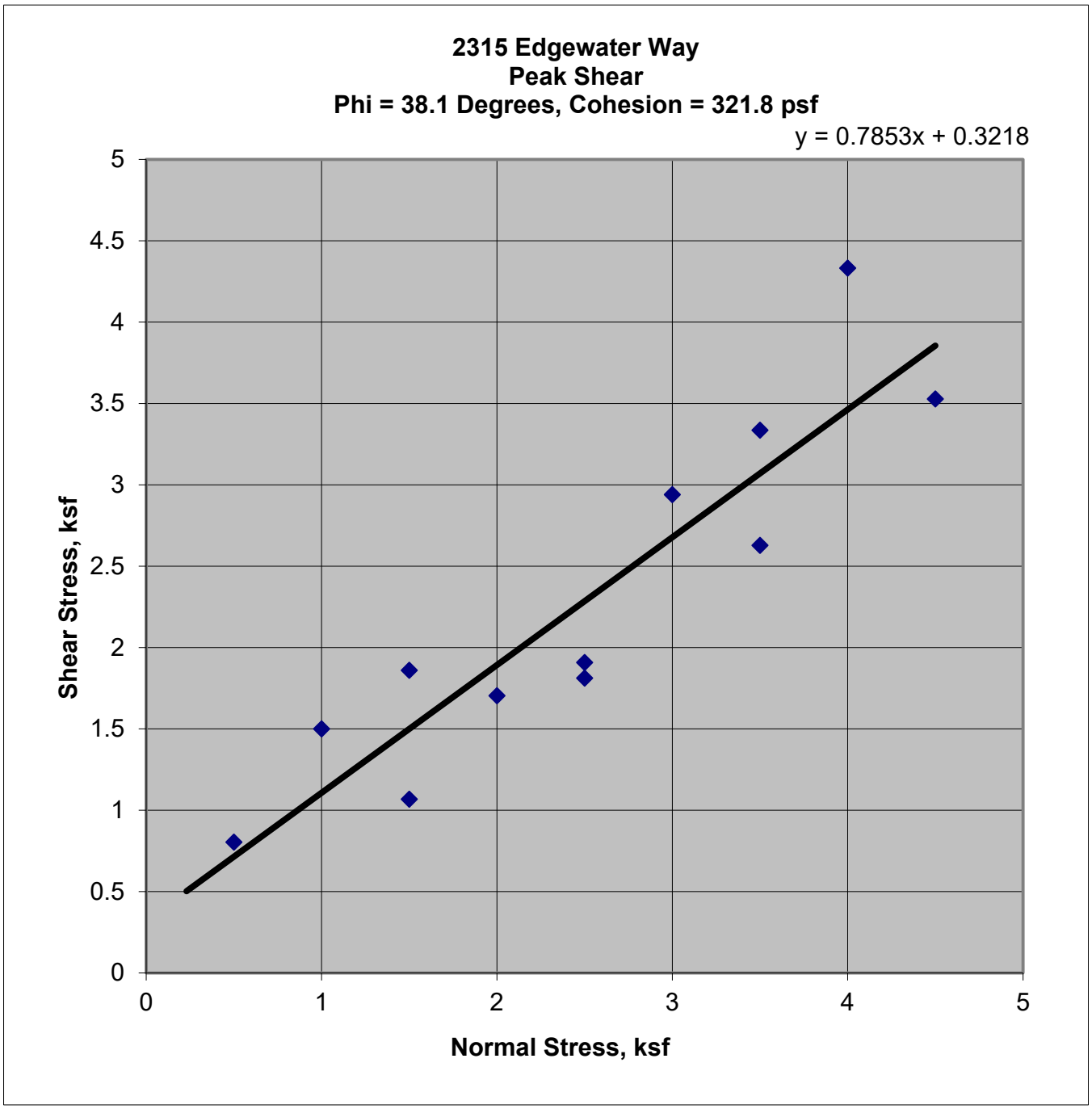
WET CHEMISTRY SUMMARY

COMPOUND	RESULTS	UNITS	DF	PQL	METHOD	ANALYZED
pH (Corrosivity)	7.4	S.U.	1	---	9045	04/27/21
Resistivity*	11000	Ohms-cm	1	---	SM 120.1M	04/27/21
Chloride	15	mg/Kg	1	0.3	300.0M	04/27/21
Sulfate	58	mg/Kg	1	0.3	300.0M	04/27/21

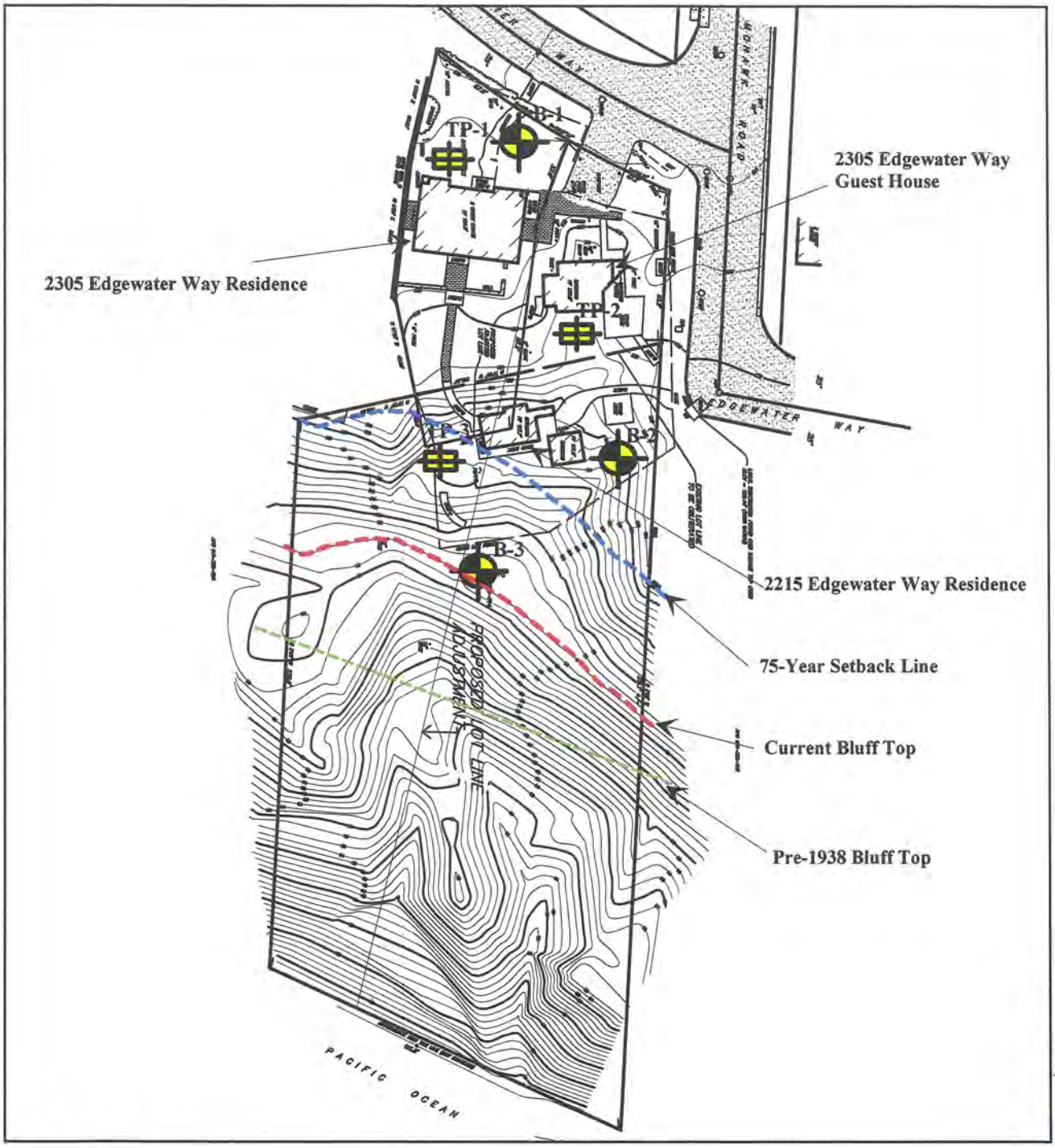
*Sample was extracted using a 1:3 ratio of soil and DI water.

DF: Dilution Factor
PQL: Practical Quantitation Limit
BQL: Below Quantitation Limit
mg/Kg: Milligrams/Kilograms(ppm)

Composited Direct Shear Graphs


2315 Edgewater Way
Peak Shear
Phi = 38.1 Degrees, Cohesion = 321.8 psf
y = 0.7853x + 0.3218
Shear Stress, ksf
Normal Stress, ksf
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
0
1
2
3
4
5

Referenced Residual Shear Data



Boring Location

Test Pit Location

Tm Monterey Formation bedrock

QLS Landslide Deposits

50 Feet

SITE PLAN / GEOLOGIC MAP

2215 & 2305 EDGEWATER WAY
SANTA BARBARA, CALIFORNIA

Earth Systems
Southern California

February, 2008 | VT-23780-01

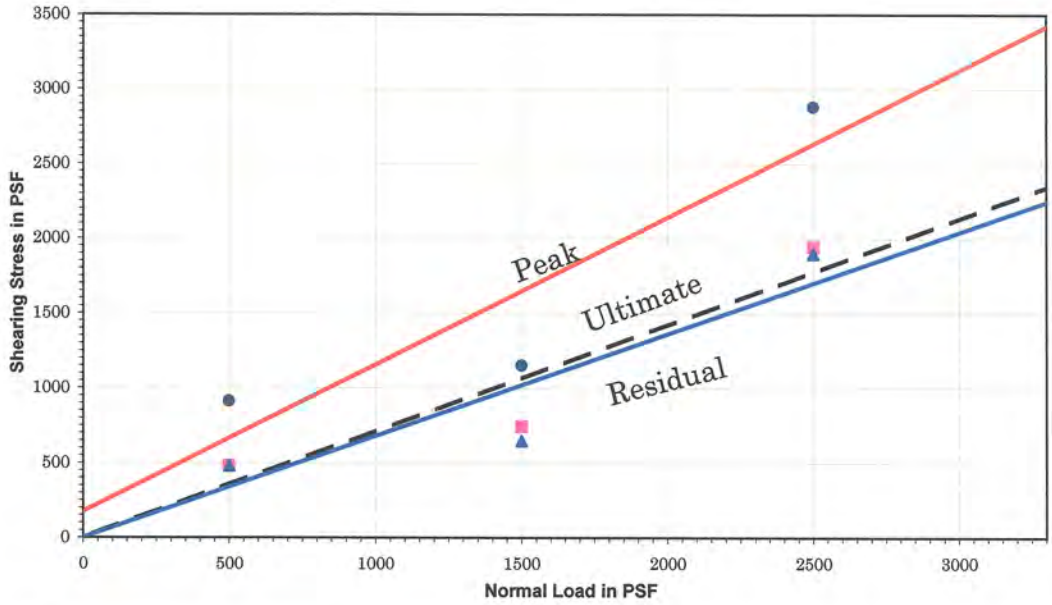
Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

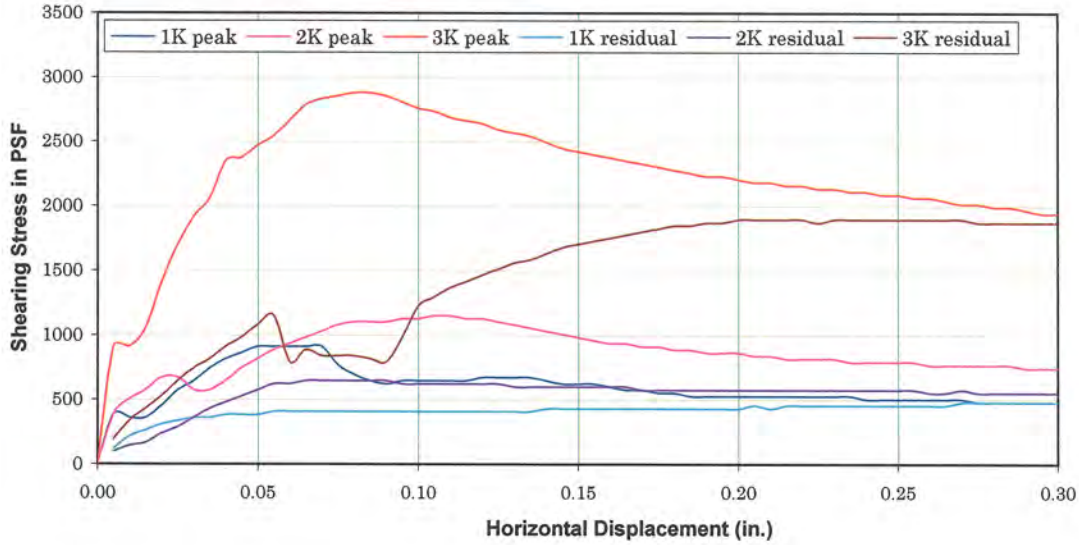
BORING NO: BA-2
PROJECT NAME: 2215 and 2305 Edgewater Way
PROJECT NUMBER: VT-23780-01
BORING LOCATION: Per Plan

DRILLING DATE: March 12, 2007 & April 13, 2007
DRILL RIG: Bar-Bell Drilling & Terra Firma
DRILLING METHOD: 24" Bucket Auger
LOGGED BY: Larry Gurrola

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						CL			**ARTIFICIAL FILL:** Slightly gravelly cobbly silty clay, moist to wet, medium stiff to stiff, soft to very soft locally, brown.
						Tm			**MONTEREY FORMATION:** Shale, extremely weathered, weathers into clayey silt, N64W/12SW laminae, medium stiff to stiff.
5			■			Tm	103.4	20.9	At 5.75' tar blebs and stains, becomes stiff to very stiff.
10			■			Tm	57.1	67.5	At 10.75' N62W/15SW
15			■			Tm	53.3	75.0	At 14.5' 4" thick clay shale, highly weathered, medium plasticity, slightly moist to moist, soft to medium stiff, N67W/13SW. At 16' fractures, 1/8" to 1/4" wide with diatomaceous silt, N65W/69NE. At 17' Siliceous cement, 1/2" wide calcium carbonate cemented fractures with tar blebs, minor diatomaceous shale, highly weathered, N57W/156SW, asphaltum.
20									
						Tm			**MONTEREY FORMATION:** Alternating shale, black and calcareous shale, pale gray, bedded, moist, hard, bedding N86E/13SE, minor mud shale, moist, very stiff, brown.
25			■			Tm	60.6	48.3	**MONTEREY FORMATION:** Massive shale, asphaltum in pores, black.
30									At 30' extremely hard shale with asphaltum, very strong silieceous cementation, black.
			■			Tm	66.7	41.1	
35									Final Depth: 34.0 feet Groundwater was not encounterd. Boring backfilled with cuttings.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.





DIRECT SHEAR DATA*

Sample Location: B A 2 @ 10
Sample Description: Very Fine Sandy Clayey Silt (Dark
Dry Density (pcf): 57.2
Intial Moisture (%): 67.5
Moisture at Test (%): 72.7
Average Degree of Saturation: 100.0
Shear Rate (in/min): 0.018 in/min

Normal stress (psf)	500	1500	2500
Peak stress (psf)	912	1152	2880
Ultimate stress (psf)	480	744	1944
Residual stress (psf)	480	648	1896

	Peak	Ultimate	Residual
ϕ Angle of Friction (degrees):	45	36	35
c Cohesive Strength (psf):	170	0	0

Test Type: Peak, Ultimate and Residual

** *Residual Shear Rate: 0.005 in/min.*

* Test Method: ASTM D-3080

Sample Resheared 5 cycles

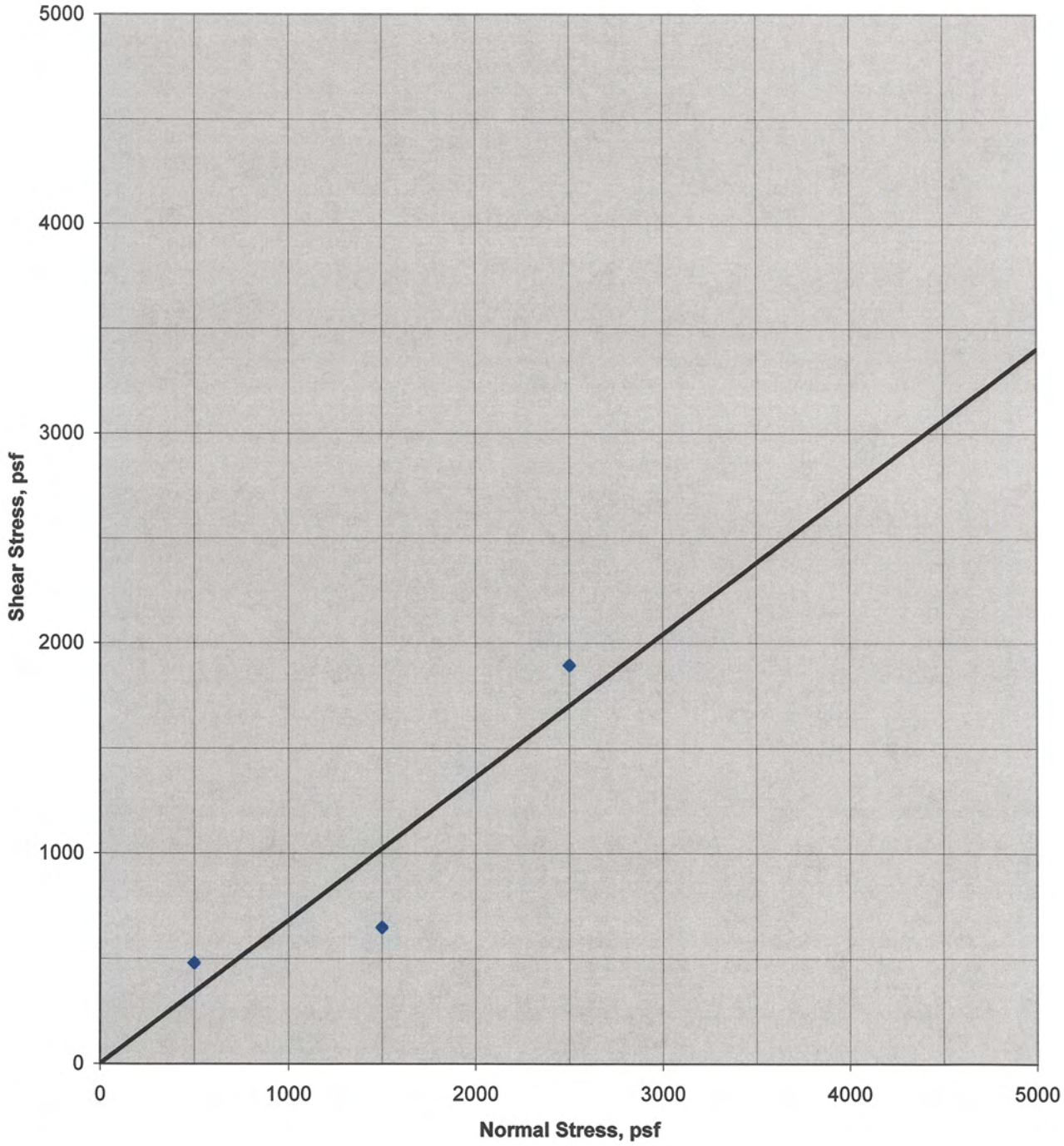
DIRECT SHEAR TEST

2215 & 2305 Edgewater Way

Earth Systems
Southern California

11/25/2007 | VT-23780-01

2305 EDGEWATER WAY
VT-23780-01
Undisturbed Samples from BA2@10'
Residual Shear
Phi = 34.2 Degrees, Cohesion = 0 psf



APPENDIX C

Minimum Foundation Design Table
Slope Setbacks for Foundations on or Adjacent to Slopes

MINIMUM FOUNDATION DESIGN

FOUNDATIONS FOR STUD BEARING WALLS – MINIMUM REQUIREMENTS

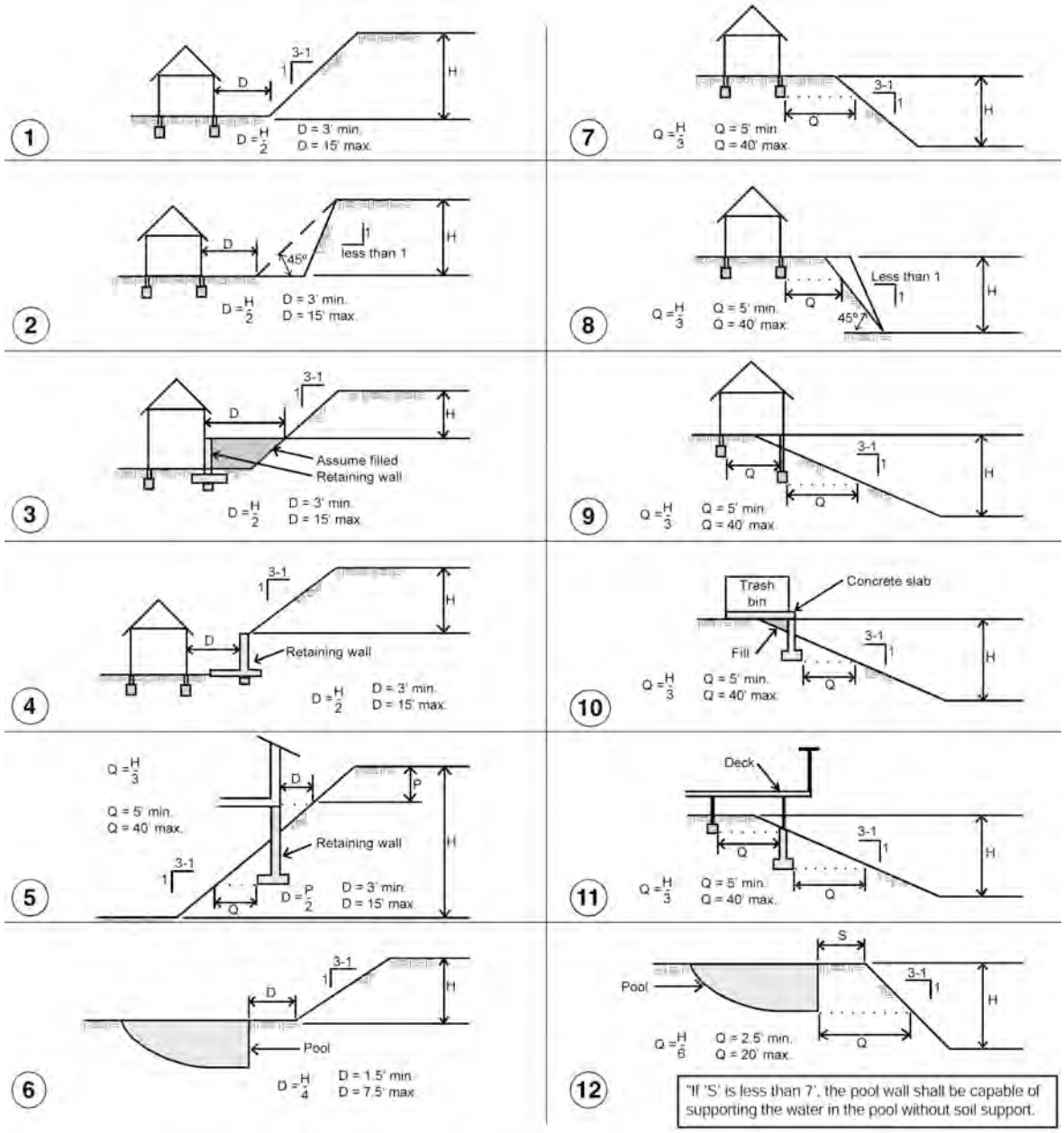
EXPANSION INDEX (E. I.)	FOUNDATIONS FOR SLAB AND RAISED FLOOR SYSTEM							CONCRETE SLAB			
	NUMBER OF STORIES	STEM THICKNESS	FOOTING WIDTH	FOOTING THICKNESS	ALL PERIMETER FOOTINGS	INTERIOR FOOTINGS FOR SLAB AND RAISED FLOORS	REINFORCEMENT FOR FOUNDATIONS	3-1/2" MINIMUM THICKNESS (4" WHEN OVER 51, E. I.)		PREMOISTENING CONTROLS FOR SOILS UNDER FOOTINGS, PEIRS AND SLABS	PIERS UNDER RAISED FLOORS
					DEPTH BELOW NATURAL SURFACE OF GROUND & FINISH GRADE			REINFORCEMENT	TOTAL THICKNESS OF SAND		
		INCHES									
0 -20 VERY LOW (NON-EXPANSIVE)	1 2 3	6 8 10	12 15 18	6 7 8	12 18 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	2"	MOISTENING OF GROUND PRIOR TO PLACING CONCRETE IS RECOMMENDED	PIERS ALLOWED FOR SINGLE FLOOR LOADS ONLY
21-50 LOW	1 2 3	6 8 10	12 15 18	6 7 8	15 18 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS ALLOWED FO SINGLE FLOOR LOADS ONLY
51-90 MEDIUM	1 2 3	6 8 10	12 15 18	6 8 8	21 21 24	12 18 24	1 - #4 @ TOP AND BOTTOM #3 BARS @ 24" O.C. 12" INTO FOOTING AND BENT 3' INTO SLAB	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18" BELOW LOWEST ADJ ACENT GRADE TESTING REQ'D	PIERS NOT ALLOWED
91-130 HIGH	1 2 3	6 8 10	12 15 18	8 8 8	27 27 27	12 18 24	2 - #4 @ TOP AND BOTTOM #3 BARS @ 24" O.C. 12" INTO FOOTING AND BENT 3' INTO SLAB	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 24" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS NOT ALLOWED
ABOVE 130 VERY HIGH	REQUIRES SPECIAL DESIGN BY A STATE LICENSED SOILS PROFESSIONAL										

SLOPE SETBACKS

Based on 2019 California Building Code Section 1808.7

FOUNDATIONS ON OR ADJACENT TO SLOPES:

The placement of buildings and structures on or adjacent to slopes steeper than 3 horizontal to 1 vertical shall be in accordance with the following illustrations. The provisions are intended to provide protection for the building from slope drainage, erosion and mudflow, loose slope debris, shallow slope failures, and foundation movement.



SLOPE SETBACKS FOR FOUNDATIONS ON OR ADJACENT TO SLOPES

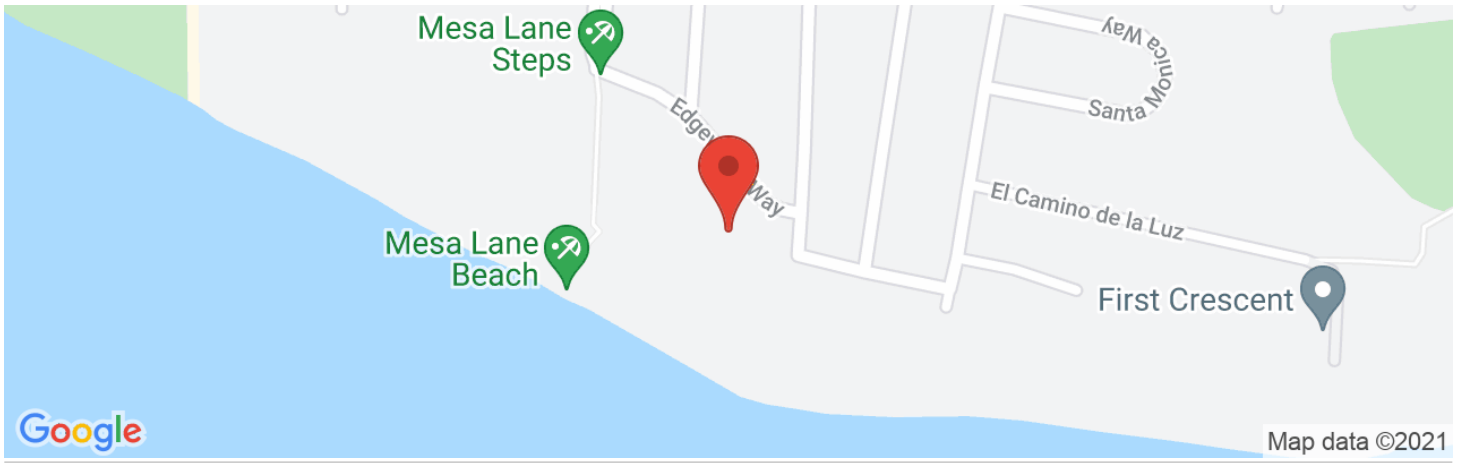
Earth Systems

APPENDIX D

US Seismic Design Maps
Fault Parameters

2315 Edgewater Way

Latitude, Longitude: 34.3972, -119.7295



Date	7/14/2021, 10:44:51 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	2.32	MCE_R ground motion. (for 0.2 second period)
S_1	0.822	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.784	Site-modified spectral acceleration value
S_{M1}	1.151	Site-modified spectral acceleration value
S_{DS}	1.856	Numeric seismic design value at 0.2 second SA
S_{D1}	0.768	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	E	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	1.4	Site amplification factor at 1.0 second
PGA	1.022	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	1.227	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.32	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.644	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	3.01	Factored deterministic acceleration value. (0.2 second)
S1RT	0.822	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.941	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.974	Factored deterministic acceleration value. (1.0 second)
PGAd	1.204	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.878	Mapped value of the risk coefficient at short periods
C_{R1}	0.874	Mapped value of the risk coefficient at a period of 1 s

Table 1
Fault Parameters

Fault Section Name	Distance (miles)	Distance (km)	Upper Seis. Depth (km)	Lower Seis. Depth (km)	Avg Dip Angle (deg.)	Avg Dip Direction (deg.)	Avg Rake (deg.)	Trace Length (km)	Fault Type	**Mean Mag**	Mean Return Interval (years)	Slip Rate (mm/yr)
Red Mountain FM3.1, 3.2	2.5	4.0	0.0	14.1	56	2	90	101	B	**7.4**		2
Mission Ridge-Arroyo Parida-Santa Ana FM3.1, 3.	3.2	5.2	0.0	7.6	70	176	90	69	B	**6.8**		0.4
North Channel FM3.2	5.3	8.6	1.1	4.5	26	10	90	51	B	**6.7**		1
Pitas Point (Upper) FM3.2	5.6	9.1	1.4	10.0	42	15	90	35	B	**6.8**		1
Oak Ridge (Offshore), west extension FM3.2	8.0	12.8	0.0	3.1	67	195	na	28	B'	**6.1**		
Santa Ynez (West) FM3.1, 3.2	8.2	13.2	0.0	9.2	70	182	0	80	B	**6.9**		2
Santa Ynez (East) FM3.1, 3.2	8.8	14.2	0.0	13.3	70	172	0	68	B	**7.2**		2
Ventura-Pitas Point FM3.1, 3.2	10.4	16.7	1.0	15.0	64	353	60	59	B	**6.9**		1
Oak Ridge (Offshore) FM3.2	10.4	16.8	0.0	7.9	32	180	90	38	B	**6.9**		3
Pitas Point (Lower, West), FM 3.1	10.8	17.4	1.5	8.8	13	3	90	35	B	**7.2**		2.5
Channel Islands Western Deep Ramp FM3.1, 3.2	11.4	18.3	4.8	12.5	21	204	90	62	B'	**7.3**		
San Luis Range (So Margin) FM3.2	12.7	20.4	0.0	12.0	45	37	90	115	B	**7.1**		0.2
Los Alamos extension FM3.1, 3.2	13.7	22.0	0.0	12.0	30	na	na	22	B'	**6.8**		
Santa Ynez River FM3.1, 3.2	14.3	23.0	0.0	12.0	70	na	na	73	B'	**7.1**		
Pitas Point (Lower)-Montalvo, FM3.1	16.2	26.1	0.4	12.7	16	359	90	30	B	**7.3**		2.5
Big Pine (West) FM3.1, 3.2	19.8	31.8	0.0	11.0	50	2	na	18	B'	**6.5**		
Sisar FM3.1, 3.2	25.1	40.4	0.0	17.4	29	168	na	20	B'	**7.0**		
Pine Mtn FM3.1, 3.2	25.3	40.7	0.0	16.3	45	5	na	62	B'	**7.3**		
Santa Cruz Island FM3.1, 3.2	26.4	42.5	0.0	13.3	90	188	30	69	B	**7.1**		1
Los Alamos 2011 CFM FM3.1, 3.2	26.5	42.6	0.0	12.0	30	na	na	27	B'	**6.9**		
Lions Head 2011 CFM FM3.1, 3.2	27.4	44.2	0.0	12.0	75	29	90	65	B	**6.7**		0.02
Big Pine (Central) FM3.1, 3.2	28.3	45.5	0.0	6.6	76	167	na	23	B'	**6.3**		
Santa Rosa Island FM3.1, 3.2	28.5	45.9	0.0	8.7	90	1	30	58	B	**6.8**		1
Ozena FM3.1, 3.2	29.6	47.6	0.0	13.9	33	na	na	41	B'	**7.2**		
Channel Islands Thrust FM3.1, 3.2	30.5	49.0	5.0	12.3	20	354	90	59	B	**7.3**		1.5
Oak Ridge (Onshore) FM3.1, 3.2	31.0	49.9	1.0	19.4	65	159	90	50	B	**7.2**		4
East Huasna 2011 CFM FM3.1, 3.2	31.2	50.3	0.0	15.0	90	na	na	74	B'	**7.2**		
Santa Cruz Catalina Ridge Alt2 FM3.2	31.6	50.9	0.0	11.0	90	38	na	137	B'	**7.3**		
Santa Cruz Catalina Ridge alt 1, FM3.1	31.6	50.9	0.0	11.0	90	na	na	114	B'	**7.2**		
San Cayetano FM3.1, 3.2	32.7	52.6	0.0	16.0	42	3	90	42	B	**7.2**		6
South Cuyama FM3.1, 3.2	33.1	53.2	0.0	13.9	33	210	na	83	B'	**7.5**		
San Luis Range 2011 CFM, FM3.1	33.1	53.2	0.0	12.0	52	na	na	79	B'	**7.2**		
Malibu Coast (Extension), alt 1, FM3.1	33.1	53.3	0.0	7.8	74	4	30	35	B'	**6.5**		
Malibu Coast (Extension), alt 2 FM3.2	33.1	53.3	0.0	16.6	74	4	30	35	B'	**6.9**		
Big Pine (East) FM3.1, 3.2	37.1	59.7	0.0	14.3	73	338	na	23	B'	**6.6**		
Simi-Santa Rosa FM3.1, 3.2	38.0	61.2	1.0	12.1	60	346	30	39	B	**6.8**		1
Morales (East) FM3.1, 3.2	39.5	63.6	0.0	8.6	32	14	na	18	B'	**6.6**		
Morales (West) FM3.1, 3.2	39.9	64.2	0.0	8.6	32	49	na	28	B'	**6.8**		
San Andreas (Big Bend) FM3.1, 3.2	41.4	66.7	0.0	15.1	90	198	180	50	A	**6.8**	89	3.5
San Andreas (Carrizo) rev FM3.1, 3.2	42.1	67.7	0.0	15.1	90	224	180	59	A	**6.8**	89	3.5

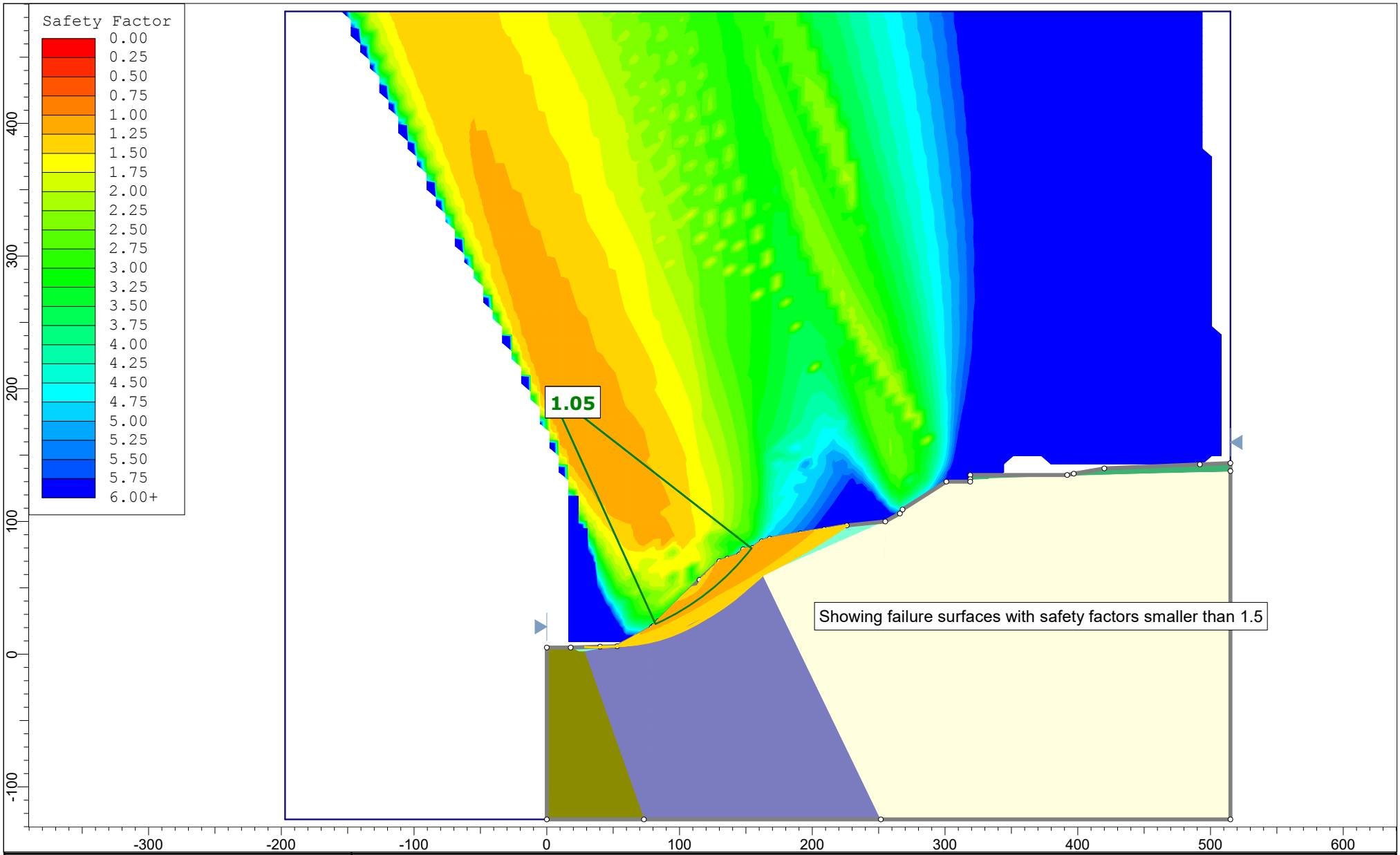
Reference: USGS OFR 2013-1165 (CGS SP 228)

Based on Site Coordinates of 34.3972 Latitude, -119.7295 Longitude

Mean Magnitude for Type A Faults based on 0.1 weight for unsegmented section, 0.9 weight for segmented model (weighted by probability of each scenario with section listed as given on Table 3 of Appendix G in OFR 2008-1437). Mean magntude is average of Ellworths-B and Hanks & Bakun moment area relationship.

APPENDIX E

Slope Stability Analyses Results



rocscience	Project: Static, Circular.slmd		
	Analysis Description: Group 1 - Master Scenario		
	Date: 7/15/2021	Scale: 1:1200	Company: Earth Systems Pacific
SLIDEINTERPRET 9.011			

Project Summary

File Name:	Static, Circular.slmd
Slide Modeler Version:	9.011
Compute Time:	00h:00m:10.439s
Project Title:	2315 Edgewater Way
Analysis:	Seismic, Circular
Author:	A. Mazzei
Company:	Earth Systems Pacific
Date Created:	7/9/2021, 3:12:35 PM

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Right to Left

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Enabled
Reverse Curvature:	Create Tension Crack
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Monterey Formation 22 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Fill Material (Ultimate)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	122
Cohesion [psf]	120
Friction Angle [deg]	30
Water Surface	None
Ru Value	0
Landslide Mass	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	110
Cohesion [psf]	200
Friction Angle [deg]	28
Water Surface	None
Ru Value	0
Monterey Formation 27 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Monterey Formation 35 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0

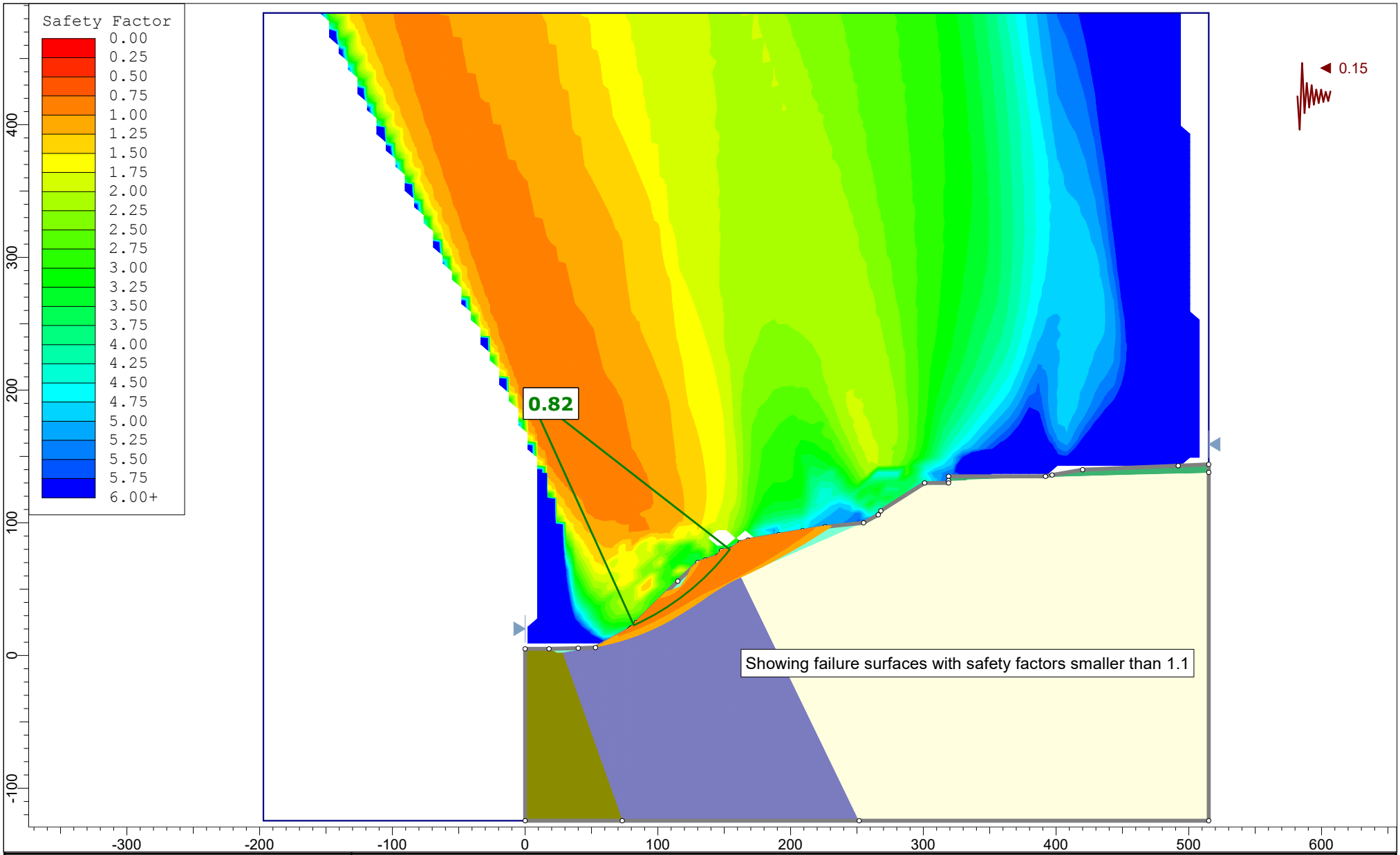
Anisotropic Functions

Name: Monterey Formation 22 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	20	321.8	38.1
20	24	0	34
24	90	321.8	38.1
Name: Monterey Formation 27 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	25	321.8	38.1
25	29	0	34
29	90	321.8	38.1
Name: Monterey Formation 35 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	33	321.8	38.1
33	37	0	34
37	90	321.8	38.1

Global Minimums

Method: spencer

FS	**1.049540**
Center:	2.215, 198.168
Radius:	192.566
Left Slip Surface Endpoint:	81.831, 22.831
Right Slip Surface Endpoint:	154.169, 79.881
Resisting Moment:	9.40125e+06 lb-ft
Driving Moment:	8.95752e+06 lb-ft
Resisting Horizontal Force:	38135.8 lb
Driving Horizontal Force:	36335.8 lb
Total Slice Area:	690.171 ft2
Surface Horizontal Width:	72.3378 ft
Surface Average Height:	9.54094 ft



rocscience	Project: Seismic, Circular.slmd		
	Analysis Description: Group 1 - Master Scenario		
	Date: 7/14/2021	Scale: 1:1200	Company: Earth Systems Pacific
SLIDEINTERPRET 9.011			

Slide Analysis Information

Seismic, Circular

Project Summary

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Slide Modeler Version:	9.011
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Project Title:	2315 Edgewater Way
Analysis:	Seismic, Circular
Author:	A. Mazzei
Company:	Earth Systems Pacific
Date Created:	7/9/2021, 3:12:35 PM

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Right to Left

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Enabled
Reverse Curvature:	Create Tension Crack
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.15

Materials

Monterey Formation 22 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Fill Material (Peak)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	122
Cohesion [psf]	300
Friction Angle [deg]	29
Water Surface	None
Ru Value	0
Landslide Mass	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	110
Cohesion [psf]	200
Friction Angle [deg]	28
Water Surface	None
Ru Value	0
Monterey Formation 27 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Monterey Formation 35 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0

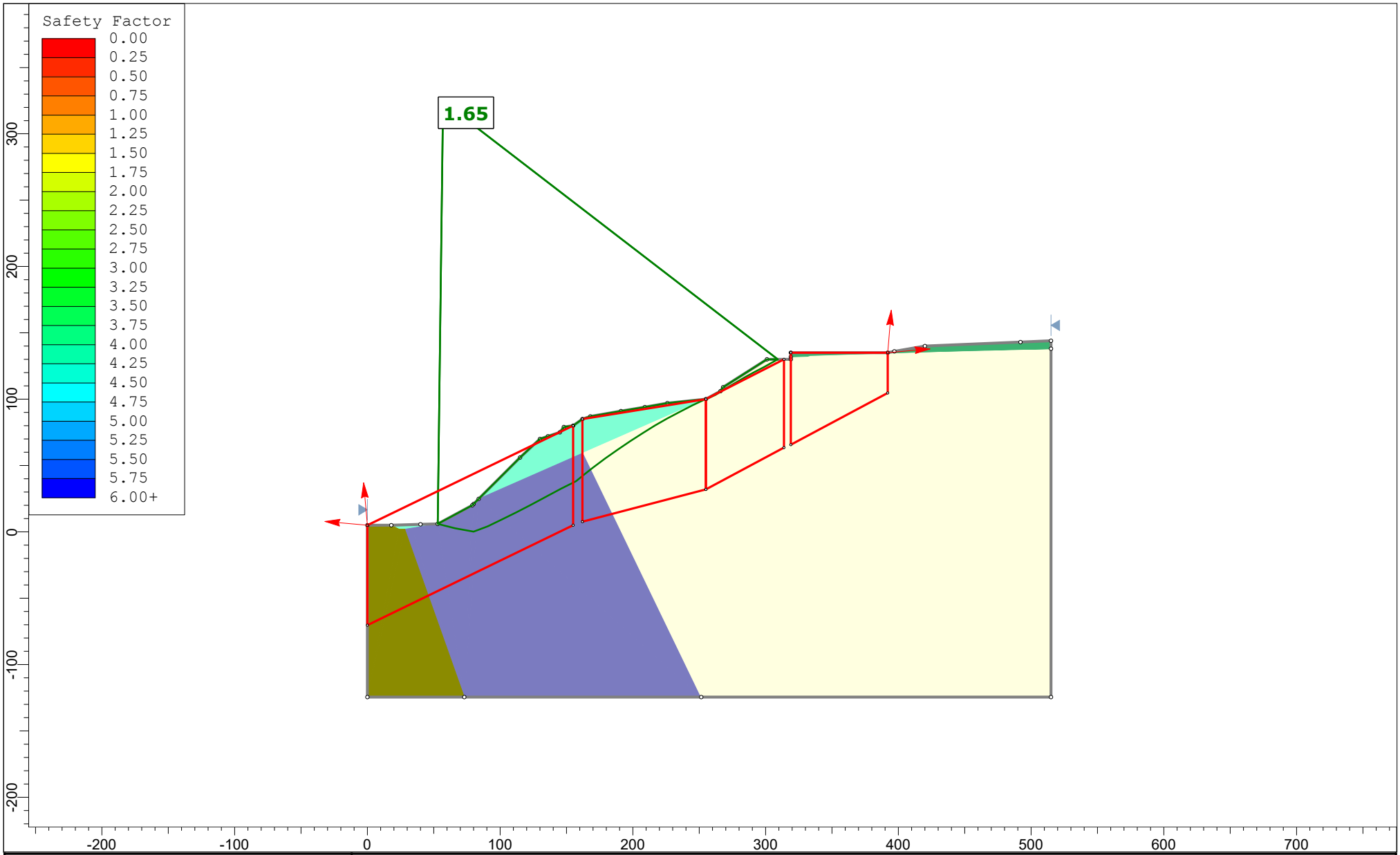
Anisotropic Functions

Name: Monterey Formation 22 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	20	321.8	38.1
20	24	0	34
24	90	321.8	38.1
Name: Monterey Formation 27 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	25	321.8	38.1
25	29	0	34
29	90	321.8	38.1
Name: Monterey Formation 35 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	33	321.8	38.1
33	37	0	34
37	90	321.8	38.1

Global Minimums

Method: spencer

FS	**0.823364**
Center:	2.215, 198.168
Radius:	192.566
Left Slip Surface Endpoint:	81.831, 22.831
Right Slip Surface Endpoint:	154.169, 79.881
Resisting Moment:	8.72925e+06 lb-ft
Driving Moment:	1.06019e+07 lb-ft
Resisting Horizontal Force:	35513.6 lb
Driving Horizontal Force:	43132.4 lb
Total Slice Area:	690.171 ft2
Surface Horizontal Width:	72.3378 ft
Surface Average Height:	9.54094 ft



rocscience	Project: Static,Planar.slmd		
	Analysis Description: Group 1 - Master Scenario		
	Date: 7/15/2021	Scale: 1:1200	Company: Earth Systems Pacific
SLIDEINTERPRET 9.011			

Project Summary

File Name:	Static,Planar.slmd
Slide Modeler Version:	9.011
Compute Time:	00h:00m:25.883s
Project Title:	2315 Edgewater Way
Analysis:	Seismic, Circular
Author:	A. Mazzei
Company:	Earth Systems Pacific
Date Created:	7/9/2021, 3:12:35 PM

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Right to Left

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Enabled
Left Projection Angle (Start Angle) [deg]:	95
Left Projection Angle (End Angle) [deg]:	175
Right Projection Angle (Start Angle) [deg]:	5
Right Projection Angle (End Angle) [deg]:	85
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Monterey Formation 22 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Fill Material (Ultimate)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	122
Cohesion [psf]	120
Friction Angle [deg]	30
Water Surface	None
Ru Value	0
Landslide Mass	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	110
Cohesion [psf]	200
Friction Angle [deg]	28
Water Surface	None
Ru Value	0
Monterey Formation 27 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Monterey Formation 35 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0

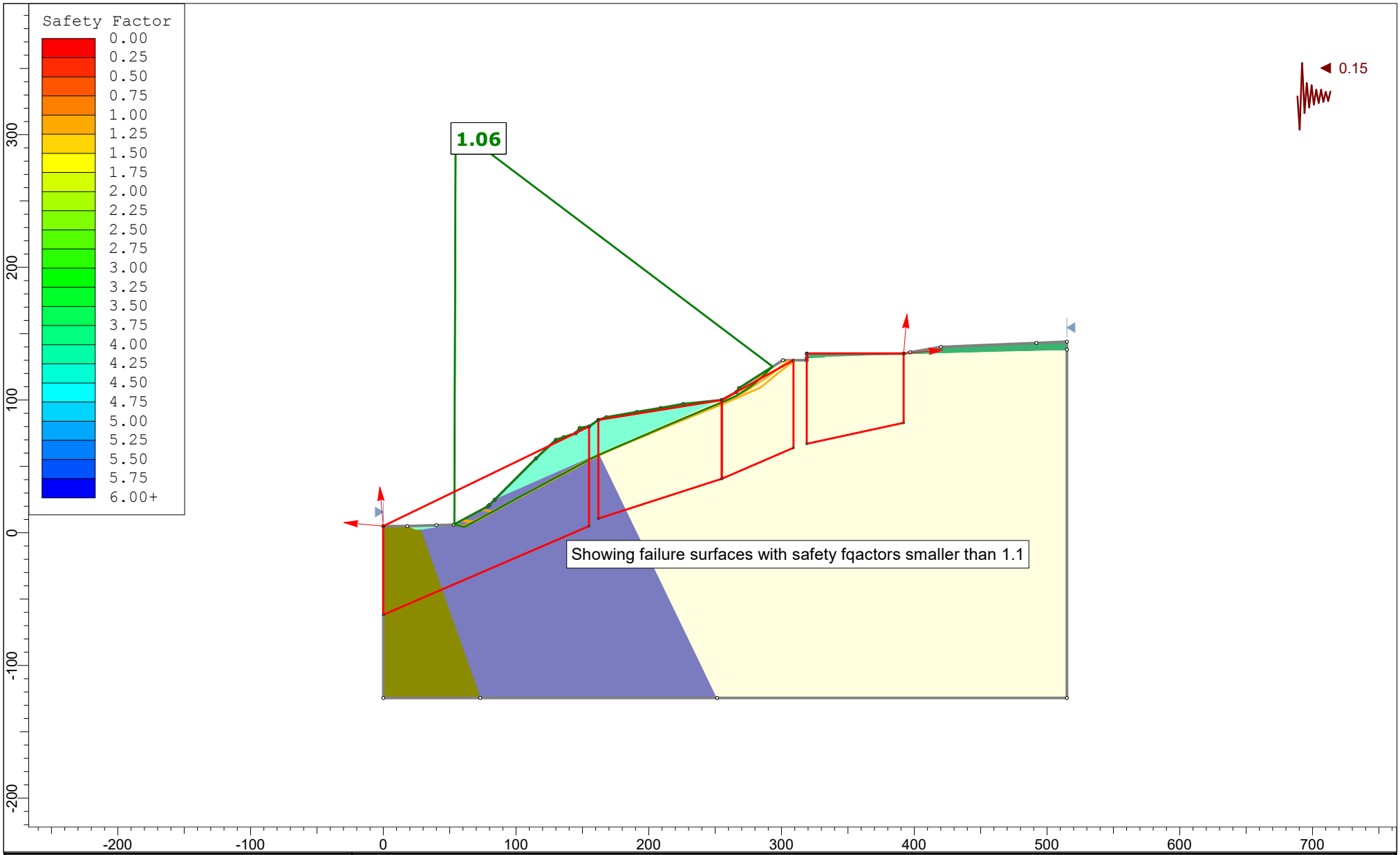
Anisotropic Functions

Name: Monterey Formation 22 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	20	321.8	38.1
20	24	0	34
24	90	321.8	38.1
Name: Monterey Formation 27 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	25	321.8	38.1
25	29	0	34
29	90	321.8	38.1
Name: Monterey Formation 35 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	33	321.8	38.1
33	37	0	34
37	90	321.8	38.1

Global Minimums

Method: spencer

FS	**1.649560**
Axis Location:	57.098, 324.195
Left Slip Surface Endpoint:	53.000, 6.000
Right Slip Surface Endpoint:	309.195, 130.000
Resisting Moment:	1.27533e+08 lb-ft
Driving Moment:	7.73137e+07 lb-ft
Resisting Horizontal Force:	373598 lb
Driving Horizontal Force:	226483 lb
Total Slice Area:	5412.54 ft2
Surface Horizontal Width:	256.195 ft
Surface Average Height:	21.1266 ft



rocscience	Project: Seismic,Planar.slmd		
	Analysis Description: Group 1 - Master Scenario		
	Date: 7/15/2021	Scale: 1:1200	Company: Earth Systems Pacific
SLIDEINTERPRET 9.011			

Project Summary

File Name:	Seismic,Planar.slmd
Slide Modeler Version:	9.011
Compute Time:	00h:00m:10.501s
Project Title:	2315 Edgewater Way
Analysis:	Seismic, Circular
Author:	A. Mazzei
Company:	Earth Systems Pacific
Date Created:	7/9/2021, 3:12:35 PM

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Right to Left

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Enabled
Left Projection Angle (Start Angle) [deg]:	95
Left Projection Angle (End Angle) [deg]:	175
Right Projection Angle (Start Angle) [deg]:	5
Right Projection Angle (End Angle) [deg]:	85
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.15

Materials

Monterey Formation 22 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Fill Material (Peak)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	122
Cohesion [psf]	300
Friction Angle [deg]	29
Water Surface	None
Ru Value	0
Landslide Mass	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	110
Cohesion [psf]	200
Friction Angle [deg]	28
Water Surface	None
Ru Value	0
Monterey Formation 27 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0
Monterey Formation 35 Degree Apparent Dip (Peak)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	93.5
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Monterey Formation 22 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	20	321.8	38.1
20	24	0	34
24	90	321.8	38.1
Name: Monterey Formation 27 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	25	321.8	38.1
25	29	0	34
29	90	321.8	38.1
Name: Monterey Formation 35 Degree Apparent Dip (Peak)			
Angle From	**Angle To**	**c**	**phi**
-90	33	321.8	38.1
33	37	0	34
37	90	321.8	38.1

Global Minimums

Method: spencer

FS	**1.059790**
Axis Location:	54.608, 305.531
Left Slip Surface Endpoint:	53.546, 6.294
Right Slip Surface Endpoint:	293.361, 125.139
Resisting Moment:	5.91891e+07 lb-ft
Driving Moment:	5.58501e+07 lb-ft
Resisting Horizontal Force:	195672 lb
Driving Horizontal Force:	184634 lb
Total Slice Area:	3393.58 ft2
Surface Horizontal Width:	239.815 ft
Surface Average Height:	14.1508 ft

APPENDIX F

Table G-8 (CACC 2018)
Transect ID 4005 Site Data

Table G-8. Sea Level Rise Projections for the Santa Barbara Tide Gauge[113] (OPC 2018)

Projected Sea Level Rise (in feet): *Santa Barbara*			
	Probabilistic Projections (in feet) (based on Kopp et al. 2014)		H++ Scenario (Sweet et al. 2017)
	Low Risk Aversion	**Medium-High Risk Aversion**	**Extreme Risk Aversion**
	Upper limit of "likely range" (~17% probability SLR exceeds...)	*1-in-200 chance (0.5% probability SLR exceeds...)*	*Single scenario (no associated probability)*
2030	0.4	0.7	1.0
2040	0.7	1.1	1.6
2050	1.0	1.8	2.5
2060	1.3	2.5	3.6
2070	1.7	3.3	4.9
2080	2.1	4.3	6.3
2090	2.6	5.3	7.9
2100	3.1	6.6	9.8
2110*	3.2	6.9	11.5
2120	3.7	8.2	13.7
2130	4.2	9.5	16.0
2140	4.8	11.0	18.6
2150	5.3	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 acknowledgement of increased uncertainty around these projections.*

[113] Probabilistic projections for the height of sea level rise and the H++ scenario are presented. The H++ projection is a single scenario and does not have an associated likelihood of occurrence. Projections are with respect to a baseline year of 2000 (or more specifically, the average relative sea level over 1991-2009). Table is adapted from the 2018 OPC SLR Guidance to present only the three scenarios OPC recommends evaluating. Additionally, while the OPC tables include low emissions scenarios, only high emissions scenarios, which represent RCP 8.5, are included here because global greenhouse gas emissions are currently tracking along this trajectory. The Coastal Commission will continue to update best available science as necessary, including if emissions trajectories change.

TRANSECT ID 4005 SITE DATA

Transect ID	4005
Historical cliff retreat rate (m/yr)	0.27609
Historical retreat rate uncertainty (m/yr)	0.15
Cliff retreat rate (m/yr), 0.25 m SLR	0.32275
Cliff retreat rate (m/yr), 0.50 m SLR	0.36053
Cliff retreat rate (m/yr), 0.75 m SLR	0.38671
Cliff retreat rate (m/yr), 1.00 m SLR	0.4472
Cliff retreat rate (m/yr), 1.25 m SLR	0.49003
Cliff retreat rate (m/yr), 1.50 m SLR	0.55428
Cliff retreat rate (m/yr), 1.75 m SLR	0.60767
Cliff retreat rate (m/yr), 2.00 m SLR	0.68775
Cliff retreat rate (m/yr), 5.00 m SLR	1.4958

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

March 11, 2022
(Revised July 11, 2022)

Project No.: 304467-001
Report No.: 22-3-23

Mr. Ralf Pohl
2315 Edgewater LLC
1536 Brook Drive
Downers Grove, IL 60515

Project: 2315 Edgewater Way
Santa Barbara, California
Subject: Addendum to the Engineering Geology and Geotechnical Engineering Report
Reference: Earth Systems Pacific, July 20, 2021, Engineering Geology and Geotechnical Engineering Report, 2315 Edgewater Way, Santa Barbara, California, Project No. 304467-001, Report No. 21-7-51

Preserving an Existing Tile Patio Over Original Foundation (As-Built Feature)

There is an existing tile patio located on the north side of the top of bluff. It is our understanding that the existing tile patio is supported by the original 1967 concrete slab-on-grade. This as-built feature currently provides protection against water infiltrating (sources include irrigation water and rainwater) into the underlying soil/bedrock, and, therefore, protects the bluff top from additional water weight surcharge which could lead to lower global slope stability factors-of-safety. The lower global slope stability factors-of-safety may lead to an increased potential for slope failures along the bluff top. We recommend leaving this as-built feature in place. Additional drains to collect the surface water flow over the patio surface should be installed. These drains should be connected into the future drain system for the project which we understand will pump collected water to daylight on the street.

Retaining Wall Recommendations

We understand that there will be basement walls under the proposed replacement residence, and potential retaining walls around the site. Retaining wall recommendations were not included in the referenced report, but are presented below.

The footings of any retaining wall should satisfy the minimum setback clearances from descending slopes in accordance with Section 1808.7 of the 2019 CBC.

The footings of any retaining wall should have a minimum of 12 inches of embedment into the marine terrace deposits and/or Monterey Formation bedrock. The bottoms of all excavations should be observed by a representative of Earth Systems prior to processing.

On-site soils (with an expansion index of 2 according to the referenced report) can be used for wall backfill once they are retested for expansion index and cleaned of all organic material, rocks, debris, and irreducible material larger than 6 inches. Conventional cantilever retaining

walls backfilled with compacted on-site soils may be designed for active pressures developed from 42 pcf of equivalent fluid weight for well-drained, level backfill. Restrained retaining walls backfilled with compacted on-site soils may be designed for active pressures developed from 62 pcf of equivalent fluid weight for well-drained, level backfill. These pressures were based on the assumption that backfill soils will be compacted to 90 percent of the maximum dry density as determined by the ASTM D 1557 Test Method.

Retaining walls that retain more than 6 feet of soil will need to be designed for a seismic loading force that is applied in addition to the static forces when seismic shaking occurs. Seismic increments of earth pressure can be determined using 48 and 63 pcf of additional equivalent fluid weight need to be considered for cantilever and restrained retaining walls, respectively. These equivalent fluid weights have been determined by a procedure presented by Al Atik and Sitar (2010). The seismic increment of pressure can be assumed to be distributed so that the centroid of pressure acts at 0.33H above the base of a retaining wall, where H is the wall height in feet. Because this seismic force is transient, and in accordance with CBC Section 1807.2.3, a minimum safety factor of 1.1 may be used for sliding and overturning when seismic loads are included.

The lateral earth pressure to be resisted by the retaining walls or similar structures should also be increased to allow for other applicable surcharge loads. The surcharges considered should include forces generated by structures or temporary loads that would influence the wall design.

A system of backfill drainage should be incorporated into retaining wall designs. Backfill comprising the drainage system immediately behind retaining structures should be free-draining granular material with a filter fabric between it and the rest of the backfill soils. As an alternative, the backs of walls could be lined with geodrain systems. The backdrains should extend from the bottoms of the walls to about 18 inches from finished backfill grade. Waterproofing may aid in reducing the potential for efflorescence on the faces of retaining walls. The basement wall backdrains should be positioned lower that the basement floor. It may be necessary to carry the basement wall drainage to a sump, from which it can pumped and discharged away from the structure.

Compaction on the uphill sides of walls within a horizontal distance equal to one wall height should be performed by hand-operated or other lightweight compaction equipment. This is intended to reduce potential "locked-in" lateral pressures caused by compaction with heavy grading equipment.

Water should not be allowed to pond near the tops of retaining walls. To accomplish this, final backfill site grades should be such that all water is diverted away from retaining walls.

Please call if you have any questions, or if we can be of further service.

Respectfully submitted,
EARTH SYSTEMS PACIFIC

Meng Wei Lu
Project Engineer
7-11-2022

Todd J. Tranby
Engineering Geologist
7-11-2022

Richard M. Beard
Geotechnical Engineer
7-11-2022

Copies: 1 - Client (email)
1- Blackbird Architects (email)
1 - Project File

Single Family Design Board Minutes
2315 Edgewater Way

April 11, 2022

Motion: **Continue indefinitely to the Full Board with comments:**

1. The size, bulk, and scale of the project should be restudied, in particular the roof of the oval element and the hip-eave line running along the west elevation.
2. The applicant shall restudy the south elevation glazing in accordance to neighborhood compatibility guidelines in terms of openings and fenestration.
3. The applicant shall study the second floor plate height.

Action: Arakelian/ Moticha, 5/0/0. (Colasse absent.) Motion carried.

May 23, 2022

Motion: Continue to the Planning Commission with comments:

1. The Board generally finds the size, bulk, and scale of the proposed project to be aesthetically appropriate.
2. The Board generally finds the massing and roof lines along the west elevation to be an improvement and are aesthetically appropriate.
3. The Board generally finds the proposed glazing at all elevations are aesthetically appropriate.
4. At the south elevation, study increasing the mass of the horizontal building element between the first and second stories.

Action: Arakelian/Moticha, 4/0/1. (Colasse abstained. Brentlinger absent.) Motion carried.

Additional Board comment: The Board stated that story poles would not be necessary for the proposed application.

Applicable Coastal Act and Coastal Land Use Plan Policies - 2315 Edgewater Way

COASTAL ACT POLICIES

Section 30244 Archaeological or paleontological resources

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Coastal Act 30250 (Location; existing developed area)

New residential, commercial, or industrial development, except provided in this division, shall be located within, contiguous with, or near, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have a significant adverse effect, either individually or cumulatively, on coastal resources…

Section 30251 Scenic and visual qualities

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Section 30253 Minimization of adverse impacts

New development shall do all of the following:

(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

(c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.

(d) Minimize energy consumption and vehicle miles traveled.

(e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.

Section 30270 Sea Level Rise

The commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.

LOCAL COASTAL PROGRAM COASTAL LAND USE PLAN POLICIES

LAND USE & DEVELOPMENT POLICIES

Policy 2.1-2 Accessory Dwelling Units. The City may allow accessory dwelling units, which tend to be more affordable than standard housing, so long as such development is found consistent with the policies of the Coastal LUP.

Policy 2.1-17 Land Use Categories and Map Designations. The land use categories and designations in Tables 2.1-1 through 2.1-5 establish the type, density, and intensity of land uses within the City's Coastal Zone. Figure 2.1-1 *Local Coastal Program Land Use Map* depicts the land use designation for each property and is intended to provide a graphic representation of policies relating to the location, type, density, and intensity of all land uses in the Coastal Zone. Allowable densities are stated as maximums but may be increased pursuant to an approved Coastal Development Permit that includes density bonus, inclusionary housing, or a lot area modification for affordable housing. However, compliance with the other policies of the Coastal LUP may limit the maximum allowable density of development. Accessory dwelling units are considered accessory uses and are not included as "units" when calculating allowable density.

Policy 2.1-19 Nonconforming Development. The following apply to development that is nonconforming with relation to the policies of the Coastal LUP:

A. Any lawfully established structure or site development that conforms to the requirements under which it was legally established, but does not comply with any policy of the Coastal LUP, shall be considered legal nonconforming;

B. Legal nonconforming structures or site developments may be continued, repaired, and maintained as long as these activities do not rise to the level of substantial redevelopment;

C. The right to continue does not apply to legal nonconforming structures and site development deemed to be a public nuisance because of health or safety conditions, as determined by the Chief Building Official;

D. Alterations to a legal nonconforming structure or site development within the existing development footprint may be permitted provided that the alteration does not increase any existing nonconformity of the structure or site development and is not considered a substantial redevelopment;

E. Additions are considered new development. Additions to a legal nonconforming structure may be permitted if the addition conforms with the policies of the Coastal LUP and provided that any alterations to the legal nonconforming structure or site development needed to develop the addition conform to subsection D. above. Additions to a legal nonconforming structure shall not be permitted concurrently with a substantial redevelopment unless the entire structure or site development conforms with the policies of the Coastal LUP;

F. Substantial redevelopment is considered new development and must conform to all policies of the Coastal LUP; and

G. Alterations or additions to a legal nonconforming structure or site development may be permitted if necessary to comply with the Americans with Disabilities Act only if the following criteria are met:

i. A nonconforming alteration or addition shall only be allowed if it does not exceed the minimum dimension or extent required by the Building Code and if there is no feasible conforming method for achieving the same or similar result; and

ii. An alternation or addition that results in substantial redevelopment of the nonconforming structure or site shall be considered new development that shall conform to all policies of the Coastal LUP.

PUBLIC ACCESS POLICIES

Policy 3.1-29 Off-Street Parking for New Development and Substantial Redevelopment.

A. Parking standards in the Zoning Ordinance are designed to ensure sufficient off-street parking is provided for new development and substantial redevelopment so as to avoid significant adverse impacts to public access to the shoreline and coastal recreation areas. Off-street parking for new development and substantial redevelopment, therefore, shall be consistent with the Zoning Ordinance.

B. Zoning modifications to allow reduced off-street parking in the West Beach, Lower State, and East Beach Component Areas shall only be approved if a project specific evaluation of parking demand shows that the reduced parking will provide for the anticipated parking demand generated by the development. In determining parking demand, the following may be considered: proximity to transit facilities; mix of uses in the immediate area; offsite parking agreements; and provisions of a transportation demand management plan where it is demonstrated that the plan's measures will sufficiently reduce the demand for parking.

WATER QUALITY POLICIES

General

Policy 4.2-21 Biological Productivity and Water Quality. As outlined in Coastal Act Section 30231, the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Storm Water Management

Policy 4.2-22 Storm Water Management. All development shall be planned, sited, and designed to protect the water quality and hydrology of coastal waters in accordance with the requirements of the City's Storm Water Management Program, approved by the Central Coast Regional Water Quality Control Board under California's statewide National Pollutant Discharge Elimination System (NPDES) Phase II Small Municipal Separate Storm Sewer System (MS4) Storm Water Permit (Order No. 2013-0001 DWQ, effective July 1, 2013, or any amendment to or re-issuance thereof).

Construction

Policy 4.2-23 Minimize Water Quality Impacts During Construction. Minimize water quality impacts during construction by:

A. Minimizing the project footprint, including area required for road access and required fire protection for the proposed development;

B. Minimizing land disturbance activities of construction (e.g., clearing, grading, and cut-and-fill), especially in erosive areas (including steep slopes, unstable areas, and erosive soils);

C. Phasing grading activities;

D. Preventing unnecessary soil compaction;

E. Implementing an erosion and sediment control plan that includes BMPs to stabilize soil and prevent pollution through erosion prevention techniques and sediment control measures;

F. Implementing BMPs to minimize the discharge of other pollutants resulting from construction activities (such as paints, solvents, vehicle fluids, asphalt and cement compounds, preservatives from treated wood, trash, and debris) into runoff or coastal waters; and

G. Monitoring land disturbance activities to ensure conformance to approved plans.

Policy 4.2-24 Revegetation. Areas disturbed by development activity shall, to the extent feasible, be revegetated prior to the rainy season (November 1-April 15).

SCENIC RESOURCES & VISUAL QUALITY POLICIES

General

Policy 4.3-3 Design Review. Development in the Coastal Zone shall be reviewed by the Architectural Board of Review, Historic Landmarks Commission, or Single Family Design Board in accordance with established rules and procedures, as applicable. If any of the rules, procedures, or actions of these design review boards/commissions conflict with the policies of the Coastal LUP, the policies of the Coastal LUP shall take precedence.

Siting, Design, and Review

Policy 4.3-5 Protection of Scenic Resources and Public Scenic Views. Development shall be sited and designed to avoid impacts to scenic resources and public scenic views. If there is no feasible alternative that can avoid impacts to scenic resources or public scenic views, then the alternative that would result in the least adverse impact to scenic resources and public scenic views that would not result in additional adverse impacts to other coastal resources shall be required. Methods to mitigate impacts could include, but not be limited to: siting development in the least visible portion of the site, managing building orientation, breaking up the mass of new structures, designing structures to blend into the natural setting, restricting the building maximum size, reducing maximum height standards, clustering building sites and development, requiring a view corridor, eliminating accessory structures not requisite to the primary use, minimizing grading, minimizing removal of native vegetation, incorporating landscape elements or screening, incorporating additional or increased setbacks, stepping the height of buildings so that the heights of building elements are lower closer to public viewing areas and increase with distance from the public viewing area. Mitigation shall not substitute for implementation of the feasible project alternative that would avoid impacts to visual resources, public scenic views, or public viewing areas.

Policy 4.3-6 Obstruction of Scenic View Corridors. Development shall not obstruct public scenic view corridors of scenic resources, including those of the ocean viewed from the shoreline and of the upper foothills and mountains viewed respectively from the beach and lower elevations of the City.

Policy 4.3-7 Compatible Development. Development shall be sited and designed to be visually compatible with the character of surrounding areas and where appropriate, protect the unique characteristics of areas that are popular visitor destination points for recreational uses.

Policy 4.3-8 Mitigating Impacts to Visual Resources. Avoidance of impacts to visual resources through site selection and design alternatives, if feasible, is the preferred method over landscape screening. Landscape screening, as mitigation of visual impacts, shall not substitute for project alternatives including resiting, or reducing the height or bulk of structures. When landscaping is required to screen the development, it shall be maintained for the life of the development for that purpose.

Grading, Landscaping, Walls and Fences

Policy 4.3-9 Minimize Excavation, Grading and Earthwork. Minimize alteration of natural landforms to ensure that development is subordinate to surrounding natural features such as drainage courses, prominent slopes and hillsides, and bluffs. Site and design new development and substantial redevelopment to minimize grading and the use of retaining walls, and, where appropriate, step buildings to conform to site topography.

Policy 4.3-11 Landscape Plans Required. Applications for new development and substantial redevelopment shall be required to have an approved landscape plan prepared by a licensed design professional that demonstrates that the landscaping associated with the new development or substantial redevelopment is visually compatible with the character of the area and minimizes impacts to visual and scenic resources. As a condition of the permit, the applicant shall be required to implement and fulfill all obligations of the landscape plan for the life of the development. The following standards shall apply:

- Ensure vegetation choices are appropriate for environmental conditions, including but not limited to, exposure, soil, and water needs. Unless otherwise specified in Policies 4.1-17 or 5.1-38, within and near areas of natural vegetation and natural habitats, require drought-tolerant plant species, except where inappropriate for the given habitat type (e.g., creek beds and wetlands), that blend with the existing natural vegetation and natural habitats on the site. Within High Fire Hazard Areas, plant species should be fire retardant. The use of any plant species listed as problematic, a noxious weed, or invasive by the California Native Plant Society, the California Exotic Pest Plant Council, the State of California, or the federal government shall be avoided unless necessary for habitat restoration of a sensitive species (e.g., Monarch Butterfly).
- Landscaping shall be designed to avoid obstructing or limiting public view impacts for the life of the development. Plant materials shall be chosen to avoid impacts at their maximum growth potential. The property owner shall maintain new plant materials to avoid their inadvertently intruding into the protected viewshed.
- Landscaping and irrigation shall be planned with consideration for water conservation through use of water-wise plant species; water-efficient irrigation systems, including using microspray, drip irrigation, and mulching; and designing irrigation to eliminate runoff.
- Enforce City regulations that require maintenance of the trees, plants, irrigation systems, and other improvements shown on an approved landscape plan.

Policy 4.3-13 Tree Protection and Replacement.

A. Trees qualifying as ESHA shall be fully protected as required by the Biological Resources protection policies (Policy 4.1-1 et seq.).

B. For non-ESHA trees:

i. Development shall be sited and designed to preserve and protect, to the extent feasible, mature trees (trees four inches in diameter or greater at four feet six inches above grade in height) and trees important to the visual quality of the property;

ii. Mature or visually important trees should be integrated into the project design rather than removed or impacted through encroachment into the root zones; and

iii. Where the removal of mature or visually important trees cannot be avoided through the implementation of project alternatives or where development encroachments into the root zone result in the loss or worsened health of the trees, the removed tree(s) shall be replaced on a minimum 1:1 basis. This standard can also be increased up to 10:1

depending on the type of tree removed, lot size, and size and expected survival rate of replacement trees.

Policy 4.3-14 Minimize Removal of Native Vegetation.

A. Native vegetation that meets the definition of ESHA, creek, or wetland, shall be fully protected as required by the Biological Resource policies (Policy 4.1-1 et seq.).

B. Development shall minimize removal of non-ESHA native vegetation.

Policy 4.3-16 Accessory Walls and Fencing. Where accessory walls or fencing have the potential to impact scenic resources or public scenic views, such development shall be avoided to the maximum extent feasible. Where unavoidable, accessory walls and fencing shall be sited and designed to protect scenic views and visual resources by implementing mitigation measures that minimize visibility, including a reduction in the maximum allowed height or a visually permeable design that preserves public scenic views.

Utility Service Connections

Policy 4.3-25 Underground Utility Service Connections. All new development and substantial redevelopment in the Coastal Zone shall underground on-site service connection for utilities (the utility service equipment serving an individual parcel) consistent with the resource protection policies and provisions of the LCP unless it results in an unreasonable

COASTAL HAZARDS POLICIES

General

Policy 5.1-18 Hazard Risk Reduction. New development and substantial redevelopment shall do all of the following, over the expected life of the development, factoring in the effects of sea level rise:

A. Minimize risks to life and property from high geologic, flood, and fire hazards;

B. Assure stability and structural integrity; and

C. Neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area.

Policy 5.1-19 Adaptation in Development. New development and substantial redevelopment shall consider the expected life of proposed development in conjunction with the best available information on climate change effects, particularly sea level rise, and incorporate adaptation measures, as needed, in the location, siting, and design of structures in order to minimize hazards and protect coastal resources for the life of the development.

Geologic & Seismic Hazards

Policy 5.1-20 Avoid or Minimize the Effects of High Geologic Hazards. New development and substantial redevelopment in areas of potential fault rupture, groundshaking, liquefaction, tsunami, seiche, slope failure, landslide, soil erosion, expansive soils, radon, or high groundwater shall be sited, designed, constructed, and operated (including adherence to recommendations contained in any site specific geologic evaluation

required) to ensure that the development minimizes risks to life and property, assures stability and structural integrity, and neither creates nor contributes significantly to erosion, geologic instability, or destruction of the site or surrounding area over its expected life, factoring in the effects of sea level rise.

Policy 5.1-28 Minimize the Effects of High Flood Hazard. New development and substantial redevelopment shall meet the following requirements over the expected life of the development, factoring in the effects of sea level rise:

A. Avoid high flood hazards where feasible;

B. Where avoidance of high flood hazards cannot be feasibly achieved, minimize flood risk by increasing elevation of structures, restricting basements or habitable floor area below grade, restricting grading, restricting fencing or yard enclosures that cause water to pond, and/or utilizing flood proof materials consistent with local building requirements; and

C. Neither create nor contribute significantly to downstream flooding, erosion, geologic instability, or destruction of the site or surrounding area.

Shoreline Hazards

Policy 5.1-32 Development Standards for Potential Shoreline Hazards Screening Area 3 (Coastal Bluff Faces) on the Interim Shoreline Hazards Screening Areas Map.

A. New development and substantial redevelopment on coastal bluff faces (area between the toe of the coastal bluff up to coastal bluff edge) shall be limited to:

i. Public trails, walkways, engineered staircases, or related public infrastructure to provide public access to the beach and coast;

ii. Habitat creation, restoration, and enhancement;

iii. Remediation or removal of hazardous materials;

iv. Re-establishment of natural landforms that have been altered by previous development activities;

v. Replacement of existing subsurface public utility pipes or lines where no inland siting alternative is feasible;

vi. Drainage systems consistent with Policy 5.1-39 *Drainage Systems On Coastal Bluff Faces and Coastal Bluff Edge Development Buffers*;

vii. Slope stabilization devices and other geotechnical mitigation measures consistent with Policy 5.1-23 *Slope Stabilization and Protection* that are necessary to protect: development that provides coastal public access; existing public structures; drainage systems consistent with Policy 5.1-39 *Drainage Systems On Coastal Bluff Faces and Coastal Bluff Edge Development Buffers*; replacement of existing subsurface public utility pipes or lines where no inland siting alternative is feasible; existing principal structures; other existing habitable structures; existing garages or required parking areas; and minimum required ingress and egress to these existing structures; and

viii. Shoreline protection devices that are consistent with Policy 5.1-44 *Shoreline Protection Device Permitting*.

B. If compliance with subsection A. above would prohibit a reasonable use of a lawfully created lot, Policy 5.1-36 *Reduction of Coastal Bluff Face and Coastal Bluff Edge Development Buffer Standards* or Policy 5.1-37 *Sea Ledge Lane may apply.*

C. New development and substantial redevelopment shall be sited outside areas subject to beach erosion, coastal flooding, wave impacts, coastal bluff erosion, and coastal bluff slope failure over the expected life of the development, to the maximum extent feasible, factoring in the effects of sea level rise. If complete avoidance of hazard areas is not feasible, new development and substantial redevelopment shall be sited and designed to minimize impacts of beach erosion, coastal bluff erosion, coastal bluff slope failure, coastal flooding, and wave impacts to life and property; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area over the expected life of the development, factoring in the effects of sea level rise.

Policy 5.1-33 <u>Development Standards for Potential Shoreline Hazards Screening Area 4 (Coastal Bluff-Tops) on the Interim Shoreline Hazards Screening Areas Map.</u>

A. New development and substantial redevelopment shall be designed and sited to minimize impacts of coastal bluff erosion and coastal bluff slope failure to life and property; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas over the expected life of the development, factoring in the effects of sea level rise.

B. Except for allowed development outlined in subsection C. below, new development and substantial redevelopment shall be sited landward of a Coastal Bluff Edge Development Buffer. The Coastal Bluff Edge Development Buffer shall be of sufficient size to ensure that new development and substantial redevelopment will not be threatened by erosion or slope instability, will not require the use of existing or new slope stabilization devices, and will not require the use of existing or new shoreline protective devices over the expected life of the development, factoring in the effects of sea level rise. Policy 5.1-70 *Coastal Bluff Edge Development Buffer Calculation* provides a detailed methodology for site-specific analysis of Coastal Bluff Edge Development Buffers.

C. New development and substantial redevelopment within Coastal Bluff Edge Development Buffers shall be limited to:

i. Development allowed on coastal bluff faces pursuant to Policy 5.1-32 *Development Standards For Potential Shoreline Hazards Screening Area 3 (Coastal Bluff Faces) on the Interim Shoreline Hazards Screening Areas Map*;

ii. Landscaping and other plantings consistent with Policy 5.1-38 *Landscaping, Watering, Weight, and Drainage on Coastal Bluff Faces and Coastal Bluff Edge Development Buffers;*

iii. Substantial redevelopment, alteration, or relocation of existing public structures and public parking lots where no inland siting alternative is feasible and provided there is no net increase in overall development area. Relocation shall be to a site that has a smaller threat of erosion. Any needed shoreline protection shall be consistent with the policies of this Coastal LUP, including Policy 5.1-44 *Shoreline Protection Device Permitting*; and

iv. Patios (constructed of wood, pavers, stone, brick, tile, or similar material) no more than 10 inches above existing grade, walkways, lighting for public safety purposes, fences limited to 42 inches in height, and vegetation barriers, if they are minor improvements, easily removable (without the use of mechanized equipment), and conform to the following:

a. Shall be located at least 10 feet from the coastal bluff edge (fences or other vegetation barriers for safety purposes could be located as close as 5 feet from the bluff edge if there is no other feasible option on the site);

b. Shall require an evaluation by a qualified California licensed professional (e.g., Professional Geologist, Engineering Geologist, Geotechnical Engineer, or Civil Engineer, as applicable) that shows that the improvement will not create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area;

c. Shall be designed to be visually compatible with the surrounding area; and

d. Shall be subject to the conditions listed in Policy 5.1-42 *Conditions for Development in Shoreline Hazard Areas on the Interim Shoreline Hazards Screening Areas Map* and additional conditions of approval that:

i. Require proper maintenance of the improvements so that they do not become a safety issue or begin to affect erosion, geologic instability, or destruction of the site or surrounding area;

ii. Require that no mechanized construction equipment is used for installation or removal;

iii. Require removal of the minor improvements when erosion reaches less than 5 feet from the improvements or if the improvements are otherwise deemed unusable or unsafe due to imminent threat of damage or destruction from geologic instability, erosion, flooding,

wave impact hazards, or other hazards associated with development on a coastal bluff or beach; and

iv. Limit the approval of the minor improvements to a maximum 20 years from the issuance of the Coastal Development Permit. When the permit term ends, the minor improvements shall be removed unless re-evaluation of the site shows the minor improvements still meet the standards and conditions listed above and a new Coastal Development Permit is approved to retain the minor improvements.

D. If compliance with subsection A., B., and C. above would prohibit a reasonable use of a lawfully created lot, Policy 5.1-36 *Reduction of Coastal Bluff Face and Coastal Bluff Edge Development Buffer Standards* or Policy 5.1-37 *Sea Ledge Lane* may apply.

Policy 5.1-36 Reduction of Coastal Bluff Face and Coastal Bluff Edge Development Buffer Standards. It is the goal of the City to move as many structures as possible outside of coastal bluff face and Coastal Bluff Edge Development Buffer areas. However, there may be existing legally established lots that are severely constrained where reasonable use of the property may not be feasible outside of these areas. This policy addresses the rare cases when a reduction of coastal bluff face and Coastal Bluff Edge Development Buffer standards (Policy 5.1-32 *Development Standards for Potential Shoreline Hazards Screening Area 3 (Coastal Bluff Faces)* and Policy 5.1-33 *Development Standards for Potential Shoreline Hazards Screening Area 4 (Coastal Bluff Tops)* may be allowed for new development and substantial redevelopment on severely constrained lots. Reductions of coastal bluff face and Coastal Bluff Edge Development Buffer standards may be allowed if all of the following findings can be made[1]:

A. The reduction of coastal bluff face and Coastal Bluff Edge Development Buffer standards is necessary to provide reasonable use of a legally established lot that cannot feasibly be accommodated outside the coastal bluff face and Coastal Bluff Edge Development Buffer areas;

B. There are special circumstances or exceptional characteristics applicable to the property involved, such as size, shape, topography, location, or surroundings, that make it a severely constrained lot;

C. Reduction of coastal bluff face and Coastal Bluff Edge Development Buffer standards shall be the minimum necessary to accommodate a reasonable use of the lot;

D. The development allowed on the lot (outside and inside the coastal bluff face and Coastal Bluff Edge Development Buffer areas) shall only include the following and not exceed:

[1] Any new development and substantial redevelopment necessitating shoreline protection devices inconsistent with Policy 5.1-44 *Shoreline Protection Device Permitting* does not adhere to the policies of this Coastal LUP and will require a property takings analysis pursuant to Policy 1.2-3 *Property Takings*.

i. A principal structure that is the minimum size necessary to provide a reasonable use of the property but in no case exceeds the square footage of the existing permitted principal structure(s) on the lot or 1,200 square feet in cases where the existing permitted principal structure(s) (excluding garage) is less than 1,200 square feet or there is no existing principal structure;

ii. A garage or parking area, as applicable, sized to meet minimum parking requirements. Garages shall be integrated into the principal structure where feasible;

iii. The least amount of development necessary to provide ingress and egress to and from the principal structure/garage/parking area;

iv. Decks attached to the principal structure and not requiring additional caissons, slope stability devices, or other geotechnical mitigation measures;

v. Fences and natural barriers;

vi. Minimal exterior lighting;

vii. Any caissons, slope stabilization devices, or other geotechnical mitigation measures necessary to construct the principal structure, garage, and/or adequate ingress and egress to the site that are consistent with Policy 5.1-23 *Slope Stabilization and Protection*; and

viii. Development allowed within coastal bluff face and/or Coastal Bluff Edge Development Buffer areas (as applicable) pursuant to Policy 5.1-32 *Development Standards for Potential Shoreline Hazards Screening Area 3 (Coastal Bluff Faces)* and Policy 5.1-33 *Development Standards for Potential Shoreline Hazards Screening Area 4 (Coastal Bluff-Tops).*

E. The granting of the reduction of coastal bluff face and Coastal Bluff Edge Development Buffer standards will not be materially detrimental to the public welfare or be injurious to other property or improvements in the same vicinity;

F. The development conforms to the City's Zoning Ordinance;

G. Compliance with coastal bluff face and Coastal Bluff Edge Development Buffer standards (including Policy 5.1-32 *Development Standards for Potential Shoreline Hazards Screening Area 3 (Coastal Bluff Faces)* and Policy 5.1-33 *Development Standards for Potential Shoreline Hazards Screening Area 4 (Coastal Bluff Tops)* are maximized to the extent feasible by minimizing the development area and siting of the development, as far inland as feasible;

H. Feasible modifications to required development standards that are not related to hazards and ESHA, wetland, and creek protection are included in the project to avoid or minimize hazard risks and impacts to coastal resources;

I. The development is designed and constructed to assure stability and structural integrity, including meeting an adequate factor of safety (1.5 static conditions; 1.1 pseudo static conditions) for the expected life of the structure, factoring in the effects of sea level rise;

J. The development will not create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area for the expected life of the development, factoring in the effects of sea level rise; and

K. The development shall not rely on existing shoreline protection devices or require new shoreline protection devices for the expected life of the structure.

Policy 5.1-38 Landscaping, Watering, Weight, and Drainage on Coastal Bluff Faces and Coastal Bluff Edge Development Buffers.

A. Development, including landscaping and other improvements, shall be located and designed to prevent an increase in water percolation or excessive weight placed on coastal bluff faces and Coastal Bluff Edge Development Buffers, and to avoid increased drainage over the coastal bluff edge.

B. All new plantings on coastal bluff faces and Coastal Bluff Edge Development Buffers shall be native, drought-tolerant vegetation. Sprinkler systems, irrigation plumbing, and in-ground irrigation systems shall not be allowed on coastal bluff faces and Coastal Bluff Edge Development Buffers. Watering shall not be allowed on coastal bluff faces or mapped slope failure areas, except for minimal manual watering needed for establishment of new plantings. Watering within Coastal Bluff Edge Development Buffers shall be limited to the minimum necessary for plant establishment and survival and accomplished via manual watering or easily removable drip irrigation tubing that is designed with a dedicated shutoff valve outside of the Coastal Bluff Edge Development Buffer. Additional limitations to watering in the Coastal Bluff Edge Development Buffer may be required based on the geologic conditions of the site.

C. When new development or substantial redevelopment is proposed on coastal bluff faces or within Coastal Bluff Edge Development Buffers, existing landscaping and other plantings that are not drought-tolerant (e.g., lawns) shall be replaced with native, drought-tolerant vegetation when appropriate based on the scope and nature of the development.

Policy 5.1-39 Drainage Systems on Lots Containing Coastal Bluff Faces and Coastal Bluff Edge Development Buffers.

A. Existing drainage systems on coastal bluff faces, including drainage pipes that hang partially or fully down the coastal bluff face and any drainage outlet on the coastal bluff face, shall be phased out and removed, to the maximum extent feasible, due to their continued impacts on bluff and beach erosion, visual resources, and biological resources.

B. New development or substantial redevelopment on lots containing coastal bluff faces and Coastal Bluff Edge Development Buffers shall have drainage systems carrying runoff landward away from these areas and shall be conditioned to remove existing private bluff face drainage pipes, to the extent feasible. Where infeasible, new drainage systems on coastal bluff faces may only be permitted if each of the following criteria are met:

i. It is not feasible to carry runoff landward away from the bluff face;

ii. It is not feasible to utilize existing drainage systems, or use of existing drainage systems would result in more erosion or visual impacts than a new system; and

iii. The new drainage system is sited and designed to:

a. Be effective for the expected life of the development;

b. Avoid erosion and slope stability impacts;

c. Operate properly with only minimal maintenance requirements; and

d. Remain minimally visible for the expected life of the project. Drainage pipes on the bluff faces shall blend into the bluff (e.g.., no blue-colored pipe).

C. Where new or substantially redeveloped drainage systems are needed, consolidated drainage systems should be used where appropriate and feasible. Consolidated drainage systems should be sized to accommodate runoff from nearby and similarly drained parcels, if the consolidated system is found to be most beneficial and efficient, will not result in environmental damage, and property owners are in agreement regarding the installation and maintenance of a consolidated system.

Policy 5.1-42 Conditions for Development in Shoreline Hazard Areas on the Interim Shoreline Hazards Screening Areas Map. Coastal Development Permits for new development and substantial redevelopment located in Potential Shoreline Hazard Screening Areas on Figure 5.1-1 *Interim Shoreline Hazards Screening Areas,* or otherwise subject to reasonably foreseeable beach erosion, coastal bluff erosion, coastal bluff slope failure, coastal flooding, and/or wave impacts over the expected life of the development, factoring in the effects of sea level rise, shall include conditions that:

A. Require removal of the development by owners if any government agency has ordered that the structure(s) is not to be occupied or is otherwise unsafe due to imminent threat of damage or destruction from any shoreline hazard;

B. Require removal of all recoverable debris associated with the development in the event that portions of the development fall on the bluff face, to the beach, or are swept to another location before they are removed. All such debris shall be disposed of in a lawful manner. Such removal shall require authorization through an emergency and/or regular Coastal Development Permit;

C. For uses and/or structures not allowed to have shoreline protection devices pursuant to Policy 5.1-44 *Shoreline Protection Device Permitting*, the following condition shall apply: Prohibit the construction of new or substantially redeveloped shoreline protection devices in the future to protect the new development or substantial redevelopment from any shoreline hazard;

D. For uses not allowed to have slope stabilization devices pursuant to Policy 5.1-31 *Development Standards for Potential Shoreline Hazards Screening Area 3 (Coastal Bluff Faces)* and Policy 5.1-32 *Development Standards for Potential Shoreline Hazards Screening Area 4 (Coastal Bluff Tops)*, the following condition shall apply: Prohibit the construction of new or substantially redeveloped slope stabilization

devices in the future to protect the new development or substantial redevelopment from any shoreline hazard;

E. Limit the Coastal Development Permit to only the time period that the land underlying the development is under the ownership of the applicant or successor in interest. If the public trust boundary moves landward, resulting in the development encroaching onto public trust lands, the Coastal Development Permit will expire and the development on such public trust lands must be removed at the property owner's expense, unless the property owner obtains appropriate legal authorization from the trustee of the public trust lands (e.g., City of Santa Barbara or State Lands Commission) and obtains a new Coastal Development Permit from the CCC to authorize any development of public tidelands. Authorization for such development on public trust lands is restricted by the Coastal Act and Public Trust Doctrine and may not be allowed if the proposed use significantly interferes with public access or other public trust uses. (This condition may not apply to applications for development in Potential Shoreline Hazards Screening Area 6 (Inland Coastal Flooding Area));

F. Require the applicant to acknowledge that:

i. The project site and public services to the site (utilities, roads, etc.) may be subject to beach erosion, bluff erosion, coastal bluff slope failure, coastal flooding, wave impacts, or other hazards associated with development on a coastal beach, coastal bluff face or top, or in a coastal flood and/or wave impact area, now and in the future, factoring in the effects of sea level rise;

ii. Public services to the site may not be maintained in perpetuity due to the impacts of sea level rise;

iii. The applicant assumes the risks of injury and damage from such hazards in connection with the permitted development; and

iv. The applicant waives any claim of damage or liability against the approving entity (the City, or, if the permit is appealed, the CCC) for injury or damage from such hazards.

G. Require the applicant to record a deed restriction, in a manner acceptable to the City Attorney (or the Executive Director of the CCC if the permit is appealed), reflecting at a minimum the applicable Coastal Development Permit conditions listed above.

Definitions

Policy 5.1-53 Coastal Bluff Defined. A coastal bluff is a scarp or steep face of rock, weathered rock, sediment, and/or soil resulting from erosion, faulting, folding, or excavation of the land mass. The coastal bluff may be a simple planar or curved surface, or it may be step-like in section. For purposes of this Coastal LUP, "coastal bluff" is limited to those features having vertical relief of 10 feet or more and whose toe is or may be subject to marine erosion.

Policy 5.1-54 Coastal Bluff Edge Defined. The coastal bluff edge is the upper termination of a bluff. In cases where the top edge of the bluff is rounded away from the face of the bluff as a result of erosional processes related to the presence of the steep bluff face, the bluff edge

is that point nearest the bluff, beyond which the downward gradient of the land surface increases more or less continuously, until it reaches the general gradient of the bluff. In a case where there is a step-like feature at the top of the bluff face, the landward edge of the topmost riser is the bluff edge. Where a coastal bluff curves landward to become a canyon bluff, the termini of the coastal bluff edge shall be defined as a point reached by bisecting the angle formed by a line coinciding with the general trend of the coastal bluff line along the seaward face of the bluff, and a line coinciding with the general trend of the bluff line along the canyon-facing portion of the bluff. Five hundred feet shall be the minimum length of bluff line or edge to be used in making a determination of where a coastal bluff becomes a canyon bluff.

Policy 5.1-55 Coastal Bluff Erosion Defined. Coastal bluff erosion is the loosening and transportation of rock and soil along coastal bluffs by wind, water, waves, currents, or other natural forces.

Policy 5.1-57 Expected Life of a Development Defined. The expected life of a development is the time period for which a development is expected to function without major repairs. The expected life of residential and commercial structures shall be a minimum of 75 years, while other types of development shall be determined on a case-by-case basis.

Procedures

Policy 5.1-62 Geologic Hazards Evaluations.

A. Geologic Hazard Evaluations may be needed for new development and substantial redevelopment located in an area potentially subject to high geologic or seismic hazards (including fault rupture, ground shaking, liquefaction, slope failure, expansive soils, soil erosion, radon, and high groundwater). See *Policies 5.1-64* through *5.1-68* for evaluations needed in Potential Shoreline Hazards Screening Areas. A City Environmental Analyst shall determine if and when a hazard evaluation is required, the scope of analysis, and the adequacy of any submitted reports prior to consideration of any Coastal Development Permit. Factors to be considered in determining whether a geologic hazard evaluation is required include, but are not limited to:

i. Location of the project in relation to geologic hazard areas identified on the City's Master Environmental Assessment hazard information maps, certified maps, or on any other maps prepared by other resource agencies that depict areas of known safety hazards;

ii. Site-specific hazards information;

iii. The adequacy of other existing hazards evaluations for the site or area;

iv. Potential for the project to exacerbate natural or human-caused hazards;

v. Potential for the project to be impacted by natural or human-caused hazards;

vi. Intended use of the site or proposed structures; and

vii. Current federal, state, and local hazards regulations, including local building code requirements.

B. Site-specific hazard evaluations shall be prepared by a qualified California licensed professional (e.g., Professional Geologist, Engineering Geologist,

Geotechnical Engineer, Civil Engineer, Soils Engineer, and/or Coastal Engineer, as applicable). A City Environmental Analyst shall determine the adequacy of any submitted evaluations prior to consideration of Coastal Development Permits. Some evaluations may require peer review by a technical specialist in order to be deemed adequate. The City may impose a fee on applicants to recover the cost of peer review of evaluations.

C. Geologic Hazard Evaluations shall include:

i. Site specific hazards information (e.g. detailed descriptions of the hazard or other technical information relating to the hazard);

ii. Evaluation of the potential for geologic hazards to be present on the site based on hazards screening maps, site research, and field surveys, as appropriate;

iii. Evaluation of any potential adverse impacts the project may have during construction or operation on the extent or severity of geologic hazards on the site or neighboring sites;

iv. Identification of alternatives to avoid or minimize hazards and potential impacts of the project, consistent with the policies of this Coastal LUP;

v. Statement verifying whether the development will minimize risks to life and property; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area over its expected life; and

vi. In areas of potential slope failure, a screening level investigation to determine whether the site exhibits a high potential for slope failure and to determine if a detailed quantitative evaluation of slope failure is needed. When detailed quantitative evaluation of slope stability is required, the evaluation should demonstrate how all structures will meet a minimum factor of safety of 1.5 under static conditions and 1.1 under pseudo static conditions.

Policy 5.1-63 <u>Shoreline Hazard Evaluations</u>.

A. New development and substantial redevelopment in the Potential Shoreline Hazards Screening Areas 1-5 or areas otherwise subject to beach erosion, coastal bluff erosion, coastal bluff slope failure, and/or wave impacts shall require a Shoreline Hazard Evaluation. Shoreline Hazards Evaluations shall also be required for repairs and alterations of existing structures that require foundation work or substantial grading.

B. The evaluation may be waived by the Environmental Analyst for:

i. Minor development that meets the following criteria:

a. Does not require a structural foundation;

b. Does not require slope stabilization, retaining walls, or other geotechnical mitigation measures;

c. Does not require significant grading or modified landforms; and

d. Designed to be easily removed.

ii. Development proposed in areas where previous hazard evaluations show no risk of the potential hazard (previous hazards evaluations completed for the development site must be no more than two years old).

C. A City Environmental Analyst shall determine if and when a Shoreline Hazard Evaluation is required, the scope of analysis, and the adequacy of any submitted evaluations prior to consideration of a Coastal Development Permit. Some evaluations may require peer review by a technical specialist in order to be deemed adequate. The City may impose a fee on applicants to recover the cost of review of evaluations.

D. The required content and procedures for shoreline hazard evaluations in each shoreline hazards screening area are specified in the policies below. All shoreline hazard evaluations shall use the current best available science on sea level rise projections to analyze hazard conditions on the site over the expected life of the proposed development. The evaluation should, at a minimum, examine storm (100-year storm) and non-storm conditions and sea level rise impacts under a high emissions scenario based on state guidance.

Policy 5.1-66 Potential Shoreline Hazards Screening Area 3 (Coastal Bluff-Faces) Evaluations for New Development and Substantial Redevelopment. The Potential Shoreline Hazards Screening Area 3 (Coastal Bluff-Faces) is potentially subject to coastal bluff erosion, coastal flooding, coastal bluff slope failure, and wave impacts. Shoreline Hazard Evaluations for development in this screening area shall be prepared and signed by a qualified California licensed professional (e.g., Professional Geologist, Engineering Geologist, Geotechnical Engineer, Civil Engineer, Soils Engineer, and/or Coastal Engineer, as applicable). The evaluations shall be subject to review and approval by the City's Environmental Analyst. The Environmental Analyst may require peer review of evaluations by a technical specialist in order to deem them adequate. The City may impose a fee on applicants to recover the cost of review of evaluations. Evaluations shall analyze the effects of the hazard and the development over the expected life of the development, factoring in the effects of sea level rise, and with and without the effects of any existing or new shoreline protective devices or slope stabilization devices except for existing major public shoreline protection and flood protection devices (breakwater and other protection devices for the Harbor, Laguna Channel Tide Gate and Pump Station Facility, etc.). The following shall be evaluated:

A. Detailed topographic information for the site, including representative cross sections;

B. Mean high tide line, including a mean high tide line survey (unless data shows the mean high tide line will not be affected by the project);

C. The toe of the coastal bluff and coastal bluff edge (see Policy 5.1-69 *Location of Coastal Bluff Edge* for more information);

D. The area of the project site subject to coastal bluff erosion, coastal bluff slope failure, coastal flooding, and wave impacts;

E. The FEMA Base Flood Elevation and other mapped areas;

F. Future projections in sea level rise, associated beach erosion, coastal flooding, coastal bluff erosion, coastal bluff slope failure, and wave impacts, and any additional sea level rise related impacts that could be expected to occur over the life of the project in both storm (100-year storm) and non-storm scenarios. The analysis shall utilize best available science and include, at a minimum, evaluation of projected sea level rise at a high emission scenario based on state guidance;

G. Design requirements to assure stability and structural integrity, including the need for any slope stabilization devices or other geotechnical mitigation measures over the life of the project. When detailed quantitative evaluation of slope stability is required after a screening-level investigation, a minimum factor of safety of 1.5 under static conditions and 1.1 under pseudo static condition shall be provided for structures;

H. The need for a shoreline protection device over the life of the project;

I. The long-term impacts of the proposed development on sand supply;

J. The impacts of the proposed development during construction and operation on beach erosion, coastal bluff erosion, coastal bluff slope failure, coastal flooding, wave impacts, and any other hazards on or near the site;

K. The impacts of the proposed development on public access to and along the shoreline;

L. Any necessary mitigation measures, alternatives, or monitoring protocols to be completed over the life of the development and that are needed to avoid or minimize any potential coastal bluff erosion, coastal bluff slope failure, coastal flooding, and wave impact hazards and any potential impact to public access to and along the shoreline;

M. A statement verifying whether the development will minimize risks to life and property; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area during its expected life, factoring in the effects of sea level rise; and

N. A site map that shows all easements, deed restrictions, or "Offers to Dedicate" and/or other dedications for public access or open space and provides documentation for said easements or dedications. The approved development shall be located outside of and consistent with the provisions of such easements or offers.

Policy 5.1-67 Potential Shoreline Hazards Screening Area 4 (Coastal Bluff-Tops) Evaluations for New Development and Substantial Redevelopment. The Potential Shoreline Hazards Screening Area 4 (Coastal Bluff-Tops) is potentially subject to coastal bluff erosion and coastal bluff slope failure. Shoreline Hazards Evaluations for development in this screening area shall be prepared and signed by a qualified California licensed professional (e.g., Professional Geologist, Engineering Geologist, Geotechnical Engineer, Civil Engineer, Soils Engineer, and/or Coastal Engineer, as applicable). The evaluations shall be subject to review and approval by the City's Environmental Analyst. The Environmental Analyst may require peer review of evaluations by a technical specialist in order to deem them adequate. The City may impose a fee on applicants to recover the cost of review of evaluations.

Evaluations shall analyze the effects of the hazard and the development over the expected life of the project, factoring in the effects of sea level rise, and with and without the effects of any existing or new shoreline protective device or slope stabilization device, except for existing major public shoreline protection and flood protection devices (breakwater and other protection devices for the Harbor, Laguna Channel Tide Gate and Pump Station Facility, etc.). The following shall be evaluated:

A. Detailed topographic information for the site, including representative cross sections;

B. The coastal bluff edge (see Policy 5.1-69 *Location of Coastal Bluff Edge* for more information);

C. The area of the project site subject to coastal bluff erosion or coastal bluff slope failure;

D. The required Coastal Bluff Edge Development Buffer (see Policy 5.1-70 *Coastal Bluff Edge Development Buffer Calculation* for more information);

E. Design requirements to assure stability and structural integrity, including the need for any slope stabilization devices or other geotechnical mitigation measures over the life of the project. When detailed quantitative evaluation of slope stability is required after a screening-level investigation, a minimum factor of safety of 1.5 under static conditions and 1.1 under pseudo static condition shall be provided for structures;

F. The need for a shoreline protection device over the life of the project;

G. The impacts of the proposed development during construction and operation on coastal bluff erosion, coastal bluff slope failure, and any other hazards on or near the site;

H. Any necessary mitigation measures, alternatives, or monitoring protocols needed to avoid or minimize any potential coastal bluff erosion or coastal bluff slope failure hazards;

I. A statement verifying whether the development will minimize risks to life and property; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area during its expected life, factoring in the effects of sea level rise; and

J. A site map that shows all easements, deed restrictions, or "Offers to Dedicate" and/or other dedications for public access or open space and provides documentation for said easements or dedications. The approved development shall be located outside of and consistent with the provisions of such easements or offers.

Policy 5.1-69 Location of Coastal Bluff Edge. The following outlines the process to determine the location of the coastal bluff edge to be used in the interpretation of the policies of this Coastal LUP.

A. Figure 5.1-2 *Coastal Bluff Edge* shows the location of the coastal bluff edge in the City of Santa Barbara that meets the definition of coastal bluff edge contained in

Policy 5.1-54 *Coastal Bluff Edge Defined*. This figure may be updated by the City based on best available information and current site conditions. Large scale and digital versions of Figure 5.1-2 *Coastal Bluff Edge* are available at the City of Santa Barbara Community Development Department office.

B. The coastal bluff edge line depicted on Figure 5.1-2 *Coastal Bluff Edge* shall be used in the Coastal Development Permit process to establish a project's consistency with the policies of this Coastal LUP, unless a site-specific analysis demonstrates substantial inaccuracies in the topography depicted on Figure 5.1-2 *Coastal Bluff Edge* that, when considered in combination with the definition of coastal bluff edge in Policy 5.1-54 *Coastal Bluff Edge Defined*, would result in a coastal bluff edge line for the property that is materially different than that depicted on Figure 5.1-2 *Coastal Bluff Edge*.

C. If it is demonstrated that there are substantial inaccuracies in the topography depicted on *Figure 5.1-2 Coastal Bluff Edge*, when considered in combination with the definition of coastal bluff edge in Policy 5.1-54 *Coastal Bluff Edge Defined*, and the inaccuracies would result in a coastal bluff edge line for the property that is materially different than that depicted on Figure 5.1-2 *Coastal Bluff Edge*, then an alternate coastal bluff edge line shall be used to determine the consistency of the project with the policies of this Coastal LUP. The alternate coastal bluff edge shall meet the definition of coastal bluff edge contained in Policy 5.1-54 *Coastal Bluff Edge Defined* and be based upon best available topographic survey data.

D. If an alternate coastal bluff edge is identified, pursuant to subsection C., and is more than 20 horizontal feet seaward of the coastal bluff edge line depicted on Figure 5.1-2 *Coastal Bluff Edge*, an LCP Amendment amending Figure 5.1-2 *Coastal Bluff Edge* to correct the bluff edge in the subject area, shall be required concurrent with or prior to approval of a Coastal Development Permit that relies on the alternate bluff edge line, to find consistency with the policies of this Coastal LUP.

E. Any Coastal Development Permit application requiring determinations outlined above as to inaccuracies of Figure 5.1-2 *Coastal Bluff Edge* and alternate coastal bluff edge locations shall include a detailed site-specific topographic survey, prepared by a licensed land surveyor, that includes representative cross sections and a figure showing changes in the slope angle of the coastal bluff. Peer review by a technical specialist chosen by the City, and paid for by the applicant, may be required.

F. Planning Commission (or City Council or the California Coastal Commission on appeal) shall make all determinations regarding coastal bluff edge to be used in the interpretation of the policies of this Coastal LUP as part of the Coastal Development Permit process.

Policy 5.1-70 <u>Coastal Bluff Edge Development Buffer Calculation</u>. The methodology to be used by California licensed Geotechnical Engineers or Certified Engineering Geologists for analyzing site-specific Coastal Bluff Edge Development Buffer is described below:

Step 1. Identify the coastal bluff edge consistent with Policy 5.1-69 *Location of Coastal Bluff Edge*.

Step 2. Determine a "slope stability buffer." Evaluate the stability of points along the coastal bluff edge. If a screening-level analysis of the top of the coastal bluff shows a potential for slope instability, then a detailed field investigation and quantitative slope stability analysis shall be conducted to establish a "slope stability buffer." The slope stability buffer is the area landward of the coastal bluff edge line where the minimum factor of safety (1.5 static and 1.1 pseudo static) cannot be met. When determining the slope stability buffer, the minimum factor of safety is analyzed without the use of existing or new slope stabilization or shoreline protection devices, except for existing major public shoreline protection and flood protection devices (breakwater and other protection devices for the Harbor, Laguna Channel Tide Gate, and Pump Station Facility, etc).

Step 3. Determine the "coastal bluff erosion buffer." A site-specific evaluation of the long-term coastal bluff retreat rate at the site shall be conducted that considers not only historical coastal bluff retreat data, but also acceleration of coastal bluff retreat caused by sea level rise and any known site-specific conditions. Such an evaluation shall be used to determine the distance from the coastal bluff edge line (or from the slope stability buffer line, if applicable) that the coastal bluff might reasonably be expected to erode over the expected life of the principal structure (assumed to be 75 years for single-unit residences and commercial structures; otherwise determined on a case-by-case basis for public infrastructure), factoring in the effects of sea level rise, and without the use of existing and new slope stabilization or shoreline protection devices, except for existing major public shoreline protection and flood protection devices (breakwater and other protection devices for the Harbor, Laguna Channel Tide Gate, and Pump Station Facility, etc). Historic erosion rates can be determined by examination of historic records, surveys, aerial photographs, studies, or other evidence showing the location of the bluff edge through time. A minimum of 50 years' worth of historic data is generally used to evaluate historic erosion rates.

Step 4. Determine the Coastal Bluff Edge Development Buffer. Development shall be setback from the coastal bluff edge the distance needed to: ensure slope stability (the slope stability buffer), ensure the development is not endangered by erosion (the coastal bluff erosion buffer), and to avoid the need for existing and new slope and shoreline protective devices over the expected life of the structure.

Note: Modifications to the prescribed buffer methodology may be approved by a City Environmental Analyst to reflect updated guidance on sea level rise as it becomes available.