



# City of Santa Barbara California

## PLANNING COMMISSION STAFF REPORT

**REPORT DATE:** June 11, 2009  
**AGENDA DATE:** June 18, 2009  
**PROJECT ADDRESS:** 2215 Edgewater Way (MST2009-00085)

**TO:** Planning Commission  
**FROM:** Planning Division, (805) 564-5470  
 Danny Kato, Senior Planner *DK*  
 Suzanne Johnston, Assistant Planner *SJ*

### I. PROJECT DESCRIPTION

Proposal to demolish an unpermitted single-family residence, detached accessory building, and two unpermitted decks and restore landscaping on a 42,127 square foot lot in the Hillside Design District and appealable jurisdiction of the Coastal Zone. The project would abate violations in enforcement case #ENF2008-00353. The chain link fencing has been removed from the bluff. The applicant proposes to leave in place as-built railroad tie and concrete steps that were built on-grade, but has already removed the above ground handrails. The existing fencing adjacent to the property line, which is within the public right-of-way is shown to be removed, however, the applicant is proposing to allow the fencing and hedges to remain.

### II. REQUIRED APPLICATIONS

The discretionary applications required for this project are:

1. A Modification to allow a fence and hedge to exceed 3.5 feet within 10 feet of a front property line (SBMC §28.87.170 and §28.92.110.A.20).
2. A Coastal Development Permit (CDP2009-00004) to allow the demolition of the as-built structures and permitting of the on-grade stairs, hedges, and fencing on a parcel located within 50 feet of a coastal bluff and within the Appealable Jurisdiction of the City's Coastal Zone (SBMC §28.44).

### III. RECOMMENDATION

With the exception of the fence, gate and hedge in the public right-of-way, the proposed project conforms to the City's Zoning and Building Ordinances and policies of the General and Local Coastal Plans. Therefore, Staff recommends that the Planning Commission approve the demolition portion of project, making the findings outlined in Section VII of this report, and subject to the conditions of approval in Exhibit A, and deny the as-built fence, gate and hedge.



**APPLICATION DEEMED COMPLETE:** May 11, 2009  
**DATE ACTION REQUIRED:** July 10, 2009

**IV. SITE INFORMATION AND PROJECT STATISTICS**

**A. SITE INFORMATION**

Applicant:	Raymond Appleton Permit Planners	Property Owner:	John A. Sharratt
Parcel Number:	041-350-014	Lot Area:	44,090 sq. ft. (1.01 acres)
General Plan:	Residential	Zoning:	E-3/SD-3
Existing Use:	Residential	Topography:	48%
Adjacent Land Uses:			
	North - Residential		East - Residential
	South - Pacific Ocean		West - Residential

**B. PROJECT STATISTICS**

	Existing	Proposed
Building #1	381 sq. ft.	Vacant
Building #1	176 sq. ft.	
Deck #1	138 sq. ft.	
Deck	193 sq. ft.	

**V. ZONING ORDINANCE CONSISTENCY**

Standard	Requirement/ Allowance	Existing	Proposed
Setbacks -Front -Interior -Rear	20' 6' 6'	10' > 6' > 6'	Vacant lot
Parking	2 covered per single family residential unit	none	none
Open Yard	1,250 sq. ft.	> 1,250 sq. ft.	> 1,250 sq. ft.
Lot Coverage -Building -Landscaping - As-built Deck and Patio	N/A N/A N/A	557 s.f. 1.2% 43,202 s.f. 98% 331 s.f. .8%	n/a 44,090 sq. ft. 100% n/a

With the exception of the overheight hedge, the proposed project is consistent with the regulations of the E-3, single-family residence zone related to building height, setbacks, solar access, open yard requirements and parking.

**VI. ISSUES**

**A. BACKGROUND INFORMATION**

In 1954, the property at 2305 Edgewater Way was subdivided creating a two parcels. The two lots created were 2305 Edgewater Way (has been further subdivided since this original subdivision) and 2215 Edgewater Way (current configuration). At the time of the subdivision in 1954, the Planning Commission conditioned the project to install water and sewer connections, but stated that the parcel, 2215 Edgewater Way, should not be developed until an application was reviewed by the Planning Commission at a future date. After reviewing aerial photography on [www.CaliforniaCoastline.org](http://www.CaliforniaCoastline.org), it was determined that a stairway, building, and deck were constructed some time between 1987 and 2002. In the 2004 aerial, it appears that the an additional accessory structure has been moved onto the property. The property was sold to the current owner in 2006, and a Zoning Information Report (ZIR2006-00547) was completed identifying the structures as being constructed or placed without necessary approvals and permits. The violations identified in the Zoning Information Report are proposed to be abated by demolishing the buildings, decks, above ground railing, and restoring the area with

native drought tolerant vegetation. The applicant proposes to permit the as-built on-grade concrete and railroad tie steps. The development, in this case demolition of structures, is located within 50 feet of the coastal bluff and therefore requires Coastal Development and Building Permits in order to demolish the as-built structures.

The current owner has submitted an application for a proposed a Lot Line Adjustment which included the demolition of the as-built structures under a separate application (MST2008-00119). In order to expedite the abatement of outstanding violations, this application was submitted with a scope of work proposing to demolish the as-built improvements, which will abate the violations listed in the enforcement case (ENF2008-00353). The structures were red tagged by the building official so that they can no longer be occupied. Staff anticipates that a lot line adjustment application will be resubmitted in the foreseeable future, and will be brought before the Commission for review.

#### **B. DESIGN REVIEW**

The Single Family Design Board (SFDB) reviewed this project on two occasions (meeting minutes are attached as Exhibit C). On March 30, 2009, the current proposal was reviewed by SFDB, which stated that 1) the project is favorable to neighborhood and restores the landscape to the coastal palette on the slope; 2) the removal of the existing chain link fence and gate is an improvement; 4) drip irrigation shall be limited to a temporary period for establishment of plantings; 5) the proposal to keep the on-grade existing steps for the main house access is positive. The SFDB comments acknowledge the main house that is located at 2305 Edgewater Way and is not located on the subject property.

#### **C. PUBLIC RIGHT-OF-WAY ENCROACHMENTS/MODIFICATION**

The applicant plans to submit an application to the Public Works Division for an encroachment permit for improvements and vegetation within the public-right-of-way along Mohawk Road. These improvements are located within 50 feet of the coastal bluff and also require a Coastal Development Permit. The existing right-of-way between the property line and the curb face varies in width from 12 – 17 feet as you move along the property frontage south towards the ocean. This area contains a chain-link fence (with gate) that's located approximately 6 feet from the curb, and a six (6) foot tall hedge between the fence and the curb. The area to the interior of the fence is being used as open yard space for the applicant. Until recently, the hedge occupied the full six feet between the fence and the curb. It has since been trimmed back to allow for a walking path approximately four (4) feet wide adjacent to the curb. The fencing, the gate, which is surrounded by the over-height hedge, and some flatwork located between the curb and the gate, are proposed by the applicant to remain in their current locations. These improvements encroach between 6 and 9 feet into the public right-of-way, and are located in the parkway, which in an area with no sidewalk, is defined as the area extending six feet from the curb towards the nearest right of way line (SBMC§15.20.020.F). Santa Barbara Municipal Code, Section 15.20.040 and 22.080.020, states that vegetation, other than approved street trees, planted within a parkway should be limited to species that do not exceed eight inches in height. Additionally, City policy has been to deny requests for encroachment permits when

they promote private exclusive use of portions of the public right-of-way. Staff recommends that the Planning Commission deny this portion of the CDP request

Alternatively, Staff would support the removal of the as-built encroachments into the public right of way and approval of a coastal development permit and modification to allow a hedge and fence to be installed or relocated completely onto private property exceeding 3.5' within 10 feet of the front property line. Section 28.87.170 of the municipal code restricts fences, hedges, walls and screens to a maximum height of 3.5 feet within ten feet of the front property line. If a fence greater than 3.5 feet was to be installed ten feet away from the front property line it would be located within the 75-year geological setback and within 4 feet of the top of the bluff. The applicant has a need to secure the vacant lot to prevent trespassing on the bluff and the potential for further erosion. The property has 41.5 linear feet of frontage, which is not located adjacent to driveways and will not obstruct site lines for pedestrian or drivers. The property owner owns the subject site as well as the property at 2305 Edgewater Way. The relocation and maintenance of the hedge and fence completely on to the private property would provide a secure back yard for the upper lot. The subject sites frontage acts as a secondary front yard for the upper lot

#### **D. GENERAL AND LOCAL COASTAL PLAN CONSISTENCY**

The proposed project is located in the West Mesa neighborhood, as identified in the Land Use Element of the General Plan and has a land use designation of Residential, Five Units per Acre. This area is recognized as primarily single-family development on small lots. The property with the demolition of existing as-built structures would become a vacant lot.

The project site is also located within the Coastal Zone and thus must be found consistent with the City's Local Coastal Plan (LCP), which implements the California Coastal Act. The project is in Component 2 of the Local Coastal Plan (LCP), which is located between Arroyo Burro Creek and the westerly boundary of Santa Barbara City College. The LCP states that the primary land use of this area is single-family residential, and has very limited additional development potential. The major coastal issues identified for Component Two include seacliff retreat and flooding hazards; public access, both vertically and laterally along the bluffs, overuse of public facilities; protection of recreational access; protection of archaeological resources and the maintenance of existing coastal views and open space.

The scenic and visual qualities of coastal areas should be considered and protected as a resource of public importance (Coastal Act Section 30251). Projects along the coast should be sited and designed to protect views to and along the ocean and scenic coastal areas and to minimize the alteration of natural landforms. Projects should be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. Development on hillsides shall not significantly modify the natural topography and vegetation. The project site was not found to be archaeologically sensitive. The site does not serve as a public facility, recreation area, or coastal access point. The demolition of the as-built structure will allow for the restoration of the degraded bluff top to a natural vegetated appearance and will not obstruct scenic public vistas. The removal of improvements within the right of way would facilitate restoring pedestrian access through the

neighborhood to area parks or the mesa trail to the beach. It further enhance public views towards the ocean from public streets.

The General and Local Coastal Plans strive to eliminate or reduce the hazards created by loading and drainage related issues, which contribute to bluff erosion and undercutting of the slope. The Local Coastal plan also states that new development should be located outside the 75-year geological setback to protect bluffs from erosion and maintain the natural topography of the bluffs. The 75-year geological setback is determined by an engineering geologist based on an average rate of retreat. Earth Systems Southern California prepared an engineering geology report and addendum (dated February 20, 2008 and October 14, 2008 respectively, Exhibit D) which determined that the rate of retreat for this particular property is approximately 6.9 inches per year. The geology report stated that in order to minimize the potential of rapid additional erosion/landsliding, the landscaping installed should be drought tolerant and irrigated only for a period of time to establish the plants and then discontinued, and that site surface drainage should be controlled by area drains in order to minimize potential erosion due to runoff. These recommendations are made to maintain the current bluff top retreat rate instead of increasing the rate by additional surcharge to the bluff edge.

When planning for new development in high hazard areas, the intent of the Coastal Act is to safeguard lives and property, assure that new development does not significantly contribute to the deterioration of the general area of the proposed development, and prohibit construction of protective devices which would "...substantially alter natural landforms along bluffs and cliffs." Native vegetation that is drought resistant, and that has deep strong root systems to aid in stabilizing the cliff material is proposed to be planted on the revegetated bluff top following the removal of the as-built structures. Most of these plants will grow rapidly but are small or medium in size, so as not to obstruct views. Where feasible, existing non-native vegetation that requires large amounts of water, such as ice plant and annual grass, shall be replaced with native vegetation.

The project minimizes risks to life and property in areas by preventing loading along the bluff top and assuring stability and structural integrity. The project reduces development impacts, which contribute to erosion and geologic instability, and restores the natural conditions along the bluff and cliff. The trimming of the hedges improves public accessibility by returning the right of way to the public for pedestrian use. Therefore, the project is consistent with the applicable policies of the California Coastal Act, the California Code of Regulations. and Local Coastal Plan, and all implementing guidelines.

#### **E. ENVIRONMENTAL REVIEW**

Staff has determined that the project qualifies for an exemption from further environmental review under Section 15301 (demolition of existing small structures) of the California Environmental Quality Act (CEQA) Guidelines.

**VII. FINDINGS**

**A. FENCE AND HEDGE HEIGHT MODIFICATIONS (SBMC §28.87.170 AND §28.92.110.A.20)**

The modification to allow a fence and hedge to exceed 3.5 feet in height within 10 feet of the front property line are consistent with the purpose and intent of the Zoning Ordinance, and are necessary to secure an appropriate improvement. The property frontage acts a secondary front yard for the adjacent lot owned by the same property owner and allows the owner to secure the vacant lot at the top of the lot.

**B. COASTAL DEVELOPMENT PERMIT (SBMC §28.44)**

With the removal of the fence, gate and hedge in the public right-of-way, and the installation of a fence and hedge exceeding 3.5 feet at the property line, the project is consistent with the policies of the California Coastal Act, the City's Local Coastal Plan, all implementing guidelines, and applicable provisions of the Code because the demolition of the bluff top structures would be compatible with the existing neighborhood, would restore natural bluff top vegetation and appearance, would not impact views from public view corridors, would not impact public access, and would improve safety or drainage hazards on the site and is not located on an archaeologically sensitive site, as described in Section V.B. of the Staff Report.

Exhibits:

- A. Conditions of Approval
- B. Applicant's letter, dated March 23, 2009
- C. SFDB Minutes
- D. Engineering Geology Report and Addendum, prepared Earth Systems Southern California (dated February 20, 2008 and October 14, 2008)



**PLANNING COMMISSION CONDITIONS OF APPROVAL**

NO MAP  
2215 EDGEWATER WAY  
*COASTAL DEVELOPMENT PERMIT*  
JUNE 18, 2009

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. **Design Review.** The project is subject to the review and approval of the Single Family Design Board (SFDB). SFDB shall not grant preliminary approval of the project until the following Planning Commission land use conditions have been satisfied
1. **Public Right of Way.** The existing improvements within the public right of way are to be removed (i.e.; gate, fencing, flat work, and hedges shall be relocated from the public right-of-way onto private property.
  2. **Hedge.** The relocated or replacement, if transplanting is not possible, shall be maintained at a height not to exceed 6 feet within 10 feet of the front property line and should be a species that is appropriate for bluff top plantings.
  3. **Fence and Gate.** The relocated or replacement fence shall not exceed 6 feet within 10 feet of the front property line.
  4. **Appropriate Plants on Bluff.** Special attention shall be paid to the appropriateness of the existing and proposed plant material on the bluff and sloped areas. All existing succulent plants that add weight to the bluff and/or contribute to erosion shall be removed in a manner that does not disturb the root system and replaced with appropriate plant material in a manner that does not increase the rate of erosion.
  5. **Irrigation System.** The irrigation system shall be designed and maintained with the most current technology to prevent a system failure, and watering of vegetation on the bluff edge shall be kept to the minimum necessary for plant survival. The drip system along the bluff edge shall be removed after one full season of plant growth.
- B. **Recorded Conditions Agreement.** Prior to the issuance of any Public Works permit or Building permit for the project on the Real Property, the Owner shall execute a written instrument, which shall be reviewed as to form and content by the City Attorney, Community Development Director and Public Works 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 **June 18, 2009** is limited to a proposal to demolish an unpermitted single-family residence, detached accessory building, and two unpermitted decks, removal of as-built six foot tall chain link fence, permit as-built on-grade steps, permit as-built fencing, gate and hedge within the public right-of-way, restore bluff top landscaping and the improvements shown on the site and

landscape plans signed by the chairman of the Planning Commission on said date and on file at the City of Santa Barbara.

2. **Uninterrupted Water Flow.** The Owner shall provide for the uninterrupted 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 Prohibition.** No recreational vehicles, boats, or trailers shall be stored on the Real Property.
  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. If said landscaping is removed for any reason without approval by the SFDB, the owner is responsible for its immediate replacement. The following tree protection shall be incorporated:
  5. **Coastal Bluff Liability Limitation.** The Owner understands and is advised that the site may be subject to extraordinary hazards from waves during storms and 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.
  6. **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.
- C. **Public Works Requirements Prior to Building Permit Issuance.** The Owner shall submit the following, or evidence of completion of the following to the Public Works Department for review and approval, prior to the issuance of a Building Permit for the project.

1. **Encroachment Permits.** Any encroachment or other permits from the City or other jurisdictions (State, Flood Control, County, etc.) for the construction of improvements (including any required appurtenances) within their rights of way (easement).
  2. **Approved Public Improvement Plans and Concurrent Issuance of Public Works Permit.** Upon acceptance of the approved public improvement plans, a Public Works permit shall be issued concurrently with a Building permit.
- D. **Community Development Requirements with Building or Public Works Permit Application.** The following shall be submitted with the application for any Building or Public Works permit and finalized prior to Building or Public Works Permit issuance:
1. **Required Private Covenants.** The Owner shall submit a copy of the draft private covenants, reciprocal easement agreement, or similar private agreements required for the project.
  2. **Contractor and Subcontractor Notification.** The Owner shall notify in writing all contractors and subcontractors of the site rules, restrictions, and Conditions of Approval. Submit a copy of the notice to the Planning Division.
- E. **Building Permit Plan Requirements.** The following requirements/notes shall be incorporated into the construction plans submitted to the Building and Safety Division for Building permits.
1. **Conditions on Plans/Signatures.** The final Planning Commission Resolution shall be provided on a full size drawing sheet as part of the drawing sets. Each condition shall have a sheet and/or note reference to verify condition compliance. If the condition relates to a document submittal, indicate the status of the submittal (e.g., Archaeologist contract submitted to Community Development Department for review). A statement shall also be placed on the above sheet as follows: The undersigned have read and understand the above conditions, and agree to abide by any and all conditions which is 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.

F. **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.

1. **Demolition/Construction Materials Recycling.** Recycling and/or reuse of demolition/construction materials shall be carried out to the extent feasible, and containers shall be provided on site for that purpose, in order to minimize construction-generated waste conveyed to the landfill. Indicate on the plans the location of a container of sufficient size to handle the materials, subject to review and approval by the City Solid Waste Specialist, for collection of demolition/construction materials. A minimum of 90% of demolition and construction materials shall be recycled or reused. Evidence shall be submitted at each inspection to show that recycling and/or reuse goals are being met.
2. **Construction Related Traffic Routes.** The route of construction-related traffic shall be established to minimize trips through surrounding residential neighborhoods, subject to approval by the Transportation Manager.
3. **Haul Routes.** The haul route(s) for all construction-related trucks with a gross vehicle weight rating (GVWR) of three tons or more, entering or exiting the site, shall be approved by the Transportation Manager.
4. **Traffic Control Plan.** All elements of the approved Traffic Control Plan shall be carried out by the Contractor.
5. **Construction Hours.** Construction (including preparation for construction work) is prohibited Monday through Friday before 7:00 a.m. and after 5:00 p.m., and all day on Saturdays, Sundays and holidays observed by the City of Santa Barbara, as shown below: (look at longer or shorter hours and Saturday construction, depending on project location)

New Year's Day	January 1st*
Martin Luther King's Birthday	3rd Monday in January
Presidents' Day	3rd Monday in February
Cesar Chavez Day	March 31 <sup>st</sup>
Memorial Day	Last Monday in May
Independence Day	July 4th*
Labor Day	1st Monday in September
Thanksgiving Day	4th Thursday in November
Following Thanksgiving Day	Friday following Thanksgiving Day
Christmas Day	December 25th*

\*When a holiday falls on a Saturday or Sunday, the preceding Friday or following Monday, respectively, shall be observed as a legal holiday.

When, based on required construction type or other appropriate reasons, it is necessary to do work outside the allowed construction hours, contractor shall contact the Chief of Building and Safety to request a waiver from the above construction hours, using the procedure outlined in Santa Barbara Municipal

Code §9.16.015 Construction Work at Night. Contractor shall notify all residents within 300 feet of the parcel of intent to carry out night construction a minimum of 48 hours prior to said construction. Said notification shall include what the work includes, the reason for the work, the duration of the proposed work and a contact number that is answered by a person, not a machine.

6. **Construction Parking/Storage/Staging.** Construction parking and storage shall be provided as follows:
  - a. During construction, free parking spaces for construction workers and construction shall be provided on-site or off-site in a location subject to the approval of the Public Works Director. Construction workers are prohibited from parking within the public right-of-way, except as outlined in subparagraph b. below.
  - b. Parking in the public right of way is permitted as posted by Municipal Code, as reasonably allowed for in the 2006 Greenbook (or latest reference), and with a Public Works permit in restricted parking zones. No more than three (3) individual parking permits without extensions may be issued for the life of the project.
  - c. Storage or staging of construction materials and equipment within the public right-of-way shall not be permitted, unless approved by the Transportation Manager.
7. **Expeditious Paving.** All roadways, driveways, sidewalks, etc., shall be paved as soon as possible. Additionally, building pads shall be laid as soon as possible after grading unless seeding or soil binders are used, as directed by the Building Inspector.
8. **Gravel Pads.** Gravel pads shall be installed at all access points to the project site to prevent tracking of mud on to public roads.
9. **Street Sweeping.** The property frontage and adjacent property frontages, and parking and staging areas at the construction site shall be swept daily to decrease sediment transport to the public storm drain system and dust.
10. **Construction Best Management Practices (BMPs).** Construction activities shall address water quality through the use of BMPs, as approved by the Building and Safety Division.
11. **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, contractor(s) telephone number(s), work hours, site rules, and construction-related conditions, to assist Building Inspectors and Police Officers in the enforcement of the conditions of approval. The construction contact phone number shall include an option to contact a person instead of a machine in case of emergency. 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.

12. **Construction Equipment Maintenance.** All construction equipment, including trucks, shall be professionally maintained and fitted with standard manufacturers' muffler and silencing devices.
13. **Graffiti Abatement Required.** Owner and Contractor shall be responsible for removal of all graffiti as quickly as possible. Graffiti not removed within 24 hours of notice by the Building and Safety Division may result in a Stop Work order being issued, or may be removed by the City, at the Owner's expense, as provided in SBMC Chapter 9.66.
14. **Unanticipated Archaeological Resources Contractor Notification.** 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 associated with past human occupation of the parcel. If such archaeological resources are encountered or suspected, work shall be halted immediately, the City Environmental Analyst shall be notified and the applicant 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.

- G. **Prior to Final Inspection.** Prior to final inspection of the building Permit, the Owner of the Real Property shall repair damaged public improvements. Repair any damaged public improvements (curbs, gutters, sidewalks, roadways, etc.) subject to the review and approval of the Public Works Department per SBMC §22.60.090. Where tree roots are the cause of the damage, the roots shall be pruned under the direction of a qualified arborist.

- H. **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 the City Council denial of the appeal and approval of 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.

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

Pursuant to Section 28.44.230 of the Santa Barbara Municipal Code, work on the approved development shall commence within two years of the final action on the application, unless a different time is specified in the Coastal Development Permit. Up to three (3) one-year extensions may be granted by the Community Development Director in accordance with the procedures specified in Subsection 28.44.230.B of the Santa Barbara Municipal Code.



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March 23, 2009

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

Re: 2215 Edgewater Way / Demolition of Unpermitted Structures

Dear Commissioners:

Our firm, Permit Planners, has been retained by the owners, Mr. and Mrs. Sharratt, to remedy a problem created by the previous owners of the subject property at 2215 Edgewater Way.

The problem, quite simply, is that the previous owners constructed two small buildings totaling 557 square feet and two small decks totaling 331 square feet on the vacant property, without any of the required government approvals or permits. The solution to this problem is the purpose of this application, which is to demolish the structures and re-landscape the demolition area with a coastal vegetation landscape plan, already conceptually approved by the Single Family Design Board (SFDB).

Like the previous owners, Mr. and Mrs. Sharratt also own the adjacent residence-occupied property at 2305 Edgewater Way to the north. The subject property at 2215 Edgewater Way lies south between the residence-occupied property and the ocean. The subject property is a much larger property of 42,127 square feet and, like the adjoining properties, is zoned E-3 / SD-3. The property slopes downward over 300 feet from its northern property line to the ocean below, but does not have a steep ocean bluff face like many other properties along the coast to the east and west.

The unpermitted structures were constructed on a naturally existing lesser sloped area near the upper property line shared with 2305 Edgewater Way. This lesser sloped area was created naturally many decades ago by off-site storm water the City directed across the upper portion of the property from the adjacent street intersection of Edgewater Way and Mohawk Road. This storm water drainage problem was later corrected when the City installed curbing and a large catch basin at the intersection. This cessation of storm water drainage across the property provided the previous owners with the opportunity to construct the structures. As evidence of the history, we have provided a 1972 aerial photo from Pacific Western Aerial Surveys. We have circled in red the washed-out upper portion of the property that received the storm water runoff from the street intersection. This same area is circled in red in a 1997 aerial photo, also provided from Pacific Western Aerial Surveys, which now shows the unpermitted structures.

March 23, 2009  
Planning Commission  
City of Santa Barbara  
Re: 2215 Edgewater Way / Demolition of Unpermitted Structures  
Page 2

Construction of the structures in the lesser sloped washed-out area eliminated the need for the previous owners to do any grading to install the shallow partial perimeter foundation with small post and pier footings. This also eliminates the need for Mr. and Mrs. Sharratt to perform any grading to remove the structures. The small amount of soil that was shoveled out for the shallow foundation and pier footings, will be raked and compacted back into place. The SFDB approved coastal landscaping will be installed at the location of the demolished structures and also a little on the slope above and below the structures, where noncoastal vegetation installed by the previous owners will be replaced. The approved coastal vegetation will only initially be watered temporarily by a drip system. In order to continue minimum disturbance to the landscaping areas, three existing on-grade sets of steps will remain for maintenance access of the landscaping and slope area. One set of steps is stone set into the soil, and the other two are wood and set into the soil. None are installed above grade or have handrail construction.

Because the two buildings are constructed cheaply with only an outer wall and exposed stud framing on the interior, the buildings will be easily dismantled. The minimum foundation and pier footings will also be easily removed. All material will be carried to the property's northeast corner near the access to the street. According to General Contractor Steve Paul, three workers will take a maximum of one week to dismantle the structures, and a bin to receive and haul away the material will only need to be located on the street for two days.

As a closing side note I would mention that Mr. and Mrs. Sharratt are considering a lot line adjustment between the residence-occupied property of 2305 Edgewater Way and the soon to be vacant sloped property of 2215 Edgewater Way. In anticipation of this, they have submitted a preliminary application to the Planning Division of the City's Community Development Department. The demolition and re-landscaping of 2215 Edgewater Way are mentioned, albeit briefly, in the resulting Preliminary Review Team (PRT) Report from City Staff. Mr. and Mrs. Sharratt also retained an Archaeologist and Geologist to prepare reports pertaining to the lot line adjustment, which have been provided to City Staff. These reports respectively indicate there are no Archaeological concerns on either property, and that the geologic formation of the upper area of the sloped subject property, immediately below the residence occupied property, is firmly grounded in bedrock.

With regard to accomplishing the above goals of demolition and re-landscaping, Mr. and Mrs. Sharratt are requesting that the Planning Commission accept the recommendation of the SFDB and approve the required Coastal Development Permit.

Respectfully,

  
Raymond A. Appleton

Cc: Mr. and Mrs. Sharratt



SINGLE FAMILY DESIGN BOARD  
CASE SUMMARY

2215 EDGEWATER WAY

MST2009-00085

R-DEMO, CDP

Page: 1

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**Project Description:**

Proposal to demolish an unpermitted single-family residence, detached accessory building, and two unpermitted decks and restore landscaping on a 42,127 square foot lot in the Hillside Design District and appealable jurisdiction of the Coastal Zone. The project will abate violations in ENF2008-00353. Planning Commission approval of a Coastal Development Permit is requested.

**Activities:**

3/30/2009                      *SFDB-Consnt Mail Notice Prep'd*

3/30/2009                      *SFDB-Consent (New)*

*(Comments only; project requires environmental assessment and Planning Commission approval of a Coastal Development Permit.)*

*Continued indefinitely to the Planning Commission and return to Consent Calendar with comments: 1) the project is favorable to neighborhood and restores the landscape to coastal palette on the slope; 2) removal of the existing chain link fence and gate is an improvement; 4) drip irrigation shall be limited to a temporary period for establishment of plantings; 5) keeping on-grade existing steps for main house access is positive.*

3/30/2009                      *SFDB-FYI/Research*

*reply sent to Mr. Ruiz on 3/30/09:*

*Mr Ruiz,*

*Thank you for bringing these concerns to our attention. These types of concerns are not design issues within the Single Family Design Board's purview. They are encompassed within our environmental assessment. In addition to Single Family Design Board approval, this project will require approval of a Coastal Development Permit (CDP) by the Planning Commission and environmental assessment will take place in that CDP process. When we receive the application for the CDP a member of our staff will be assigned to the project and will look into these concerns. I will forward your e-mail to the Development Review Supervisor who will assign the project once we get the application. Please contact me if you have any questions.*

## Activities:

*Thank you,  
Tony Boughman*

-----Original Message-----

*From: ruizsblaw@cox.net [mailto:ruizsblaw@cox.net]*

*Sent: Saturday, March 28, 2009 7:44 PM*

*To: Boughman, Tony*

*Cc: ruizsblaw@cox.net*

*Subject: SFDB Consent Agenda 2215 Edgewater Way*

*March 30, 2009*

*App. No. MST2009-00085*

*I understand that these comments are premature particularly on my issue but I want and intend to take every opportunity to make a record of these issues on this project. I live at 108 Mesa Lane and I drive Edgewater as does my wife, with our 2 year old daughter Stella, everyday. Edgewater at this property is a dangerous road in the best of circumstances. The dogleg there makes it a blind corner and often tourists or others not familiar with the street, travel way too fast there. If there is anyone parked on Edgewater it becomes effectively a one lane road. As an aside I believe no parking should be allowed on Edgewater for a block in each direction of the dogleg there, nor in the dogleg.*

*My comments are to parking conditions to be placed on this project and any follow up project, during construction. Recently an excavation project was undertaken at the property, probably illegally, and during the work there was heavy equipment parked in the dogleg, without a flagman. The ocean side of the street was completely blocked and it was a severely dangerous condition. I complained to the workers but as there was no permit posted, I did not follow up with the City. I should have.*

*I expect with a demo project there will be not only worker vehicles but also heavy equipment on site and dumpsters. There should be no worker parking allowed anywhere on Edgewater, Mohawk or Palisades. There should be no equipment parked or left in the streets. There should be no permitted dumpsters on the street. There is no safe place to put them and allow safe traffic flow. Anytime there is traffic from equipment moving on and off the property there must be flagmen on duty.*

*Very importantly there must be in place an easy to use process to allow neighbors to alert City staff to what I expect will be almost inevitable violations. There should be established before the fact a designated staff person who will quickly respond to any complaints.*

*I believe I am on the mailing for this project and I want to receive notice of any and all City matters related to this property.*

*Thank you.*

*Russell R. Ruiz  
108 Mesa Lane*

---

**Activities:****3/23/2009****SFDB-FYI/Research**

*Raymond Appleton, Carol Gross, Mr. Sharrett-owner. Sam Ryan, a neighbor at 2317 Edgewater spoke in support of the project because the owner has enhanced the existing property and improved the neighborhood. Off the record comments from Glen Deisler. Minimize hardscape. Show material of existing steps. Specify the method and timing of irrigation. Consider removing the existing chain link fence. Provide detailed photos of low retaining walls and existing trees.*

**2/13/2009****SFDB-Posting Sign Issued**





October 14, 2008

VT-23780-01  
08-10-42

John Sharratt  
John Sharratt & Associates, Inc.  
121 Mt. Vernon Street  
Boston, Massachusetts 02108

Project: 2215 and 2305 Edgewater Way  
Santa Barbara, California  
Subject: Addendum to the Sea Cliff Retreat Study  
Reference: Sea Cliff Retreat Study, 2215 and 2305 Edgewater Way, Santa Barbara, California.  
File VT-23780-01, Report 08-2-32, February 20, 2008, Earth Systems Southern  
California

It is our understanding that the City of Santa Barbara does not agree with our geologic findings in the above referenced report as to the location of the "top of bluff", and instead has determined based in part on the California Code of Regulations that the "top of bluff" should approximately follow the 124-foot contour line at the subject site, varying to the 120-foot contour line where the overall slope has a more gentle gradient. This "top of bluff" line is shown on the accompanying exhibit topographic map.

With the above stated understanding, we amend the referenced report to include the following:

The "sea cliff retreat setback formula" presented should not apply north of the "top of bluff" line at the subject site. This is because of the relatively large distance (approximately 100 yards) between the ocean and the "top of bluff" line, the relatively overall gentle slope gradient (i.e. not a sea cliff) between the ocean and the "top of bluff" line, and our discovery of near-surface bedrock at the upper area of the slope as referenced in the report. We further state that the "sea cliff retreat setback formula" should not be used to create setbacks for existing and proposed structures north of the "top of bluff" line. The slope stability analyses presented in the referenced report indicates that the factors of safety north of the "top of bluff" line are acceptable.

Also of importance is the City's past mitigation of offsite storm water flowing onto the site by the installation of curbing and a drop inlet which reduced the erosion potential in the upper area of the onsite slope to minor amounts (on the order of inches). It is our understanding that a Landscape Architect will prepare an Erosion Control Landscape Plan for the upper area of the onsite slope in which the implemented design elements will further help to mitigate any erosion potential. Therefore, any "top of bluff" setback for existing or proposed structures would be limited to no more than about one inch per year or about 6 feet north of the "top of bluff" line.

October 14, 2008

VT-23780-01  
08-10-42

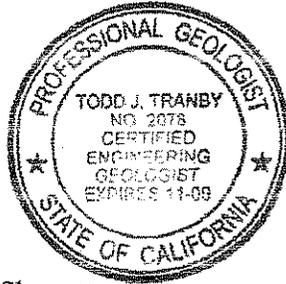
Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

**EARTH SYSTEMS SOUTHERN CALIFORNIA**



Todd J. Tranby  
Engineering Geologist



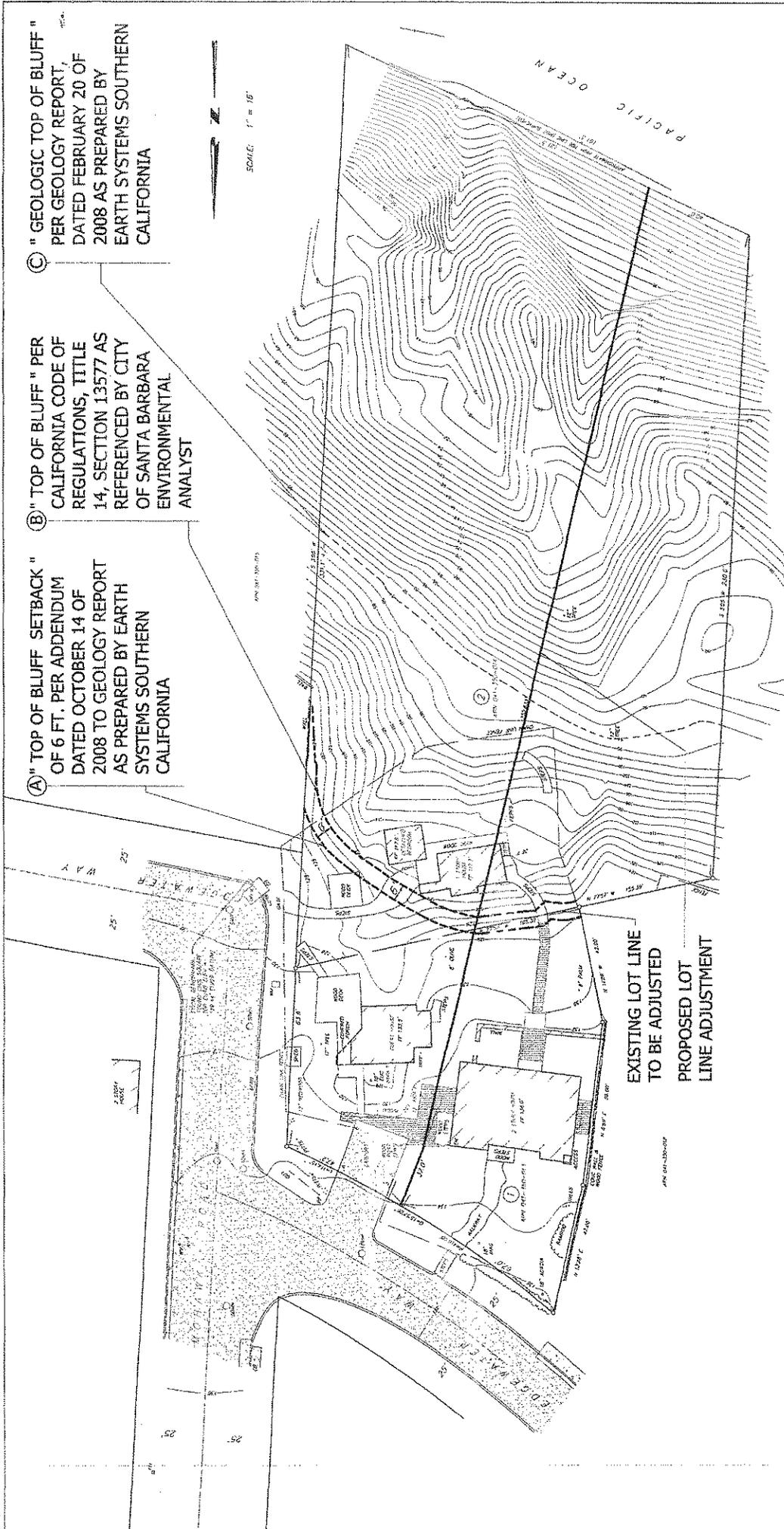
Copies:        1 - John Sharratt  
                  4- Raymond Appleton  
                  1 - Project File

**EARTH SYSTEMS SOUTHERN CALIFORNIA**

(A) "TOP OF BLUFF SETBACK" OF 6 FT. PER ADDENDUM DATED OCTOBER 14 OF 2008 TO GEOLOGY REPORT AS PREPARED BY EARTH SYSTEMS SOUTHERN CALIFORNIA

(B) "TOP OF BLUFF" PER CALIFORNIA CODE OF REGULATIONS, TITLE 14, SECTION 13577 AS REFERENCED BY CITY OF SANTA BARBARA ENVIRONMENTAL ANALYST

(C) "GEOLOGIC TOP OF BLUFF" PER GEOLOGY REPORT, DATED FEBRUARY 20 OF 2008 AS PREPARED BY EARTH SYSTEMS SOUTHERN CALIFORNIA



THIS SHEET PROVIDED AS EXHIBIT ONLY TO DEMONSTRATE INFORMATION LINES (A), (B), (C) ADDED OCTOBER 20TH OF 2008 BY EARTH SYSTEMS SOUTHERN CALIFORNIA TO ACCOMPANY ADDENDUM DATED OCTOBER 14TH OF 2008 TO GEOLOGY REPORT DATED FEBRUARY 20TH OF 2008.



**SEA CLIFF RETREAT STUDY  
FOR  
2215 AND 2305 EDGEWATER WAY  
SANTA BARBARA, CALIFORNIA**

**VT-23780-01  
FEBRUARY 20, 2008**

**PREPARED FOR  
JOHN SHARRATT**

**BY  
EARTH SYSTEMS  
SOUTHERN CALIFORNIA  
1731-A WALTER STREET  
VENTURA, CALIFORNIA**





**Earth Systems**  
**Southern California**

1731-A Walter Street  
Ventura, CA 93003  
(805) 642-6727  
FAX (805) 642-1325

February 20, 2008

VT-23780-01  
08-2-32

John Sharratt  
John Sharratt & Associates, Inc.  
121 Mt. Vernon Street  
Boston, Massachusetts 02108

Project: 2215 and 2305 Edgewater Way  
Santa Barbara, California

As authorized, we have performed a sea cliff retreat study for 2215 and 2305 Edgewater Way in Santa Barbara, California. The accompanying report presents the results of our research, as well as our conclusions and recommendations pertaining to the existing conditions and future development.

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 SOUTHERN CALIFORNIA**

Todd J. Tranby  
Engineering Geologist



Reviewed and Approved

Richard M. Beard  
Geotechnical Engineer



Copies: 5 - John Sharratt  
1 - Raymond Appleton  
1 - Project File

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### APPENDIX

- Field Study
- Vicinity Map
- Oblique Image
- Regional Geology Map (Dibblee)
- Geology Map-2002 (USGS, Minor et al)
- Geology Map (Gurrola, 2004)
- Landslide Hazard Map (CDMG, 1999)
- Site Plan / Geologic Map
- Boring Logs
- Test Pit Logs
- Symbols Commonly Used on Boring Logs
- Unified Soil Classification

### APPENDIX B

- Laboratory Testing
- Tabulated Test Results
- Individual Test Results
- Composite Shear Test Graphs
- Stark, Choi, and McCone Graph
- Soil Chemistry Results

### APPENDIX C

- Slope Stability Analyses

## INTRODUCTION

Project Description

This report presents preliminary findings and recommendations from a sea cliff retreat study performed for a site which includes an existing single family residence located at 2215 Edgewater Way and an existing single family residence and guest house located at 2305 Edgewater Way in Santa Barbara, California. The subject site is located near the top edge of an approximately 130-foot high sloped area above the coast line. Erosion, landsliding, and grading have taken place creating its current topographic configuration.

Purpose and Scope of Work

The purpose of the geological and geotechnical study that led to this report was to evaluate the near surface geologic and soil conditions of the site with respect to the existing residences and guest house. These conditions include geologic structure, surface and subsurface soil/bedrock types, and the presence or absence of subsurface water. The scope of our work included:

1. Review of available relevant regional geologic reports/maps, and geologic/geotechnical reports prepared for the subject site by others.
2. Review of the following aerial photographs taken of the site.

<u>Date</u>	<u>Flight and Frame Numbers</u>	<u>Scale</u>
1928	C-311, A-10 & 11	1:19,000
1929	C-430, A-12 & 13	1:24,000
1938	C4950, SF-72 & 73	1:24,000
1943	GS-EM, 147 & 148	1:20,000
1947	GS-EM, I-160 & 161	1:24,000
1954	BTM-1954, 7K-25 & 26	1:20,000
1956	HA-AN, I-7 & 8	1:12,000
1959	HA-GN, 67 & 68	1:12,000
1962	HA-OI, 80 & 81	1:12,000
1964	HA-VX, 65 & 66	1:12,000
1965	C-24989, 40 & 41	1:12,000
1966	HB-IU, 239 & 240	1:12,000
1969	AN-AM, 8 & 9	1:24,000
1970	HB-QR, 34 & 35	1:42,000

1972	HB-TI, 75 & 76	1:24,000
1975	HB-XQ, 239 & 240	1:12,000
1976	PW-5371, 11 (non-stereo)	1:24,000
1977	PW-6241, 20 & 21	1:24,000
1983	PW-SB, 5-2 & 5-3	1:24,000
1986	PW-SB-6, 2 & 3	1:24,000
1989	PW-SB-7, 6 & 7	1:24,000
1992	PW-SB-8, 8-2 & 8-3	1:24,000
1995	PW-55010, 25 & 26	1:12,000
1997	PW-SB-10, 7 & 8	1:24,000
2001	CCC-BQK-C, 72-2 & 72-3	1:12,000
2003	PW-SB-14, 16 & 17	1:24,000
2005	PW-SB-15, 24 & 25	1:12,000

3. Reconnaissance of the site with geologic mapping of exposures of bedrock, soil, landslide, and artificial fill.
4. Drilling, sampling and down hole logging three 24-inch diameter bucket auger borings in order to study bedrock, soil, landslide, artificial fill, and groundwater conditions. The borings were drilled to depths of 40, 34, and 39 feet below the existing grade, respectively, for the BA-1, 2, and 3 locations.
5. Excavating, sampling and logging four hand excavated test pits to study bedrock, soil, landslide, artificial fill, and groundwater conditions. The test pits were excavated to depths of 7, 5.5, 3.5, and 3.5 feet below the existing grade, respectively, for the TP-1, 2, 3, and 4 locations.
6. Laboratory testing of soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
7. Consulting with owner representatives.
8. Analyzing the geologic and geotechnical data.
9. Preparing this report.

Contained in this report are:

1. Descriptions and results of research, field, and laboratory tests that were performed.
2. Discussions pertaining to the local bedrock, soil and groundwater conditions.
3. Conclusions and recommendations pertaining to the existing site conditions.

### Site Setting

The subject site includes two separate parcels with addresses 2215 and 2305 Edgewater Way (see Vicinity Map in Appendix A). Two existing residences and one guest house occupy the site. The site lies on the south margin of an existing residential subdivision. The site is bounded by Edgewater Way to the north, an existing residence to the west, the Pacific Ocean to the south, and an existing residence/Edgewater Way to the west. The existing residence and guest house at 2305 Edgewater Way lie in a relatively flat area on the northern portion of the site. The existing residence at 2215 Edgewater Way lies within a sloped area about 50 feet south of the 2305 Edgewater Way residence and guest house. Although there is no defined seacliff on the site (as compared to nearby adjacent properties to the west and east with very steep and high slope faces above the shoreline), there is a generally south sloping area below and south of the 2215 Edgewater Way residence that varies in gradient from about 1:1 to 10:1 and forms a topographic low land feature. This topographic low is bounded to the east and west by slopes that descend into the feature ranging in gradient from 1:1 to 3:1. The elevation of the general area of the residences is about 115 to 135 feet above mean sea level.

### REGIONAL GEOLOGY

The proposed construction lies along the Santa Barbara coastline 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 which deform early Pleistocene to Tertiary aged marine and non-marine sedimentary bedrock units. These sedimentary bedrock units underlie the property (see Regional Geologic Maps by Dibblee, USGS, and Gurrola in Appendix A). No faults were encountered during field studies. As previously mentioned, erosional and landsliding processes have caused the seacliff to migrate inland in the form of a gentler slope.

### STRUCTURE

The subject site is underlain by areas of artificial fill up to about 5 feet of artificial fill over about 5 feet of terrace deposits (the terrace deposits were encountered only in the in Boring BA-1 and Test Pit TP-1) over Monterey Formation bedrock. An approximately east-west trending fold axis was located on the site between borings BA-2 and BA-3 defining a "gentle" fold with an interlimb angle of about 135°. Bedrock units exposed in the northern two borings (BA-1 and BA-2) had strikes of bedding of ranging from about N55°W to N74°E and dips ranging from 10° to 15° in the south direction. Bedrock units

exposed in the southernmost boring (BA-3) had strikes of bedding of ranging from about N55°W to N72°W and dips ranging from 36° to 40° in the south direction. An exposure of bedrock near the shoreline had a strike of N60°W and a dip of 38° to the south. These strikes appear to be consistent with the regional strikes of other bedrock units in the general area of the subject site according to Dibblee (1986), and USGS (2002).

### LANDSLIDING, EROSION, AND BLUFF RETREAT

Review of various years of stereo aerial photographs (1928 to 2005) and recent field mapping of the sloped area located on the south side of the subject site reveal the presence of erosion, shallow soil slumps, and landslide movements from 1938 to the present.

In the 1928 and 1929 photographs, the bluff top was about 150 to 200 feet south of the existing residence at 2305 Edgewater Way. That bluff top location was consistent with the bluff top locations on the adjacent properties creating a fairly "smooth" bluff top edge in the general area of the subject site. Edgewater Way and Mohawk Road are existing in the photos. Landsliding was observed west of the site.

The 1938 photographs reveal the first evidence of sliding on the site with a "pull away" scarp located about 50 to 75 feet landward of the bluff top location. Erosion/bluff top retreat had also moved the bluff top landward along the east property line about 20 feet from the 1928 photo location.

The 1947 photographs indicate a headscarp at the 1938 "pull away" scarp location that was possibly 1/3 to 1/2 of the height of the sea cliff. The base of the seacliff appears to have been pushed seaward by the landsliding to a distance of about 30 to 40 feet.

The 1954 photographs give the first indication of a small erosional ditch/channel crossing the slope from the southwest corner of the intersection of Edgewater Way and Mohawk Road. The 2305 Edgewater Way residence is visible, but the 2305 Edgewater Way guest house and 2215 Edgewater Way residence are not.

The 1956 photographs reveal the areas of landslide are being covered by artificial fill in a possible rebuilding process.

The 1959 photographs indicate a re-activation of the artificial fill covered landslide with a southward extension of the toe of slope at the beach. The 2305 Edgewater Way carport are visible.

The 1962 photographs indicate a moderately well-defined slump block with a back-tilted surface at the bluff top. Above this slump block is an apparent erosion scar that narrows to the southwest corner of Edgewater Way and Mohawk Road suggesting a water source flowing into the landslide area.

The 1964, 1965, and 1966 photographs indicate no evidence of recent landsliding.

The 1969 photographs are slightly over-exposed and do not clearly indicate the existing structures.

The 1970 photographs have poor to fair clarity that permits only the recognition of the 2305 Main Residence. No other structures were visible, but they should be existing based on review of previous photographs.

The 1972 photographs have poor resolution and do not clearly indicate the existing structures.

The 1975 photographs indicate reactivation of slide/fill materials in the canyon below the currently designated bluff top edge.

The 1976 photographs do not indicate any changes from the 1975 photographs.

The 1977 photographs indicate a debris flow scar over the slide/fill materials in canyon below the currently designated bluff top edge.

The 1983 photographs indicates a headscarp formation below the currently designated bluff top edge.

The 1986 and 1989 photographs indicate the construction of the 2305 Edgewater Way guest house. No additional landsliding is observed.

The 1992 photographs reveal the top of bluff located as currently designated on the attached Site Plan/Geologic Map. It appears that the previously placed artificial fill has been incised by water flow from the neighborhood. The base of the seacliff is slightly pushed out seaward.

The 1995 photographs indicate no changes from previous photographs.

The 1997 and 2001 photographs indicate the construction of the 2215 Edgewater Way Residence.

The 2003 photographs reveal a reactivation of the landsliding suggested by the base of the seacliff extending out seaward by about 5 feet.

The 2005 photographs reveal significant reactivation of landsliding in the form of mudflows south of the subject property with fresh exposures of bedrock on the slope below the currently designated bluff top edge.

An oblique aerial photograph (obtained from the website for the California Coastal Records Project) taken of the site is attached in Appendix A.

A City of Santa Barbara storm drain inlet was installed at the southwest corner of the intersection of Edgewater Way and Mohawk Road. This drain appears fairly large and should accommodate most of the tract runoff water that flows into this area. Therefore, the site should be fairly protected from additional water flow onto the site which should minimize the potential for erosional problems that have occurred in the past.

#### CALCULATION OF SEACLIFF RETREAT SETBACK LINE

The City of Santa Barbara Coastal Plan addresses seacliff retreat by presenting a formula to define a seacliff setback line for new construction. The intent of using the formula is defined as "*New development on the top of the cliff shall be placed at such a distance away from the edge of the cliff that normal rates of erosion and cliff material loss will not seriously affect the structure during its expected lifetime*". The formula is as follows:

$$\text{Setback} = \frac{\text{height of the shale seacliff}}{\text{tangent of dip}} + (\text{thickness of terrace}) (2) + (8"/\text{yr}) (75 \text{ yrs})$$

The City Indicates "*This formula assumes that unsupported bedding planes are unstable, the average rate of seacliff retreat is eight inches per year, terrace deposits (soil material deposited on top of shale) stabilizes at a 2 (H) : 1 (V), and the design of life of project is 75 years. This setback line is only a preliminary line and must be verified on a site specific investigation of the property in question by a registered geologist*".

The City-formula assumes that an erosion rate of 8 inches should be used unless a site specific study is performed to determine actual erosion retreat rates. For the subject site, the erosional retreat rates for the were determined based on interpretations and measurements from the previously discussed aerial photograph review. The retreat rates were calculated to be 9.6 inches per year on the west side of the lot and 6.9 inches per year on the east side of the site.

The bedrock bedding planes exposed on the slope face below the designated bluff top do not daylight on the slope face and are, therefore, supported. The tangent of the dip in the City's setback formula should not apply to the site.

No terrace deposits are exposed in the slope below the designated bluff top nor encountered in the test pits and borings located just above the bluff top. Therefore, the thickness of terrace deposits was not included in the setback calculation.

The City setback formula applied to the subject site is as follows:

$$\text{Setback} = \frac{94.5 \text{ ft.} + (0) (2)}{\tan (0^\circ)} + \frac{(9.6 \text{ in./yr}) (75 \text{ yrs})}{12 \text{ in./1 ft.}} = 60 \text{ feet (west side of the lot)}$$

$$\text{Setback} = \frac{94.5 \text{ ft.} + (0) (2)}{\tan (0^\circ)} + \frac{(6.9 \text{ in./yr}) (75 \text{ yrs})}{12 \text{ in./1 ft.}} = 44 \text{ feet (east side of the lot)}$$

Although, this site specific erosional retreat analyses was performed, it is anticipated that the bluff retreat should be less than calculated based on: 1) the installation of a drain inlet at the southwest corner of the paved intersection of Edgewater Way and Mohawk Road (this drain should eliminate the previous drainage of the adjacent residential tract surface water from flowing across the site during rain events which caused erosion and saturated conditions that probably triggered the previous landslides), 2) the exposure of non-daylighted hard bedrock units on the slope below the current bluff top, and 3) the reduction of the overall slope gradient from the bluff top edge to the toe of slope near the beach elevation. In lieu of estimating a lower retreat rate, the lowest rate (6.9 inches per year) encountered on-site should be used to provide the 75-year setback. This setback is plotted on the attached Site Plan / Geologic Map. We have supplemented the setback calculation with the following slope stability analyses.

## SLOPE ANALYSES

One geologic cross-section was constructed through the existing site for use in slope stability analyses (see Site Plan / Geologic Map in Appendix A). This section is considered the critical sections for topography along the subject slope.

The "across bedding" and "along bedding" strengths for the Monterey Formation bedrock used in the slope stability calculations were based on linear regressions of the peak, ultimate, and residual shear strength data obtained by this office from direct shear testing on relatively undisturbed samples taken from within the bedrock units. See the attached Composite Shear Strength Diagrams in Appendix B. Density data were based on the results of moisture/density tests.

The residual angles of internal friction ( $32.5^\circ$  and  $34.2^\circ$ ) from linear regressions used in the analyses compared well to Stark, Choi and McCone (see attached Secant Residual Friction Angle Relationships with Liquid Limit, Clay-Size Fraction, and Effective Normal Stress, 2005 in Appendix B) using liquid limits of 80 and 88, and clay fractions of 50.1% and 20.2%, respectively, for samples taken from BA-2 at 10 and 15 feet below the existing grade.

The slope at the subject site was analyzed using the SLOPE/W program for circular-type and block-type failures. Analyses were performed for static and seismic stability for Cross-Section 1. In each analysis, 5,000 to 10,000 trial failure surfaces were created either from radius points above the ground surface or through rectangular grids to search for the minimum factors of safety. Failures were analyzed using the Morgenstern-Price Method.

For static conditions, the minimum factors of safety of the slope depicted in Cross Section 1 was found to be 1.709 for rotational-type failures, and 1.523 for block-type failures. For seismic conditions, the minimum factors of safety of the slope depicted in Cross Section 1 was found to be 1.249 for rotational-type failures, and 1.539 for block-type failures. Acceptable minimum factors of safety in general are typically considered to be 1.5 for static conditions and 1.1 for seismic conditions. All cases meet the minimum factor of safety.

Plots of the slopes showing the failure surfaces and minimum factors of safety are in Appendix C.

## CONCLUSIONS AND RECOMMENDATIONS

Based on aerial photograph reviews, site mapping, field exploration, and analyses; it is evident that the sea cliff erosion/landsliding is active in the area located between the currently designated top of bluff and the toe of the seacliff at the beach elevation. The area above the currently designated bluff top edge has been effected by past erosion and grading, but is currently underlain by relatively shallow Monterey Formation bedrock. The result from calculating the seacliff 75-year setback using the City's formula are at a distance of 44 feet from the designated bluff top. The existing structures lie outside of the 75-year retreat line. A supplemental slope stability analyses was performed to verify global stability of the site. The slope stability analyses indicate the existing structures are within zones of acceptable factors of safety.

In order to minimize the potential for rapid additional erosion/landsliding, the following recommendations should be implemented at the subject property. Drought tolerant landscaping with minimal water needs should be planted in the backyard areas of the residences along the bluff top, and irrigation should be ceased when plants are established. Site surface drainage should be controlled by area drains in order to minimize the potential for erosion due to water run-off over the bluff face. The intent of these recommendations is to maintain the current bluff top retreat rate instead of increasing the rate by adding additional surcharge to the bluff edge. An increased rate could lead to bluff top proximity problems with the existing structures.

## LIMITATIONS AND UNIFORMITY OF CONDITIONS

The scope of our 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 logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of our 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 be due to 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 one year.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to insure 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 Engineering Geologists and Geotechnical Engineers for this project, Earth System Southern California has striven to provide our 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 John Sharratt and his authorized agents.

## **APPENDIX A**

Field Study

Vicinity Map

Oblique Site Image

Regional Geology Map (Dibblee, 1986)

Geology Map-2002 (USGS, Minor et al, 2002)

Geology Map (Gurrola, 2004)

Landslide Hazard Map (CDMG, 1999)

Site Plan / Geologic Map

Boring Logs

Test Pit Logs

Symbols Commonly Used on Boring Logs

Unified Soil Classification

## FIELD STUDY

- A. On October 4, 2006, four test pits were hand excavated on the northern portion of the site in order to observe the soil/bedrock profile and to obtain samples for laboratory analysis. The test pits ranged in depth from 3.5 to 7 feet below the existing grade and were logged by a staff geologist (see Appendix A). The approximate locations of the test pits were determined in the field by pacing and sighting, and are shown on the Site Plan / Geologic Map in this Appendix.
- B. From March 12, 2007 to April 17, 2007, three 24-inch diameter bucket auger borings were drilled on the northern portion of the site to observe the soil/bedrock profile and to obtain samples for laboratory analysis. The borings ranged in depth from 34 to 40 feet below the existing grade. The bucket auger borings were drilled by a track-mounted rig, and were down-hole logged by a geologist. The approximate locations of the bucket auger borings were determined in the field by pacing and sighting, and are shown on the Site Plan / Geologic Map in this Appendix.
- C. Samples were obtained within the test pits 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 2.37-inch inside diameter. The samples were obtained in the test pits by driving the sampler with the kelly bar
- D. Bulk samples of the soils encountered were gathered from the test pit/boring cuttings.
- E. The final logs of the test pits/borings represent our interpretation 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.

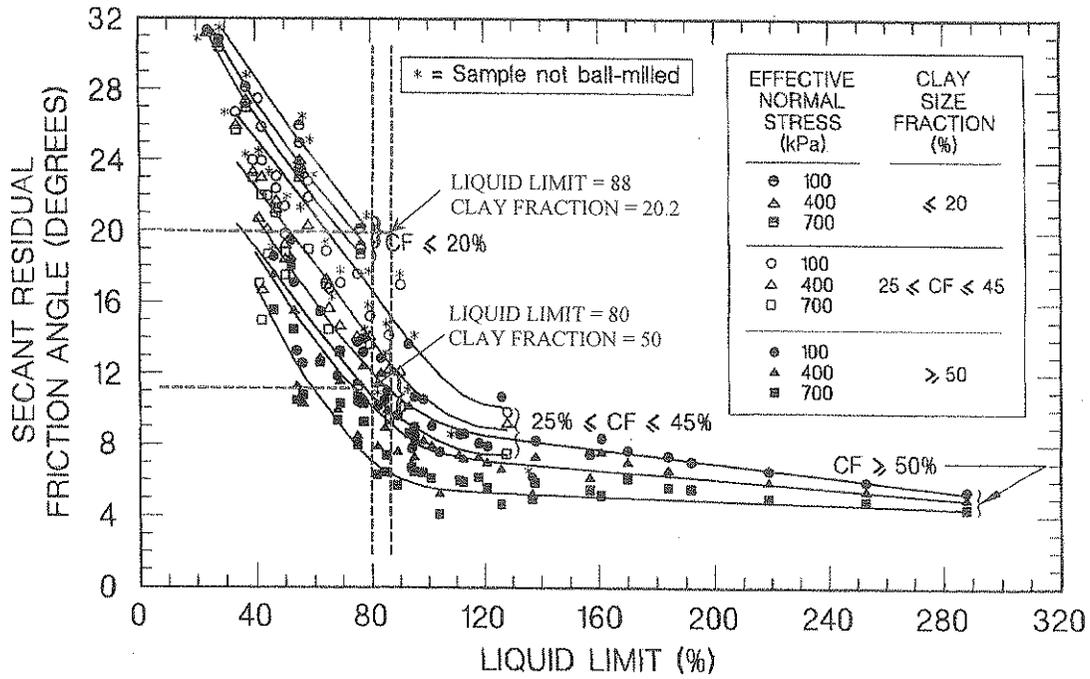


Fig. 2. Secant residual friction angle relationships with liquid limit, clay-size fraction, and effective normal stress

FROM STARK, CHOI, AND McCONE, 2005

## CORRELATION CHART

2215 & 2305 EDGEWATER WAY  
SANTA BARBARA, CALIFORNIA



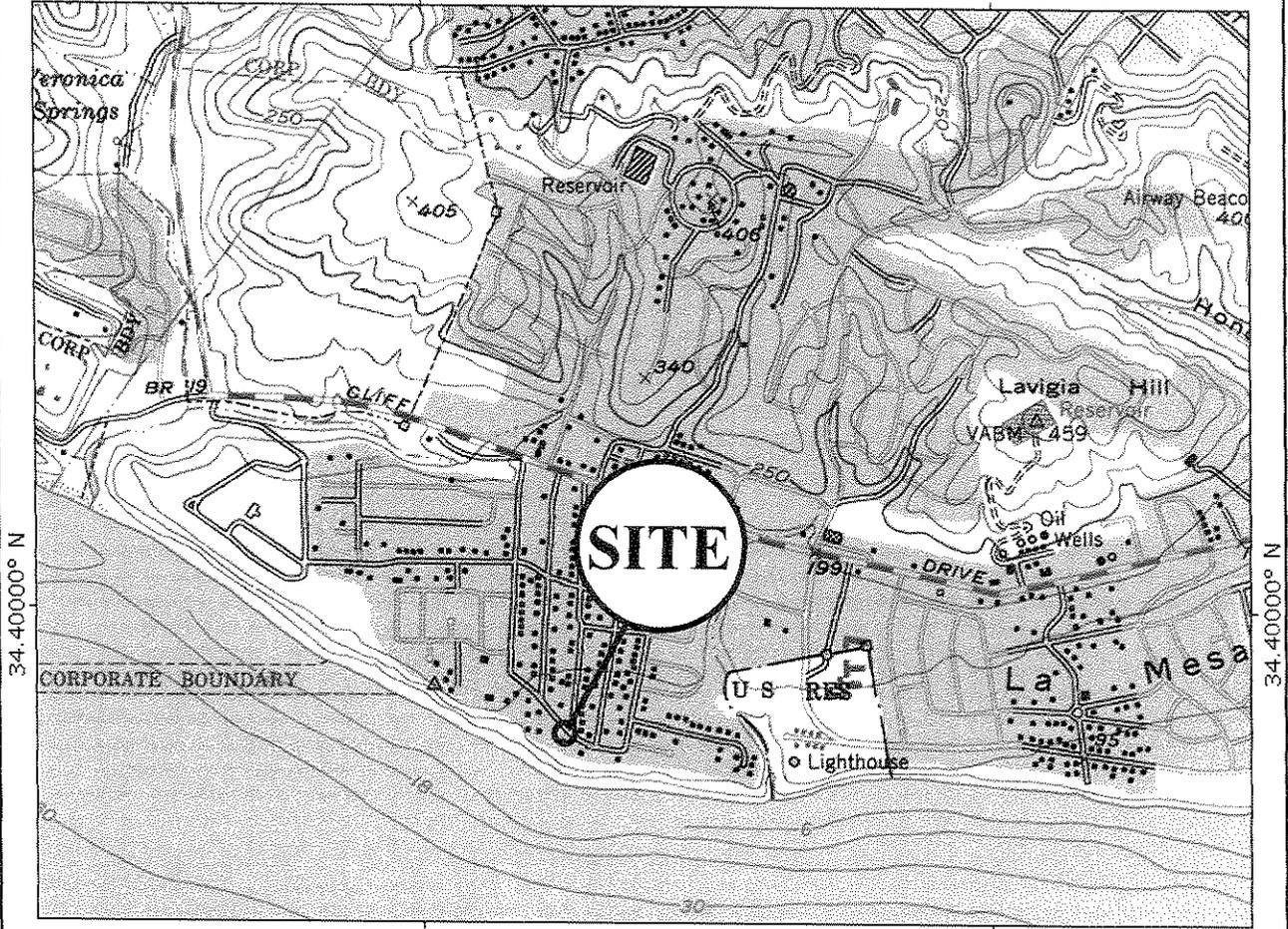
**Earth Systems**  
**Southern California**

JANUARY 2008

VT-23780-01

119.73333° W

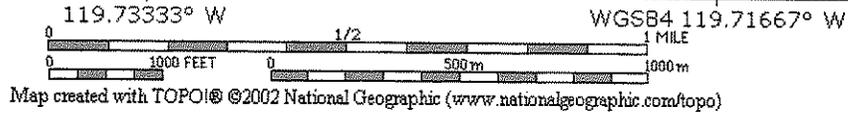
WGS84 119.71667° W



34.40000° N

34.40000° N

TN 14° MN



Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)



### VICINITY MAP

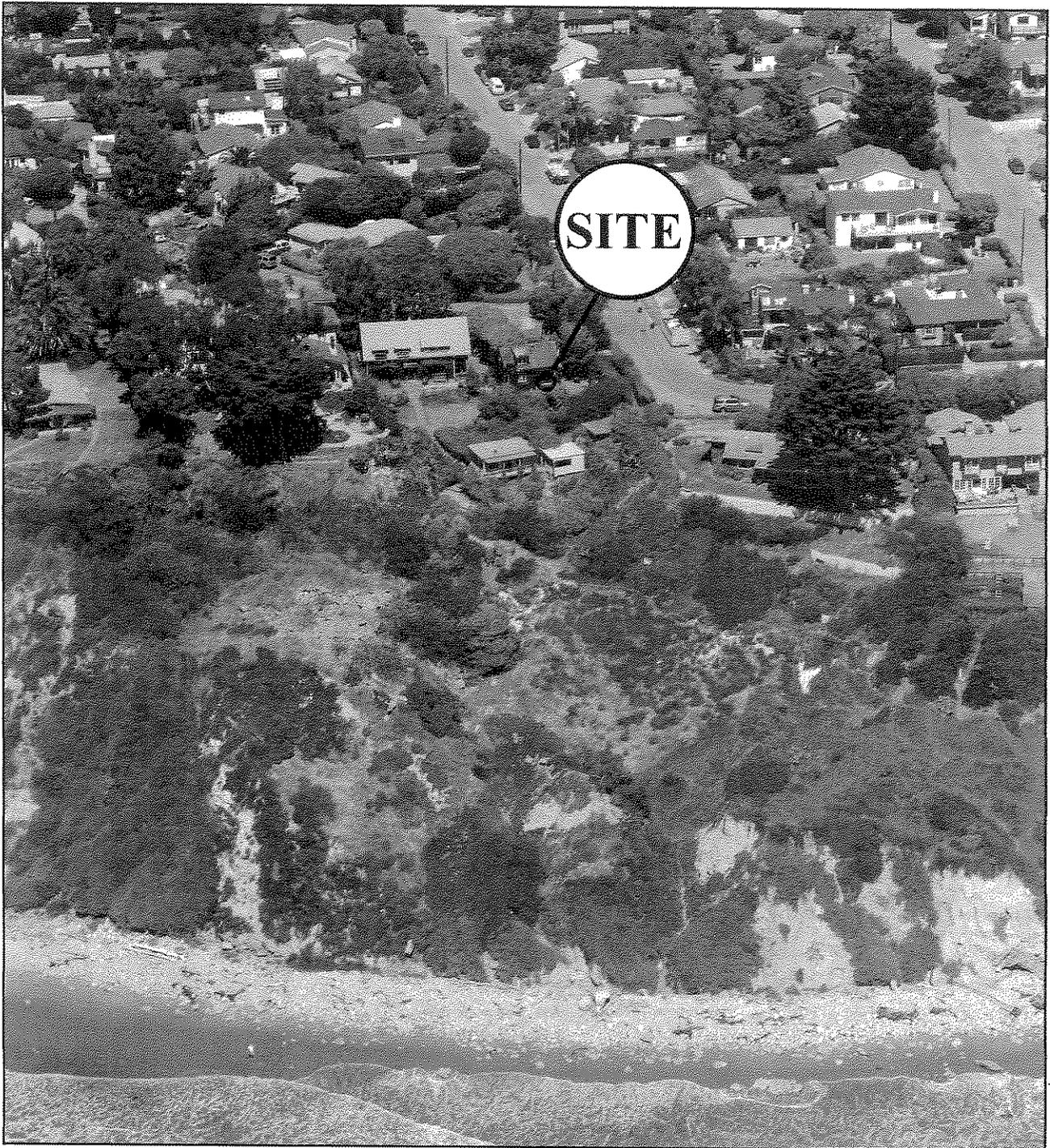
2215 & 2305 EDGEWATER WAY  
SANTA BARBARA, CALIFORNIA



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**Southern California**

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VT-23780-01



**OBLIQUE SITE IMAGE**

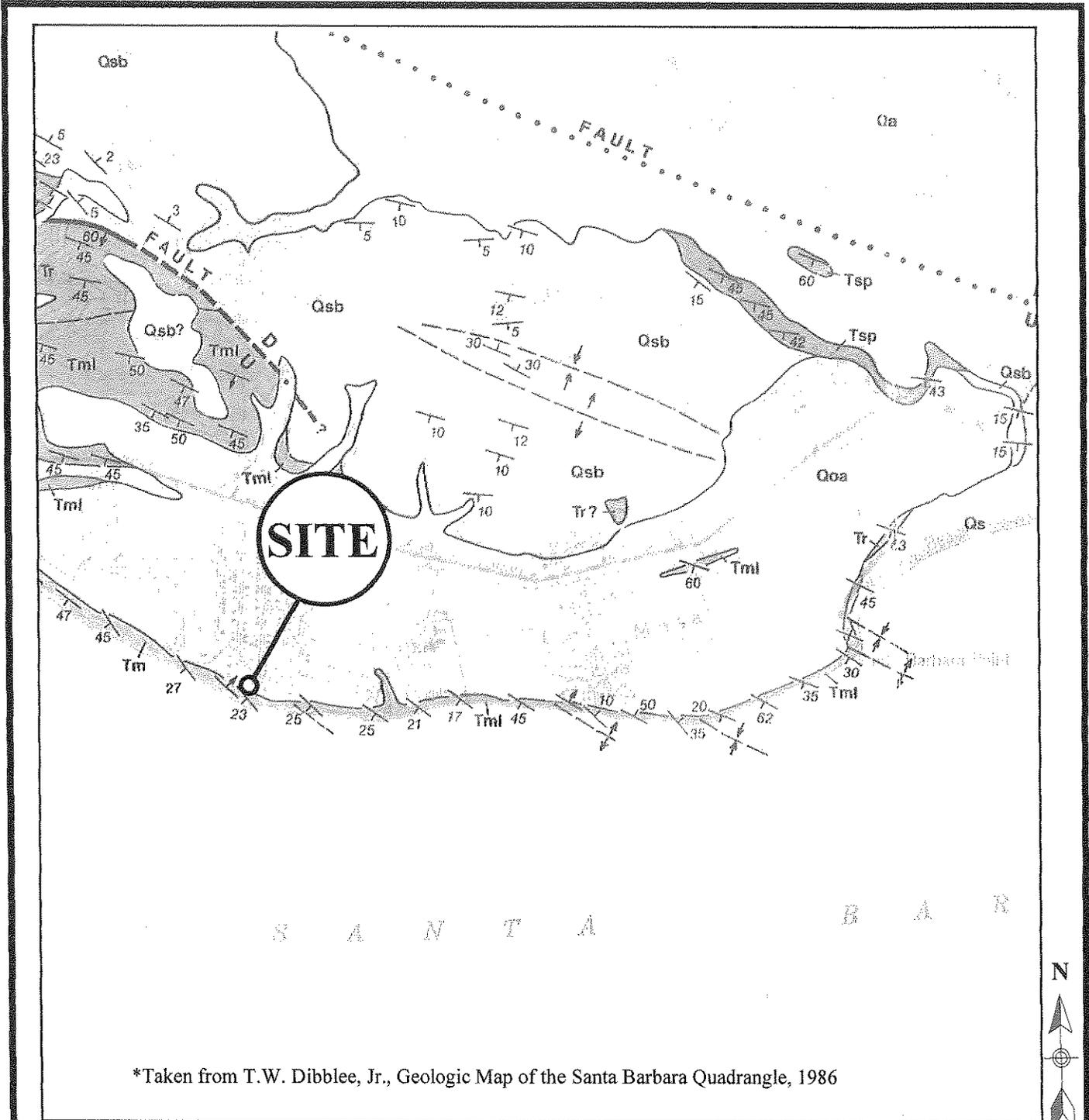
**2215 & 2305 EDGEWATER WAY  
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\*Taken from T.W. Dibblee, Jr., Geologic Map of the Santa Barbara Quadrangle, 1986

## REGIONAL GEOLOGY MAP

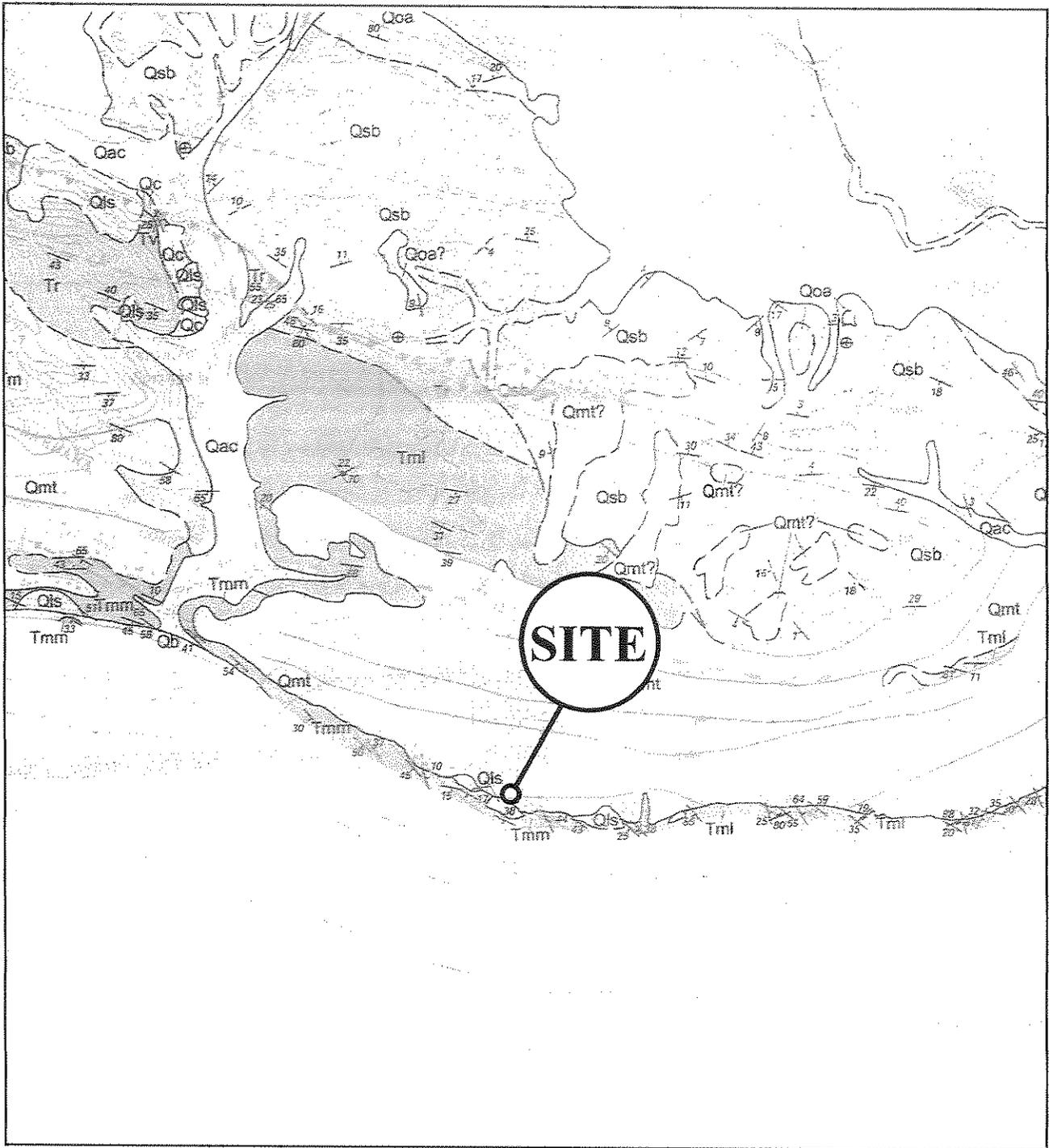
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\*Taken from S.A.Minor and other, Preliminary Geologic Map of the Santa Barbara Coastal Plain Area, 2002

## GEOLOGY MAP-2002

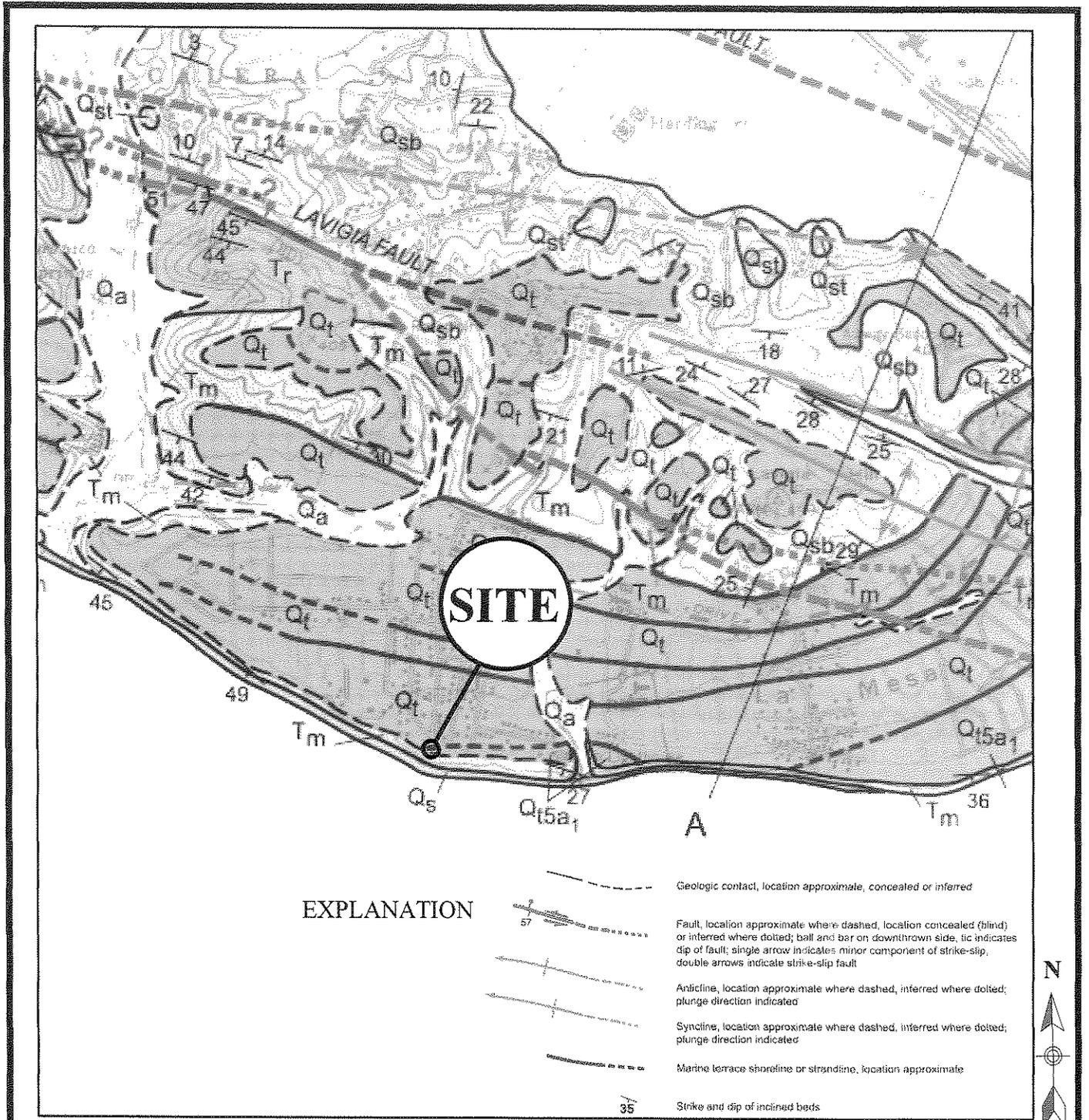
2215 & 2305 EDGEWATER WAY  
SANTA BARBARA, CALIFORNIA



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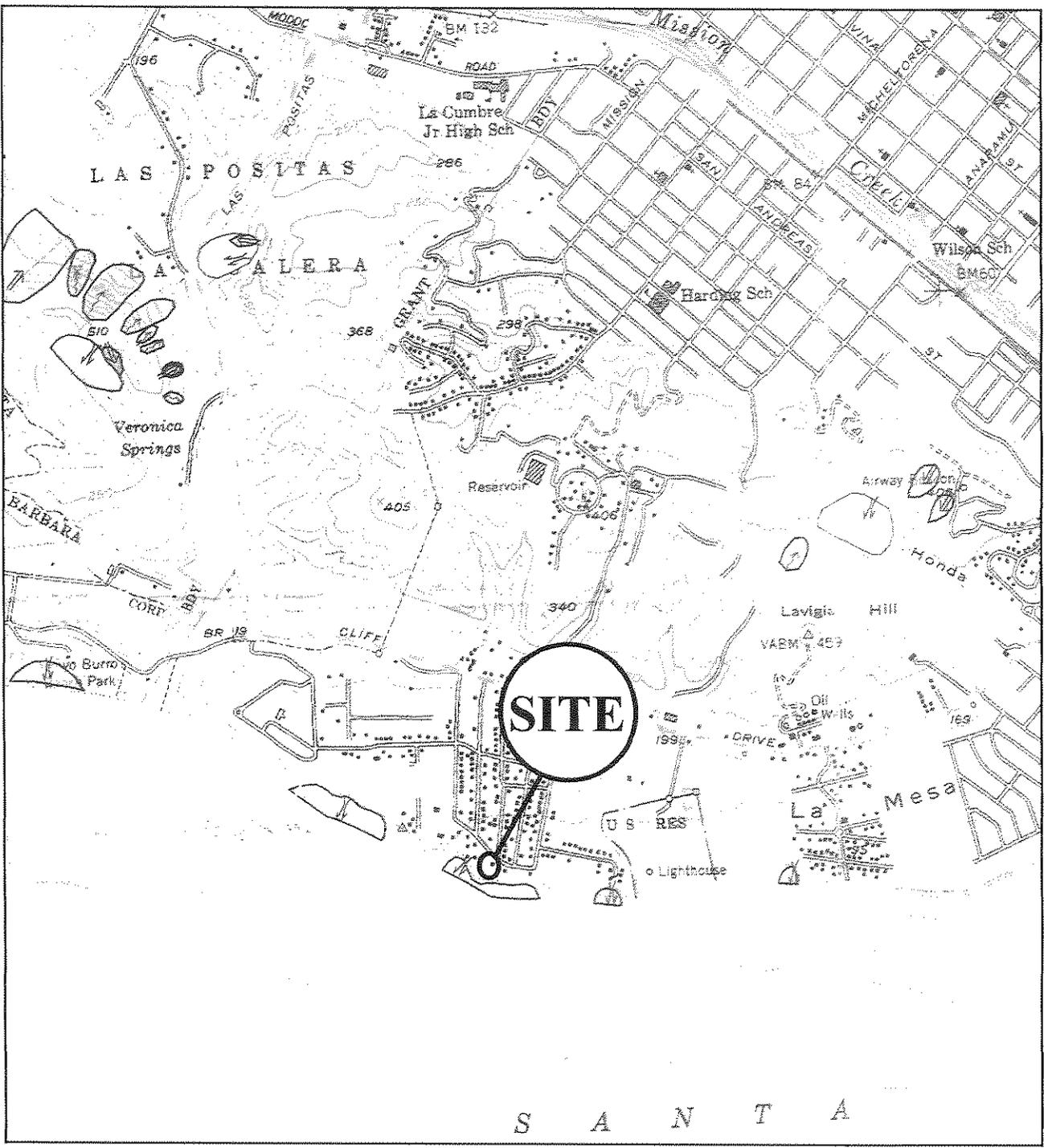
February, 2008

VT-23780-01



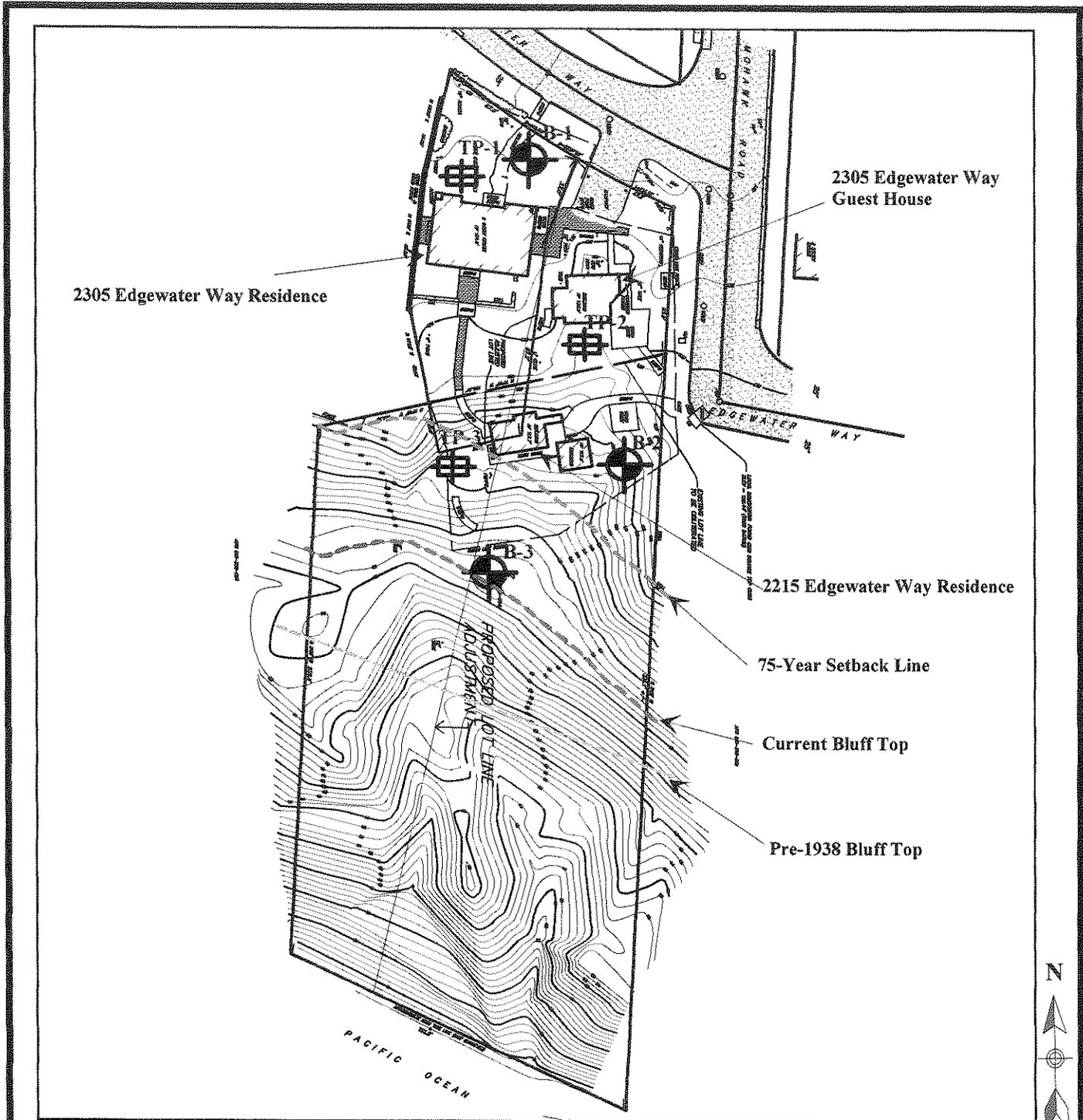
\*Taken from Larry D. Gurrola Geologic Map of the Western Santa Barbara Fold Belt, Santa Barbara, 2004

<b>GEOLOGY MAP</b>	
2215 & 2305 EDGEWATER WAY SANTA BARBARA, CALIFORNIA	
 <b>Earth Systems</b> <b>Southern California</b>	
February, 2008	VT-23780-01



\*Taken from S. Bezore and C.J. Wills Landslide Inventory Map of the Southeastern Santa Barbara County, California, 2000

<b>LANDSLIDE HAZARD MAP</b>	
2215 & 2305 EDGEWATER WAY SANTA BARBARA, CALIFORNIA	
	<b>Earth Systems</b> <b>Southern California</b>
February, 2008	VT-23780-01



-  Boring Location
-  Test Pit Location
- Tm** Monterey Formation bedrock
- QLS** Landslide Deposits

50 Feet



<b>SITE PLAN / GEOLOGIC MAP</b>	
2215 & 2305 EDGEWATER WAY SANTA BARBARA, CALIFORNIA	
 <b>Earth Systems</b> <b>Southern California</b>	
February, 2008	VT-23780-01



<b>BORING NO: BA-1</b> PROJECT NAME: 2215 and 2305 Edgewater Way PROJECT NUMBER: VT-23780-01 BORING LOCATION: Per Plan	DRILLING DATE: April 12, 2007 DRILL RIG: Terra Firma DRILLING METHOD: 24" Bucket Auger LOGGED BY: Larry Gurrola
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Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0					ML				ARTIFICIAL FILL: Silt, some fine roots, flat contact at 1.25' to marine terrace, slightly moist, medium stiff to stiff, pale grayish brown.
5					SM				MARINE TERRACE DEPOSITS: Slightly silty medium to coarse sand, reddish brown. Planar contact to bedrock.
10					Tm CL				MONTEREY FORMATION: Shale, extremely weathered into silty clay, moist to locally wet, soft to medium stiff, gray. At 8' N88E/10SE.
15					Tm				MONTEREY FORMATION: Shale, thinly bedded to laminated, N86E/10SE, fracture set at N9W/90 and N56W/90, 1/16" to 1/8" wide fractures filled with asphaltum and clayey silt, soft to medium stiff, brown to pale reddish brown.
20					Tm				At 22.5' E-W/12S
25					Tm				MONTEREY FORMATION: Alternating diatomite, diatomaceous shale, highly weathered into clayey silt, laminated to bedded, slightly moist, hard. Bedding N83W/13SW.
30					Tm				MONTEREY FORMATION: Shale, siliceous cementation, hard to very hard, black interbedded with diatomaceous shale, medium stiff, pale grayish brown. At 31' N74E/14SW, laminae bedding, 1/4" fractures with cemented silt, fractures at N63E/38S with calcium carbonate. At 34' N77W/11SW.
35					Tm				Final Depth: 40.0 feet Groundwater was not encountered. 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.



BORING NO: BA-2				DRILLING DATE: March 12, 2007 & April 13, 2007					
PROJECT NAME: 2215 and 2305 Edgewater Way				DRILL RIG: Bar-Bell Drilling & Terra Firma					
PROJECT NUMBER: VT-23780-01				DRILLING METHOD: 24" Bucket Auger					
BORING LOCATION: Per Plan				LOGGED BY: Larry Gurrola					
Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0						Cl			ARTIFICIAL FILL: Slightly gravelly cobbly silty clay, moist to wet, medium stiff to stiff, soft to very soft locally, brown.
5						Tm	103.4	20.9	MONTEREY FORMATION: Shale, extremely weathered, weathers into clayey silt, N64W/12SW laminae, medium stiff to stiff. 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.
25						Tm			MONTEREY FORMATION: Alternating shale, black and calcareous shale, pale gray, bedded, moist, hard, bedding N86E/13SE, minor mud shale, moist, very stiff, brown.
30						Tm	60.6	48.3	MONTEREY FORMATION: Massive shale, asphaltum in pores, black. At 30' extremely hard shale with asphaltum, very strong siliceous cementation, black.
35						Tm	66.7	41.1	
									Final Depth: 34.0 feet Groundwater was not encountered. Boring backfilled with cuttings.

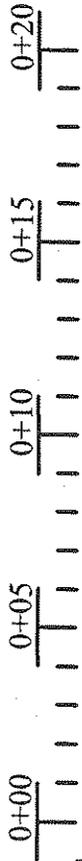
Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.



<b>BORING NO:</b> BA-3	<b>DRILLING DATE:</b> April 17, 2007
<b>PROJECT NAME:</b> 2215 and 2305 Edgewater Way	<b>DRILL RIG:</b> Bar-Bell Drilling & Terra Firma
<b>PROJECT NUMBER:</b> VT-23780-01	<b>DRILLING METHOD:</b> 24" Bucket Auger
<b>BORING LOCATION:</b> Per Plan	<b>LOGGED BY:</b> Larry Gurrola

Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0						Tm GM			MONTEREY FORMATION: Shale, highly weathered into silty gravel, laminated, pale olive.
5						Tm			MONTEREY FORMATION: Asphaltum shale, bedded at N62W/36SW, weathers into silty gravel, slightly moist, hard, black.
10									At 9' Bedding of N57W/38SW
15									At 15.5' N55W/40SW, becomes harder.
20									At 22.5' N72W/40SW, very hard.
25						Tm			MONTEREY FORMATION: Silty shale (mud shale) with asphaltum, massive, occasionally laminated, very hard to extremely hard, 1/16" to 1/8" fractures at N45E/52NW, black. At 26' gravelly clay, wet from seep, N60W/40SW.
30									
35									Final Depth: 39.0 feet Groundwater encountered at 35.0 feet. 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.



TREND: N5W  
WEST FACE

**DESCRIPTIONS**

1. **ARTIFICIAL FILL (SM):** Very silty fine sand, trace roots, slightly moist, medium dense to dense, moderate brown.
2. **TERRACE DEPOSITS (SM):** Silty fine to medium sand, dry, dense, moderate gray to reddish brown.
3. **MONTEREY FORMATION (Tm):** Shale clasts in a clayey silt matrix transitioning into highly to moderately weathered diatomaceous shale at 6.0', friable to weak competency, moist, pale brown to white.

FINAL DEPTH: 7.0 FEET  
BULK SAMPLE TAKEN FROM 0-5 FEET

RING SAMPLE @ 1.0 FOOT: IN-PLACE DENSITY= 113.6 pcf; IN-PLACE MOISTURE= 6.7%  
 RING SAMPLE @ 3.0 FEET: IN-PLACE DENSITY= 109.5 pcf; IN-PLACE MOISTURE= 5.4%  
 RING SAMPLE @ 5.0 FEET: IN-PLACE DENSITY= 103.3 pcf; IN-PLACE MOISTURE= 17.2%  
 RING SAMPLE @ 6.5 FEET: IN-PLACE DENSITY= 54.4 pcf; IN-PLACE MOISTURE= 61.1%



**EARTH SYSTEMS  
SOUTHERN CALIFORNIA**

SCALE: 1" = 5' ( VERTICAL & HORIZONTAL)

**TEST PIT #1**

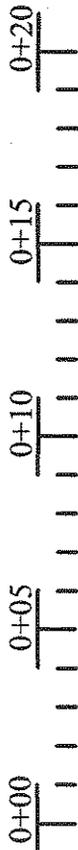
2215 & 2305 Edgewater Way

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Phone: 805-642-6727 Fax: 805-642-1325

Oct. 4, 2006

VT-23780-01



TREND: N72W  
NORHT FACE

**DESCRIPTIONS**

1. **ARTIFICIAL FILL (SM):** Very silty sand, trace gravel, many large pieces of concrete up to 3.5' in diameter, dry, loose to medium dense, moderate brown to dark brown.
2. **MONTEREY FORMATION (Tm):** Diatomaceous shale, highly weathered, friable to weak competency, dry, white to pale brown.

— FINAL DEPTH: 5.5 FEET  
 — BULK SAMPLE TAKEN FROM 0-4 FEET

RING SAMPLE @ 1.0 FOOT: IN-PLACE DENSITY= 78.4 pcf; IN-PLACE MOISTURE= 19.0%  
 RING SAMPLE @ 3.0 FEET: IN-PLACE DENSITY= 75.0 pcf; IN-PLACE MOISTURE= 20.7%  
 RING SAMPLE @ 4.0 FEET: IN-PLACE DENSITY= 74.7 pcf; IN-PLACE MOISTURE= 21.4%  
 RING SAMPLE @ 5.0 FEET: IN-PLACE DENSITY= 59.5 pcf; IN-PLACE MOISTURE= 34.2%



**EARTH SYSTEMS  
SOUTHERN CALIFORNIA**

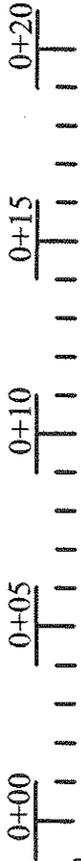
1731-A Walter Street, Ventura, CA. 93003  
 Phone: 805-642-6727 Fax: 805-642-1325

**TEST PIT #2**  
 2215 & 2305 Edgewater Way

SCALE: 1" = 5' ( VERTICAL & HORIZONTAL)

Oct. 4, 2006

VT-23780-01



**DESCRIPTIONS**

1. **ARTIFICIAL FILL (SM/GM):** Silty sand with gravel and debris (concrete up to 4" in diameter and asphalt layer about 3" thick at about 2' down), some clasts of shale up to 2" in diameter, dry, medium dense to loose, moderate brown to dark brown.
2. **MONTEREY FORMATION (Tm):** Diatomaceous shale, moderately weathered, weak to moderately strong competency, dry, hard to very hard, light gray to pale brown.

FINAL DEPTH: 3.5 FEET  
 BULK SAMPLE TAKEN FROM 2.5-3.5 FEET

RING SAMPLE @ 1.0 FOOT: IN-PLACE DENSITY= 95.2 pcf; IN-PLACE MOISTURE= 5.1%  
 RING SAMPLE @ 3.0 FEET: IN-PLACE DENSITY= 61.1 pcf; IN-PLACE MOISTURE= 36.6%



**EARTH SYSTEMS  
 SOUTHERN CALIFORNIA**

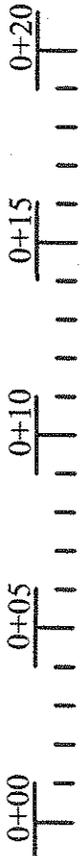
1731-A Walter Street, Ventura, CA. 93003  
 Phone: 805-642-6727 Fax: 805-642-1325

**TEST PIT #3**  
 2215 & 2305 Edgewater Way

SCALE: 1" = 5' ( VERTICAL & HORIZONTAL)

Oct. 4, 2006

VT-23780-01



**DESCRIPTIONS**

1. SOIL (SM): Silty fine to coarse sand with clasts of weathered shale, trace organics, dry, loose, moderate to dark reddish brown.
2. MONTEREY FORMATION (Tm): Diatomaceous shale, highly weathered, friable, platy, dry, hard, moderate brown.

RING SAMPLE @ 1.0 FOOT: IN-PLACE DENSITY= 75.1 pcf, IN-PLACE MOISTURE= 21.2%



**EARTH SYSTEMS  
SOUTHERN CALIFORNIA**

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**TEST PIT #4**

2215 & 2305 Edgewater Way

Oct. 4, 2006

VT-23780-01

SCALE: 1" = 5' ( VERTICAL & HORIZONTAL)



**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 approximate locations of borings were determined by sighting and pacing from nearby prominent topographic or cultural features. Borehole elevations were estimated by interpolating between available plan contour intervals. The location and elevation of each boring should be considered accurate only to the degree implied by this method.

2. Stratification lines represent the approximate boundary between soil and/or rock types. The transition between stratigraphic units may be gradual.

3. Water level readings taken in boreholes are approximate and apply only to the time and date of drilling. Fluctuations in the level of groundwater from the time of initial measurement may occur due to variations in rainfall, tides, barometric pressure, temperature, or other factors.



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**Symbols  
Commonly Used  
on Boring Logs**

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.



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**Unified Soil Classification System (USCS)**

## **APPENDIX B**

Laboratory Testing  
Tabulated Test Results  
Individual Test Results  
Composite Shear Test Graphs  
Stark, Choi, and McCone Graph  
Soil Chemistry Results

## LABORATORY TESTING

- A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analysis 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 unit dry weight for the ring samples were determined in general accordance with ASTM D 2937.
- C. The relative strength characteristics of the soils were determined from the results of direct shear tests on undisturbed and remolded samples. Shear specimens were placed in contact with water at least 24 hours before testing, and were then sheared under normal loads ranging from 1 to 5 kips per square foot in general accordance with ASTM D 3080.
- D. Settlement characteristics were developed from the results of one dimensional consolidation tests performed in general accordance with ASTM D 2435. The samples were incrementally loaded to 0.125, 0.25, and 0.5 ksf, then flooded with water, and then incrementally loaded to 1.0, 2.0, and 4.0 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 in the form of percent consolidation versus log of pressure curves are presented in this Appendix.
- E. An expansion index test was performed on the 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% saturation. The sample was then submerged in water for 24 hours and the amount of expansion was recorded with a dial indicator.
- F. A maximum density test was performed to estimate the moisture-density relationship of typical soil materials. The test was performed in accordance with ASTM designation D 1557.
- G. The gradation characteristics of the bulk sample was made by hydrometer (in accordance with ASTM D 422) and sieve analysis procedures. The sample was soaked in water until individual soil particles were separated and then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve and then mechanically sieved.
- H. Concrete and metal corrosion potential of the near surface soil was determined by measuring pH, resistivity, and soluble sulfate and soluble chloride contents. The tests were performed Capco Analytical.

- I. Liquid Limit testing was performed on selected samples in general accordance with ASTM 4318.

**TABULATED TEST RESULTS**

REMOLDED SAMPLE

TEST PIT AND DEPTH DESCRIPTION	TP-2 @ 0-5'	BA-2 @ 10'	BA-2 @ 15'
	Artificial Fill	Bedrock	Bedrock
SOIL TYPE	CL/SC	--	--
MAXIMUM DENSITY (pcf)	100	--	--
OPTIMUM MOISTURE (%)	19.5	--	--
PEAK COHESION (psf)	240	--	--
PEAK FRICTION ANGLE	28°	--	--
ULTIMATE COHESION (psf)	80	--	--
ULTIMATE FRICTION ANGLE	29°	--	--
EXPANSION INDEX	39	--	--
GRAIN SIZE DISTRIBUTION (%)			
GRAVEL	0.7	0.0	0
SAND	44.7	22.1	30.2
SILT	25.6	27.8	40.0
CLAY	29.0	50.1	29.7 (≤ 0.005) 20.2 (≤ 0.002)
CHLORIDE (mg/Kg)	14	--	--
pH (S.U.)	7.0	--	--
RESISTIVITY (ohms-cm)	3,650	--	--
SULFATE (mg/Kg)	120	--	--
LIQUID LIMIT	--	80	88

## TABULATED TEST RESULTS

(Continued)

### RELATIVELY UNDISTURBED SAMPLES

BORING AND DEPTH	BA-2 @ 10'	BA-2 @ 25'
SOIL/BEDROCK TYPE	Bedrock	Bedrock
IN-PLACE DENSITY (pcf)	57.2	60.6
IN-PLACE MOISTURE (%)	67.5	48.3
PEAK COHESION (psf)	170	780
PEAK ANGLE OF INTERNAL FRICTION	45°	41°
ULTIMATE COHESION (psf)	0	240
ULTIMATE ANGLE OF INTERNAL FRICTION	36°	38°
RESIDUAL COHESION (psf)	0	396
RESIDUAL ANGLE OF INTERNAL FRICTION	35°	32°

VT-23780-01

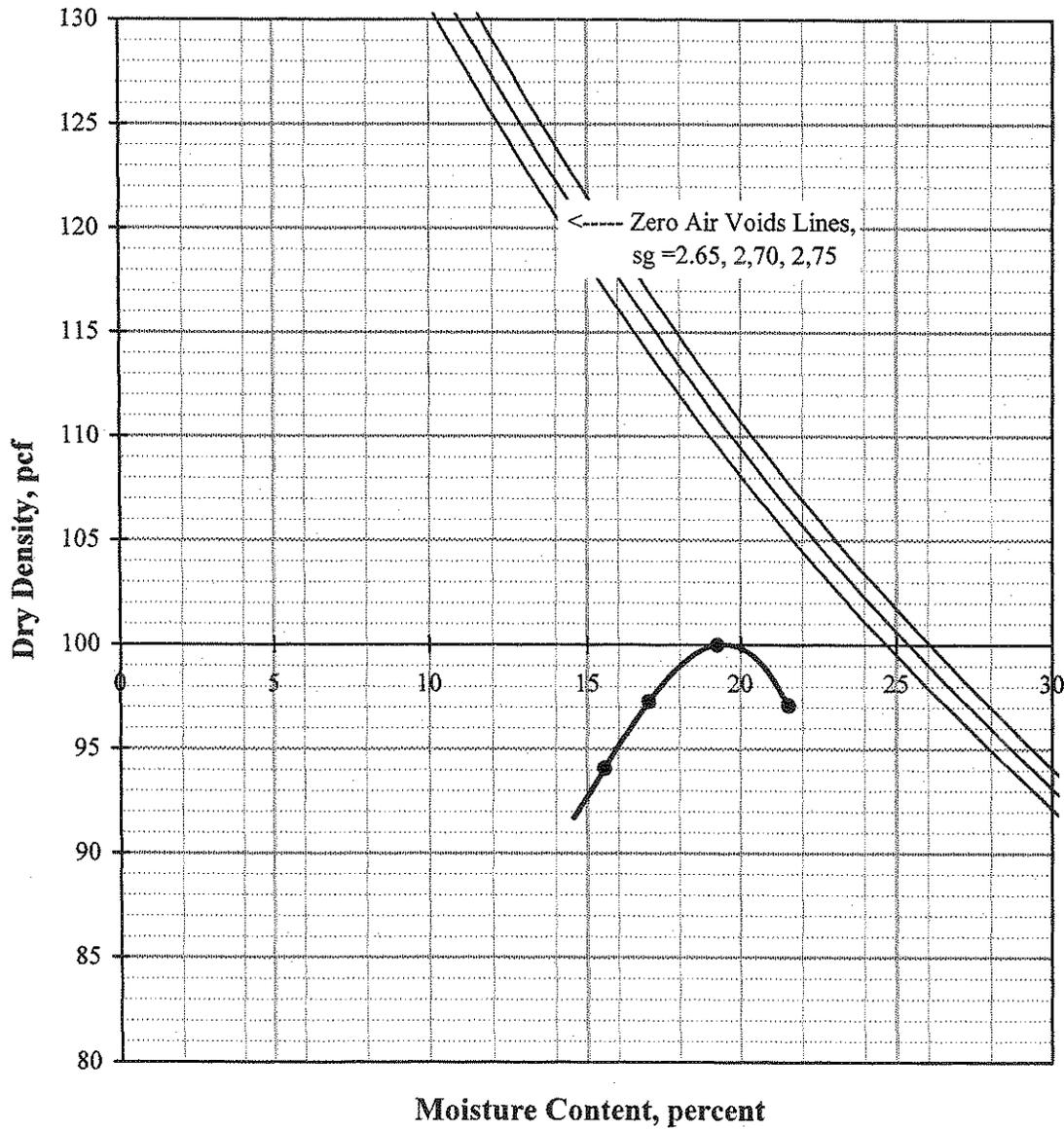
**MAXIMUM DENSITY / OPTIMUM MOISTURE**

ASTM D 1557-91 (Modified)

Job Name: 2215 & 2305 Edgewater Way  
Sample ID: T P 2 @ 0-5  
Location: 0-5  
Description: Olive Brown Sandy Silty Clay

Procedure Used: A  
Prep. Method: Moist  
Rammer Type: Automatic

<b>Maximum Density:</b>	<b>100 pcf</b>	<u>Sieve Size % Retained</u>	
<b>Optimum Moisture:</b>	<b>19.5%</b>	3/4"	0.0
		3/8"	0.0
		#4	0.7



File No.: VT-23780-01

January 0, 1900

**EXPANSION INDEX**

ASTM D-4829, UBC 18-2

Job Name: 2215 & 2305 Edgewater Way  
Sample ID: T P 2 @ 0-5  
Soil Description: SC

Initial Moisture, %: 16.5  
Initial Compacted Dry Density, pcf: 89.3  
Initial Saturation, %: 51  
Final Moisture, %: 35.1  
Volumetric Swell, %: 3.9

**Expansion Index: 39 Low**

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

## SHORT HYDRO

---

Job Name: 2215 & 2305 Edgewater Way

Job No.: VT-23780-01

Sample ID: T P 2 @ 0-5

Soil Description: SC

### Hydroscopic Moisture

Air Dry Wt, g: 100.0

Oven Dry Wt, g 98.0

% Moisture: 2.0

Air Dry Sample Wt., g: 495.8

Corrected Wt., g: 486.1

### Sieve Analysis for + #10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	0.0	0.00	100.00
3/8 inch	0.0	0.00	100.00
#4	3.5	0.71	99.29
#8	4.6	0.93	99.07
#10	4.8	0.97	99.03

Air Dry Hydro Sample Wt., g: 66.9

Corrected Wt., g: 65.6

Calculation Factor 0.6624

### Hydrometer Analysis for < #10 Material

Start time: 6:25:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	6:25:20 AM	44	22	7.8	36.2
1 hour	7:25:00 AM	27	22	7.8	19.2

% Gravel: 0.7

% Sand: 44.7

% Silt: 25.6

% Clay: 29.0

## SHORT HYDRO

---

Job Name: 2215 & 2305 Edgewater Way

Job No.: VT-23780-01

Sample ID: B A 2 @ 10

Soil Description: CL

### Hydroscopic Moisture

Air Dry Wt, g: 100.0

Oven Dry Wt, g 100.0

% Moisture: 0.0

Air Dry Sample Wt., g: 61.1

Corrected Wt., g: 61.1

### Sieve Analysis for + #10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	0.0	0.00	100.00
3/8 inch	0.0	0.00	100.00
#4	0.0	0.00	100.00
#8	0.0	0.00	100.00
#10	0.0	0.00	100.00

Air Dry Hydro Sample Wt., g: 61.1

Corrected Wt., g: 61.1

Calculation Factor 0.6110

### Hydrometer Analysis for < #10 Material

Start time: 7:40:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	7:40:20 AM	56	20	8.4	47.6
1 hour	8:40:00 AM	39	20	8.4	30.6

% Gravel: 0.0

% Sand: 22.1

% Silt: 27.8

% Clay: 50.1



**PLASTICITY INDEX**

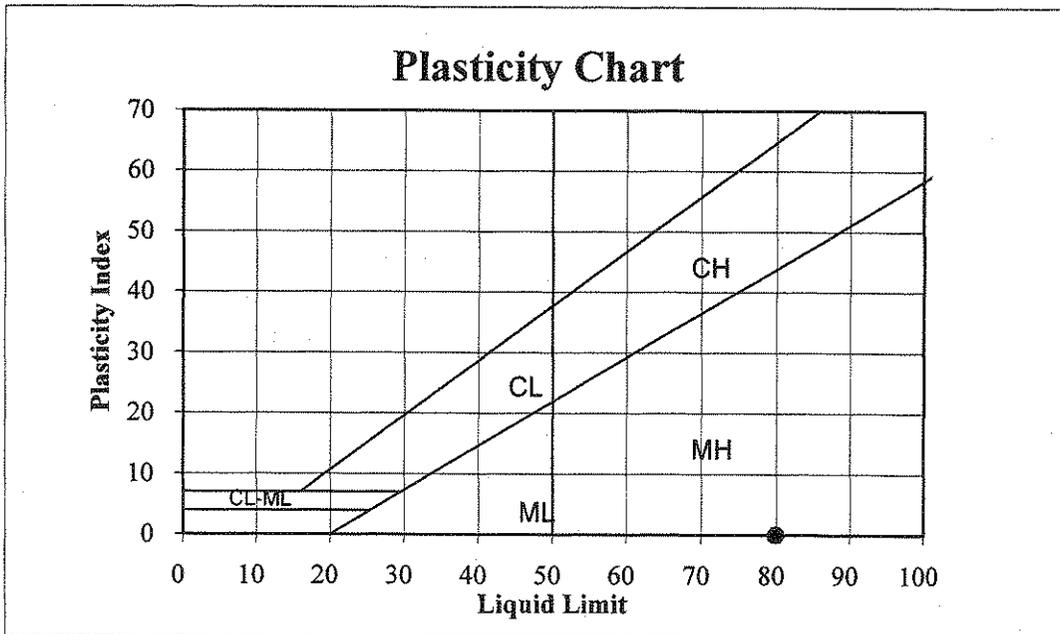
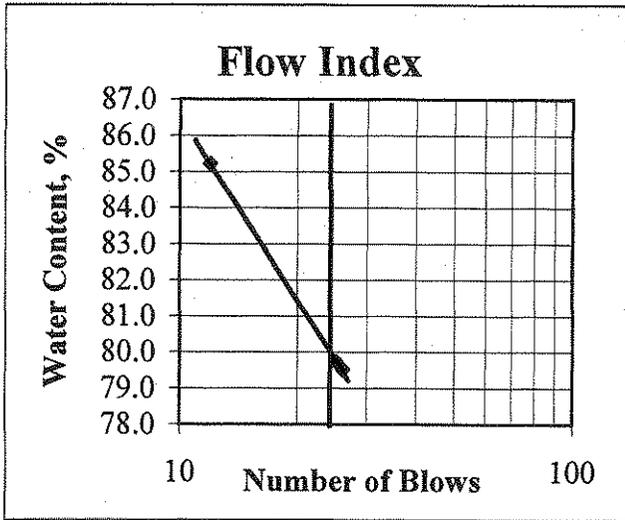
ASTM D-4318

Job Name: 2215 & 2305 Edgewater Way  
 Sample ID: B A 2 @ 10  
 Soil Description: CL/ML

**DATA SUMMARY**

**TEST RESULTS**

Number of Blows:	12	25	26	<b>LIQUID LIMIT</b>	<b>80</b>
Water Content, %	85.2	79.7	79.5	<b>PLASTIC LIMIT</b>	<b>ND</b>
Plastic Limit:	ND			<b>PLASTICITY INDEX</b>	<b>ND</b>



**PLASTICITY INDEX**

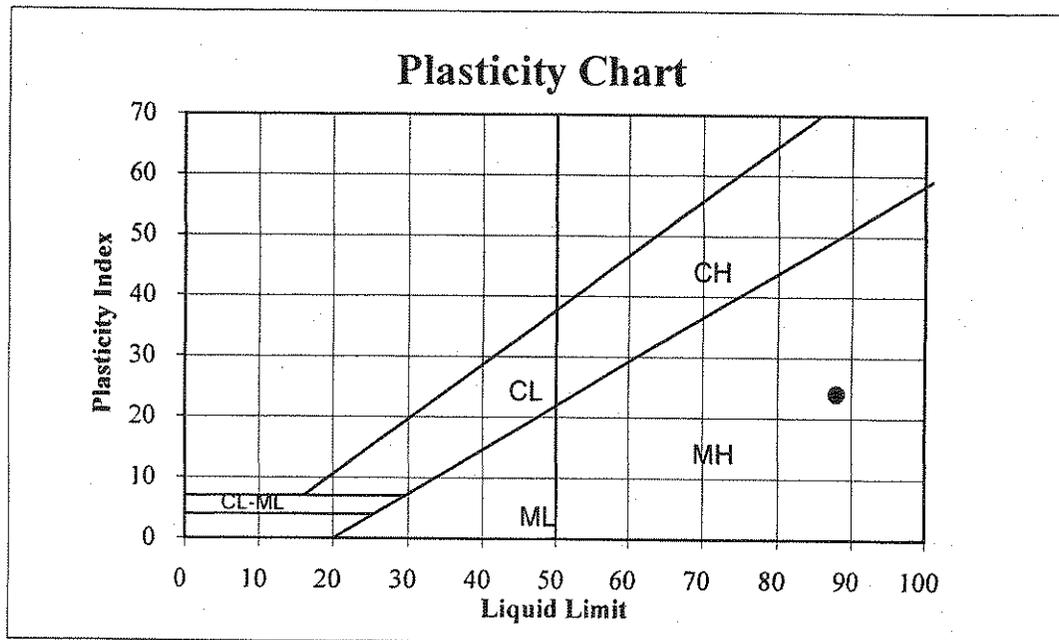
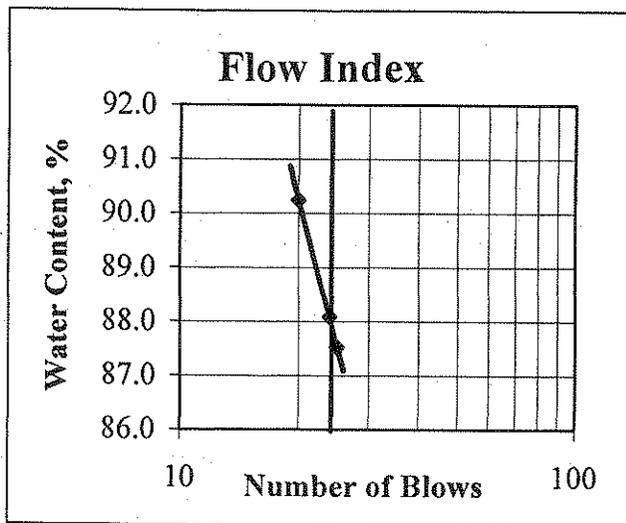
ASTM D-4318

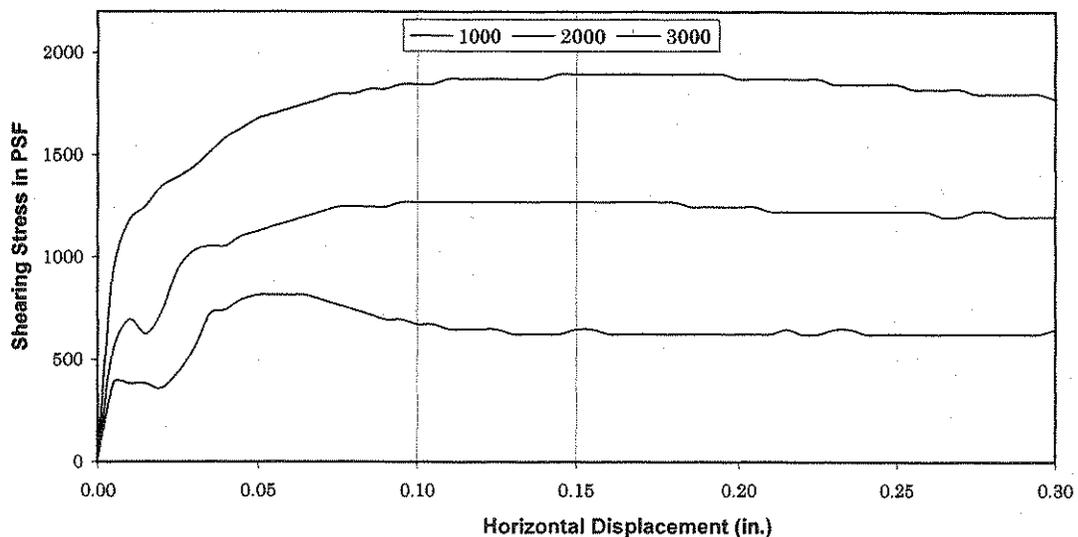
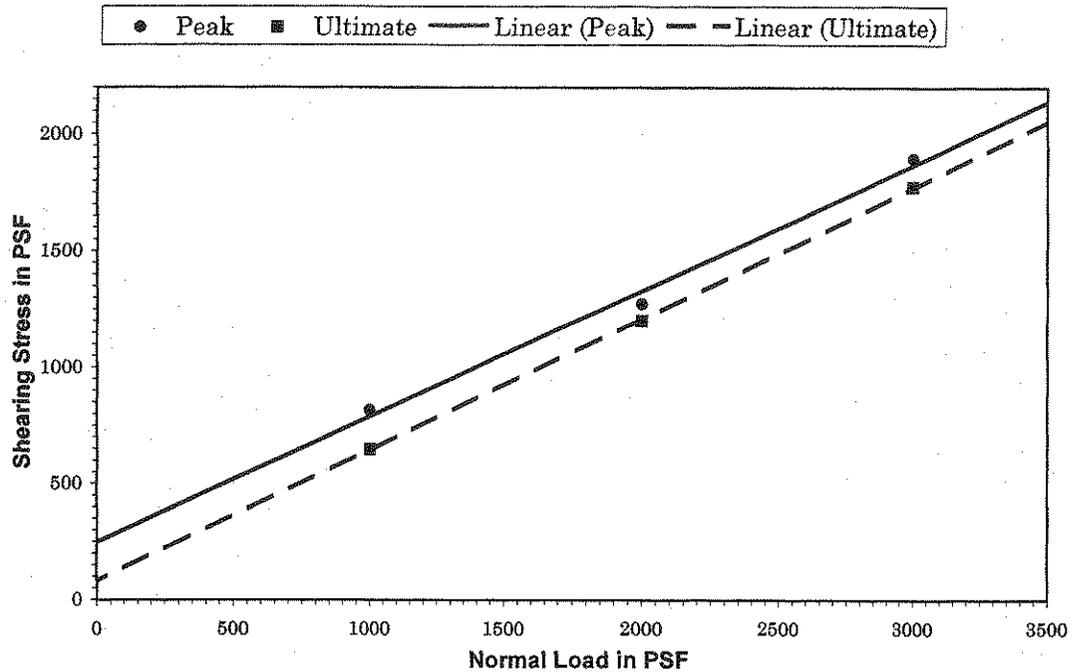
Job Name: 2305 Edgewater  
 Sample ID: B A 2 @ 15  
 Soil Description: MH

**DATA SUMMARY**

**TEST RESULTS**

Number of Blows:	20	24	25	<b>LIQUID LIMIT</b>	<b>88</b>
Water Content, %	90.2	88.1	87.5	<b>PLASTIC LIMIT</b>	<b>64</b>
Plastic Limit:	63.7	63.4		<b>PLASTICITY INDEX</b>	<b>24</b>





**DIRECT SHEAR DATA\***

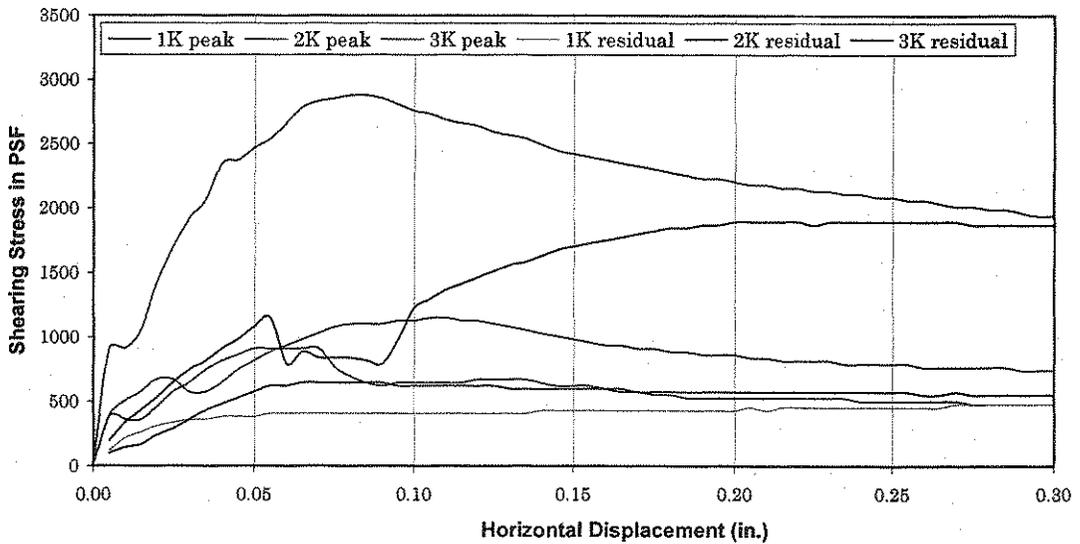
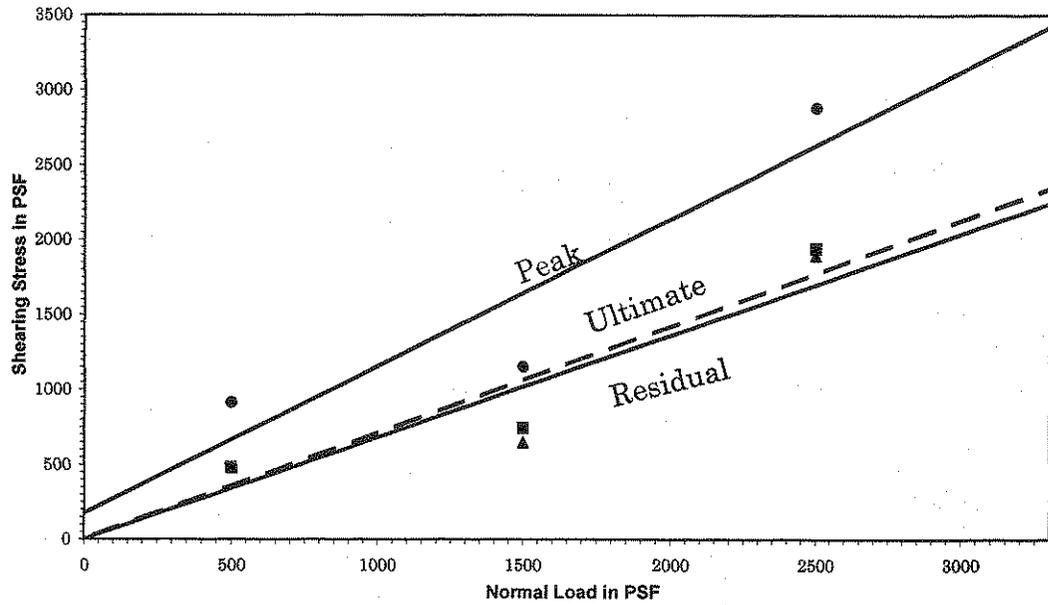
Sample Location: TP 2 @ 0-5  
 Sample Description: Silty Clayey Sand  
 Dry Density (pcf): 89.5  
 Initial % Moisture: 19.5  
 Average Degree of Saturation: 100.0  
 Shear Rate (in/min): 0.0189 in/min

Normal stress (psf)	1000	2000	3000
Peak stress (psf)	816	1272	1896
Ultimate stress (psf)	648	1200	1776

	Peak	Ultimate
$\phi$ Angle of Friction (degrees):	28	29
c Cohesive Strength (psf):	240	80
Test Type: Peak,Ultimate		

\* Test Method: ASTM D-3080

<b>DIRECT SHEAR TEST</b>	
2215 & 2305 Edgewater Way	
	Earth Systems Southern California
11/25/2007	VT-23780-01



**DIRECT SHEAR DATA\***

Sample Location: B A 2 @ 10

Sample Description: Very Fine Sandy Clayey Silt (D<sub>10</sub>)

Dry Density (pcf): 57.2

Initial 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
$\phi$ Angle of Friction (degrees):	45	36	35
c Cohesive Strength (psf):	170	0	0

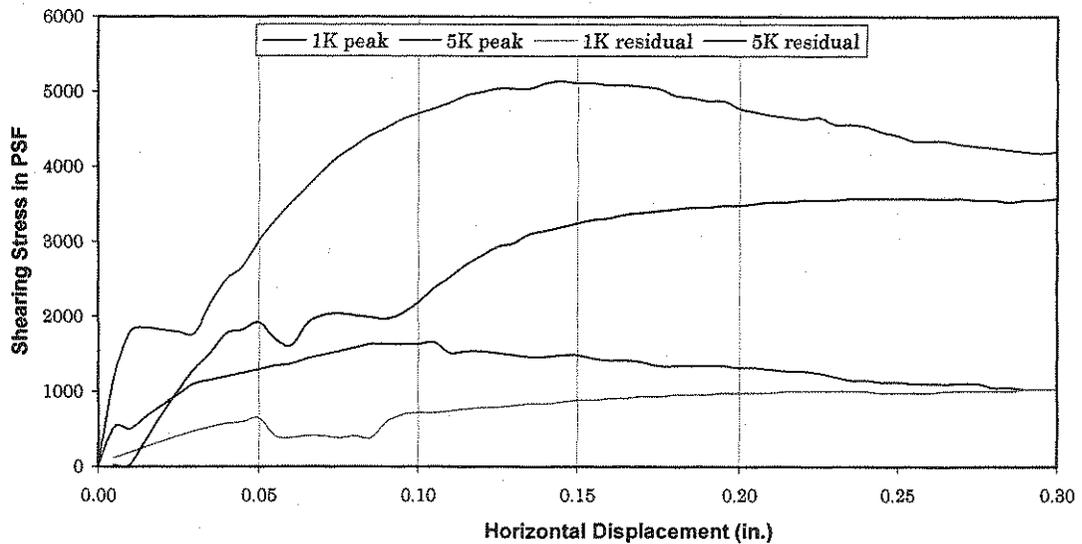
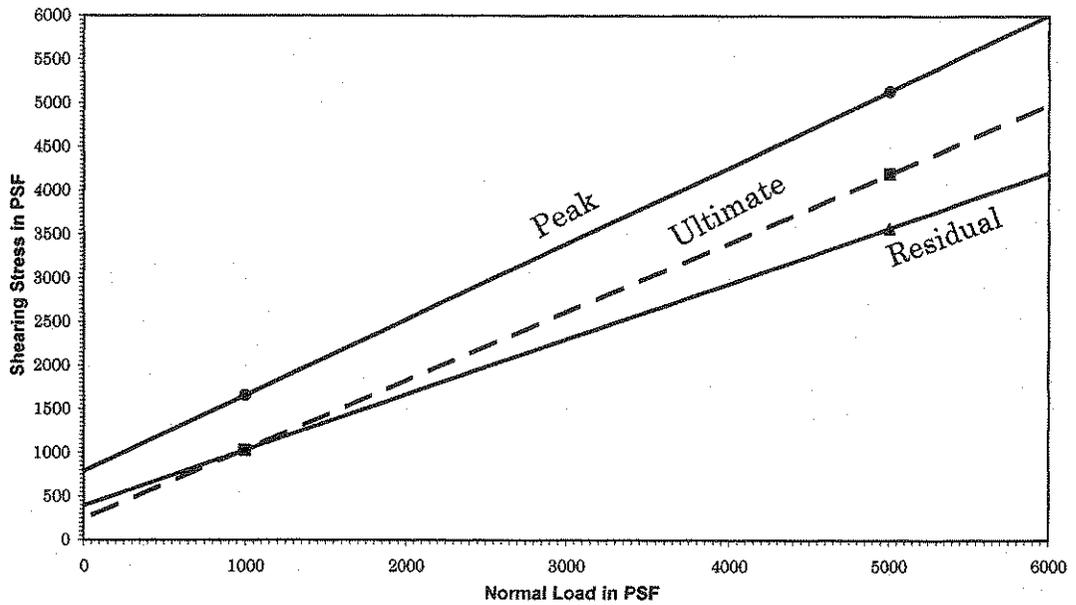
Test Type: Peak, Ultimate and Residual

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

\* Test Method: ASTM D-3080

Sample Resheared 5 cycles

DIRECT SHEAR TEST	
<b>2215 &amp; 2305 Edgewater Way</b>	
	Earth Systems Southern California
11/25/2007	VT-23780-01



**DIRECT SHEAR DATA\***

Sample Location: B A 2 @ 25  
 Sample Description: Olive brown silty sandstone    Normal stress (psf)    1000            5000  
 Dry Density (pcf): 60.6                                    Peak stress (psf)    1656            5136  
 Initial Moisture (%): 48.3                                Ultimate stress (psf) 1032            4200  
 Moisture at Test (%): 63.5                                Residual stress (psf) 1032            3576  
 Average Degree of Saturation: 97.0  
 Shear Rate (in/min): 0.03

	Peak	Ultimate	Residual
$\phi$ Angle of Friction (degrees):	41	38	32
c Cohesive Strength (psf):	780	240	396
Test Type: Peak, Ultimate and Residual			

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

\* Test Method: ASTM D-3080

Sample Resheared 5 cycles

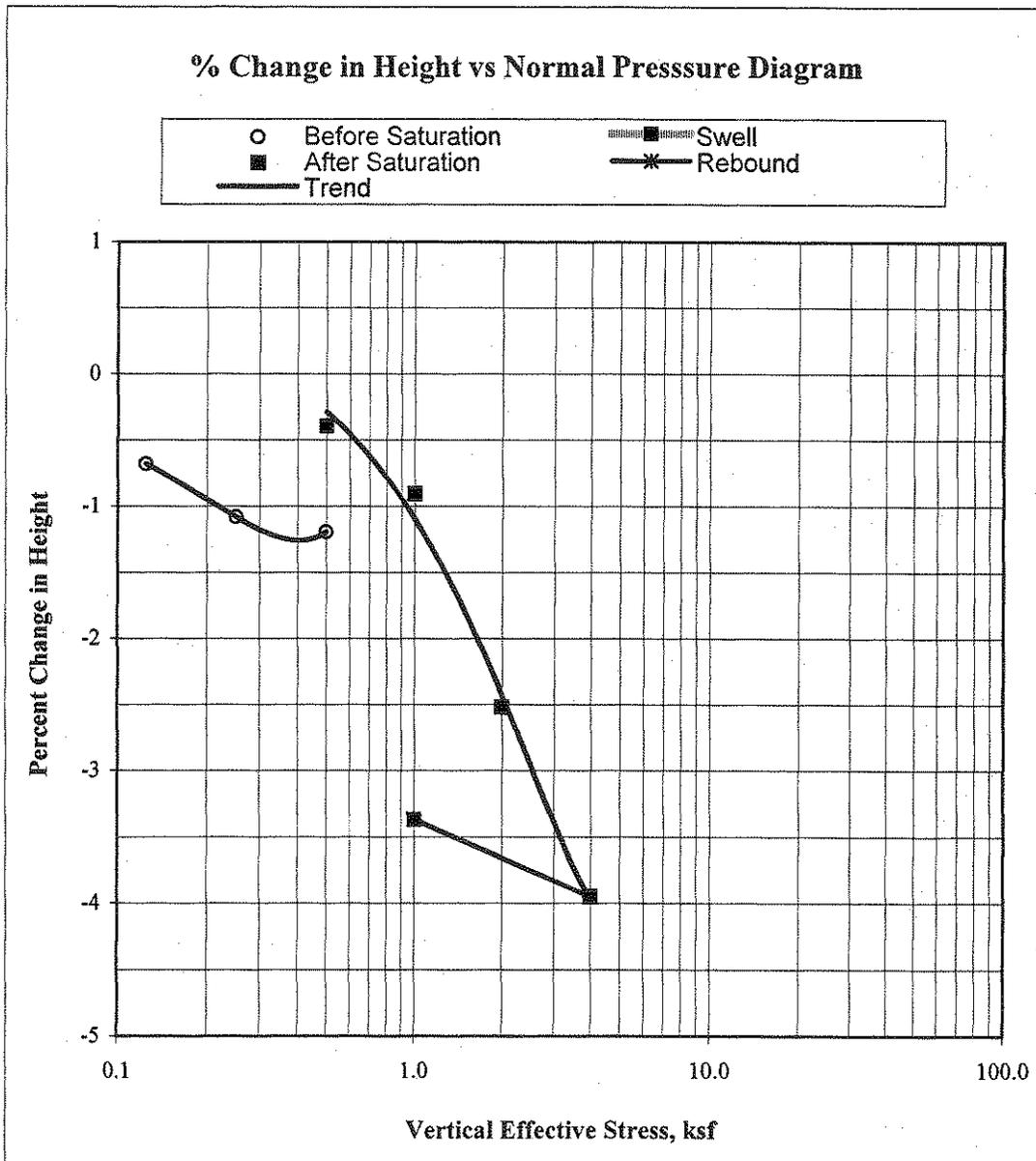
DIRECT SHEAR TEST	
2215 & 2305 Edgewater Way	
 Earth Systems Southern California	
11/25/2007	VT-23780-01

**CONSOLIDATION TEST**

ASTM D 2435-90

2215 & 2305 Edgewater Way  
 TP 1 @ 1  
 SM/SC  
 Ring Sample

Initial Dry Density: 111.8 pcf  
 Initial Moisture, %: 6.7%  
 Specific Gravity: 2.67 (assumed)  
 Initial Void Ratio: 0.491

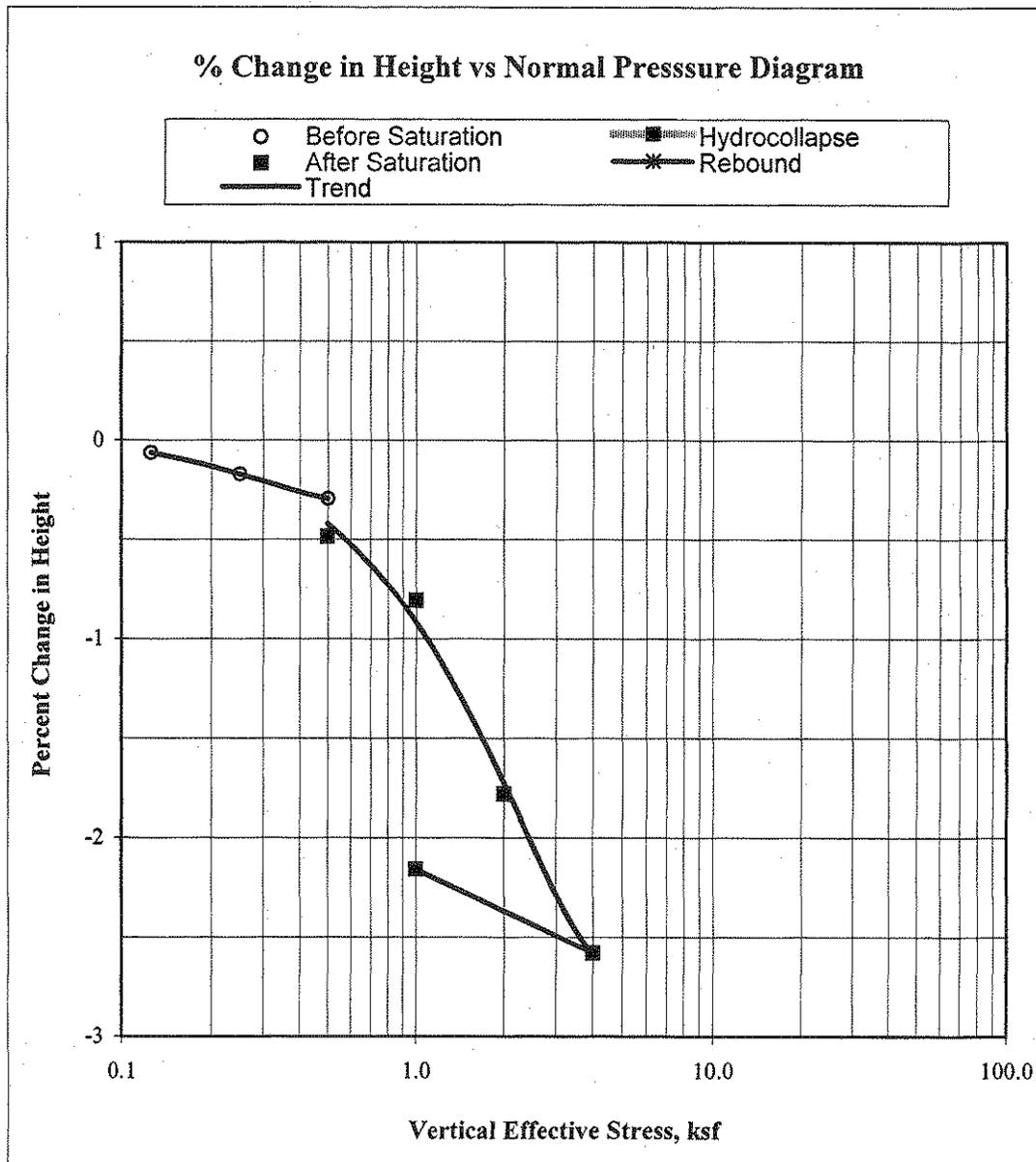


**CONSOLIDATION TEST**

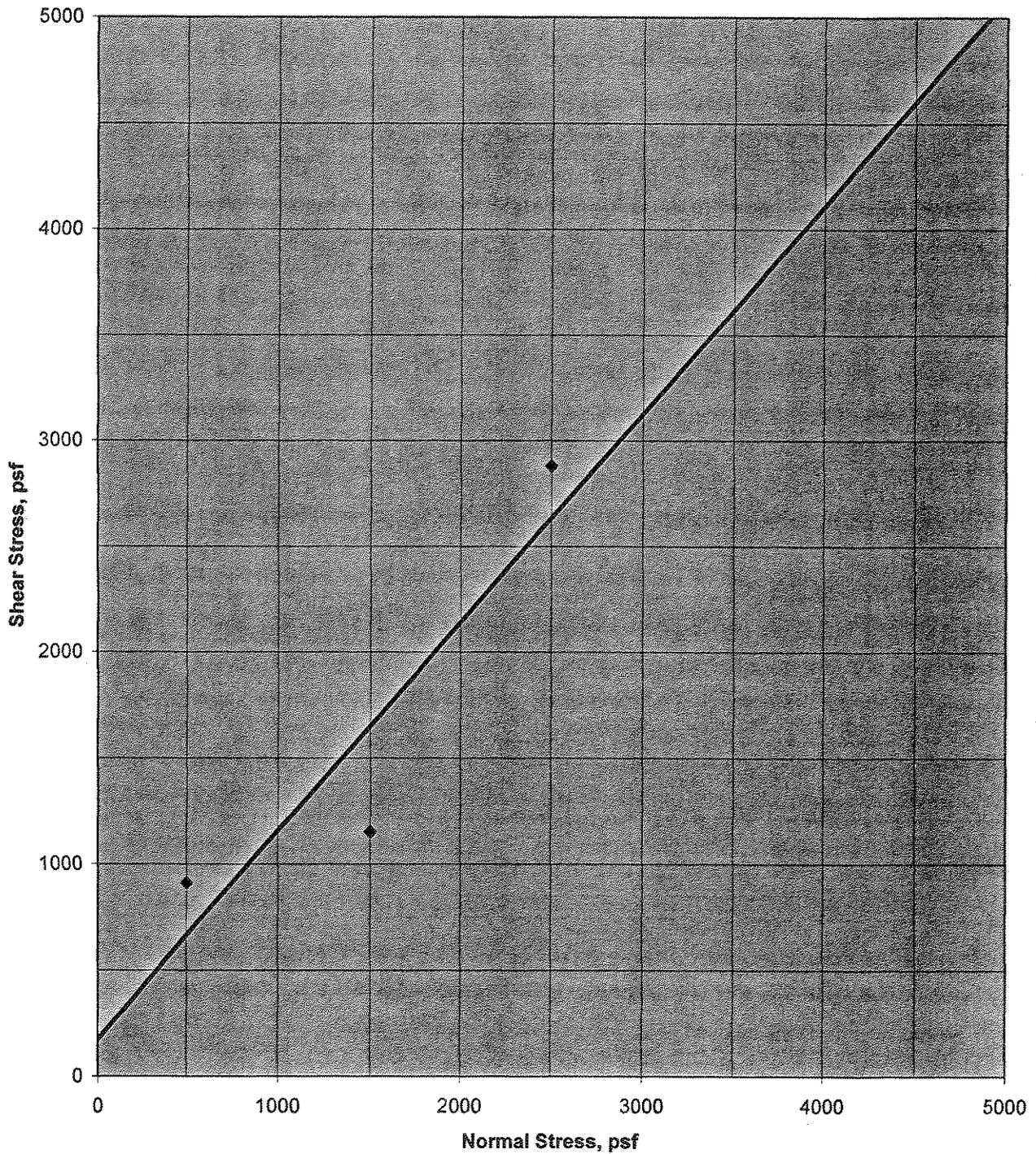
ASTM D 2435-90 & D5333

2215 & 2305 Edgewater Way  
 TP 1 @ 3  
 SM  
 Ring Sample

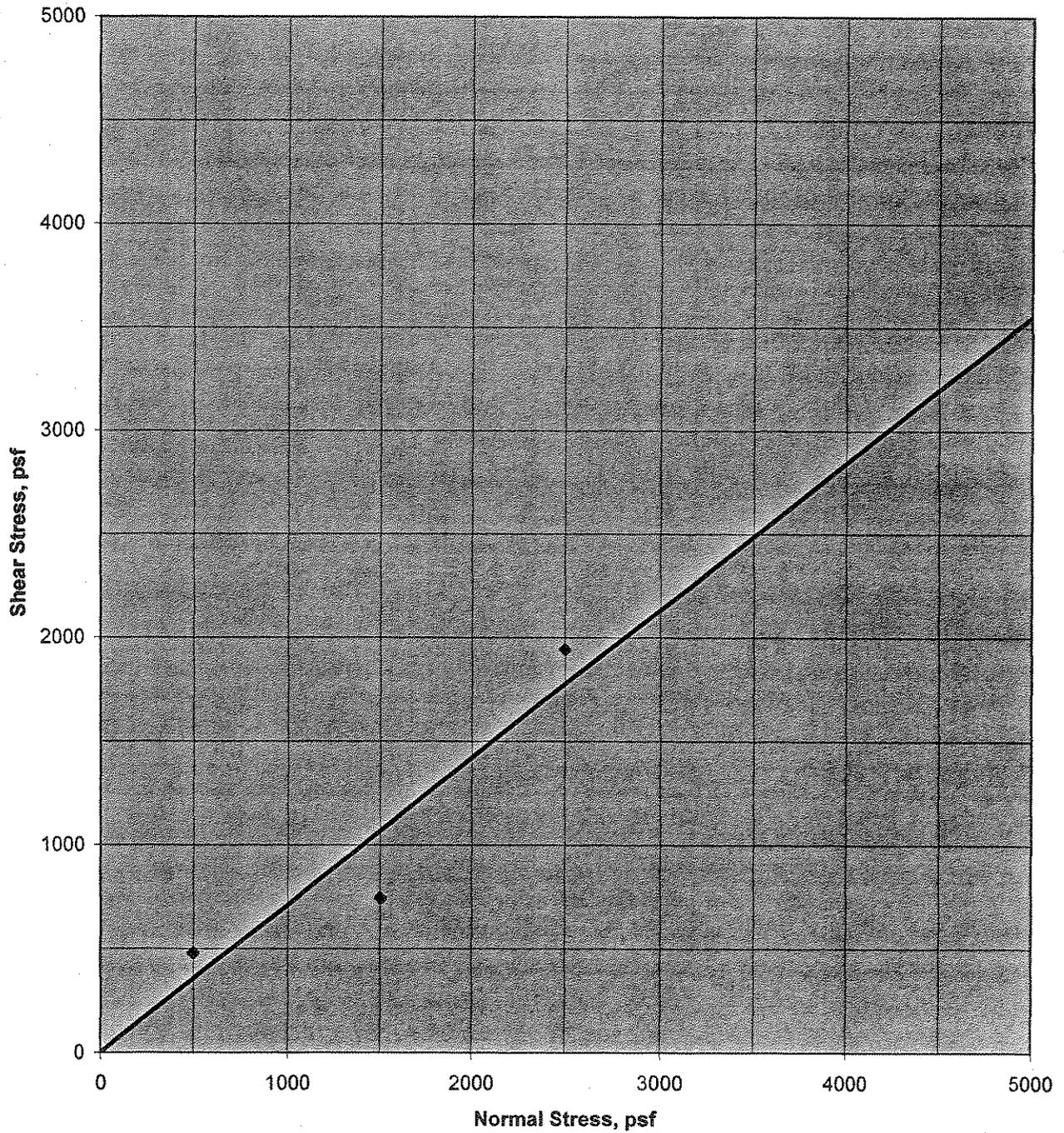
Initial Dry Density: 112.1 pcf  
 Initial Moisture, %: 5.4%  
 Specific Gravity: 2.67 (assumed)  
 Initial Void Ratio: 0.488



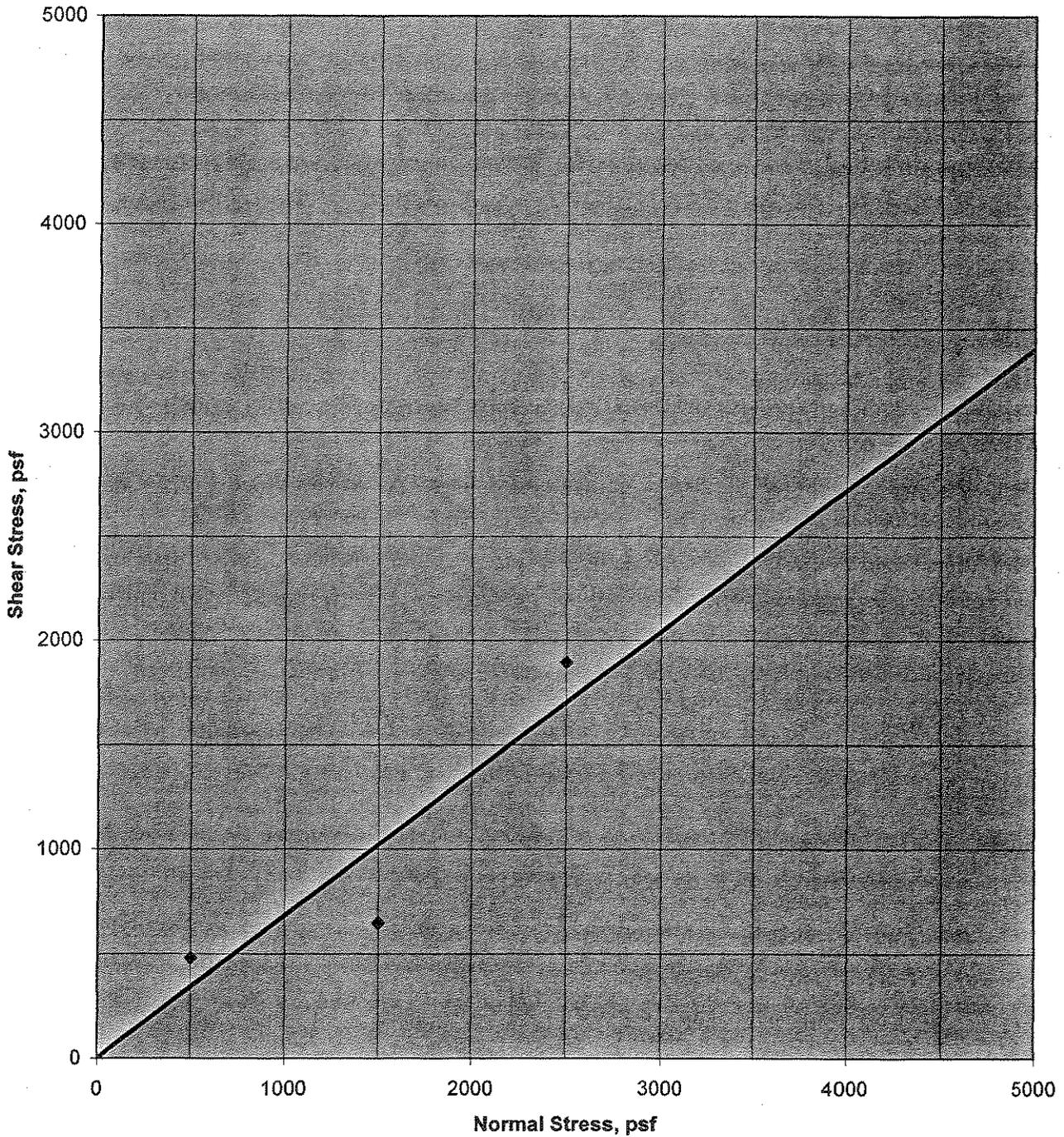
2305 EDGEWATER WAY  
VT-23780-01  
Undisturbed Samples from BA2@10'  
Peak Shear  
Phi = 44.5 Degrees, Cohesion = 172 psf



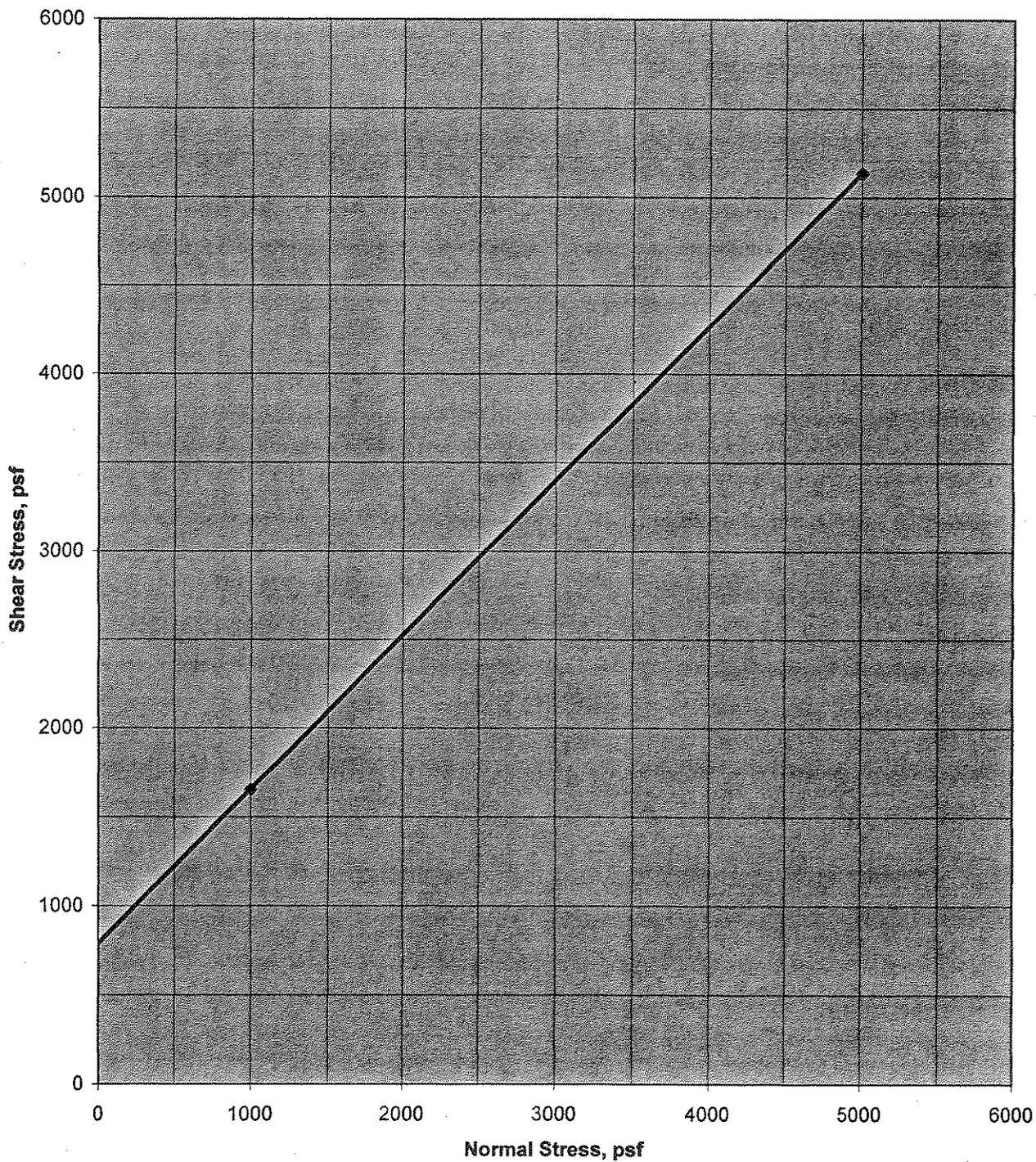
2305 EDGEWATER WAY  
VT-23780-01  
Undisturbed Samples from BA2@10'  
Ultimate Shear  
Phi = 35.4 Degrees, Cohesion = 0 psf



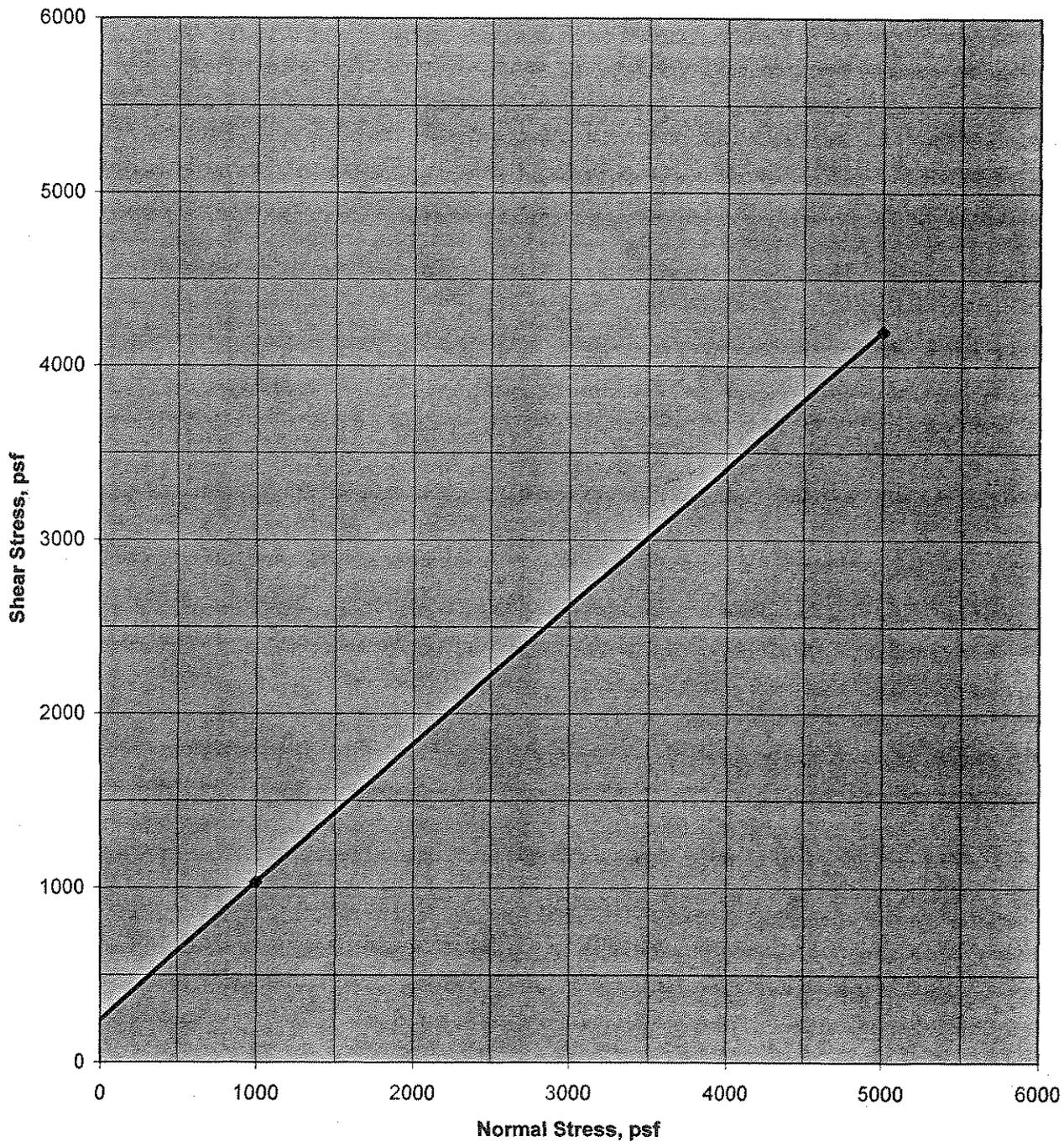
2305 EDGEWATER WAY  
VT-23780-01  
Undisturbed Samples from BA2@10'  
Residual Shear  
Phi = 34.2 Degrees, Cohesion = 0 psf



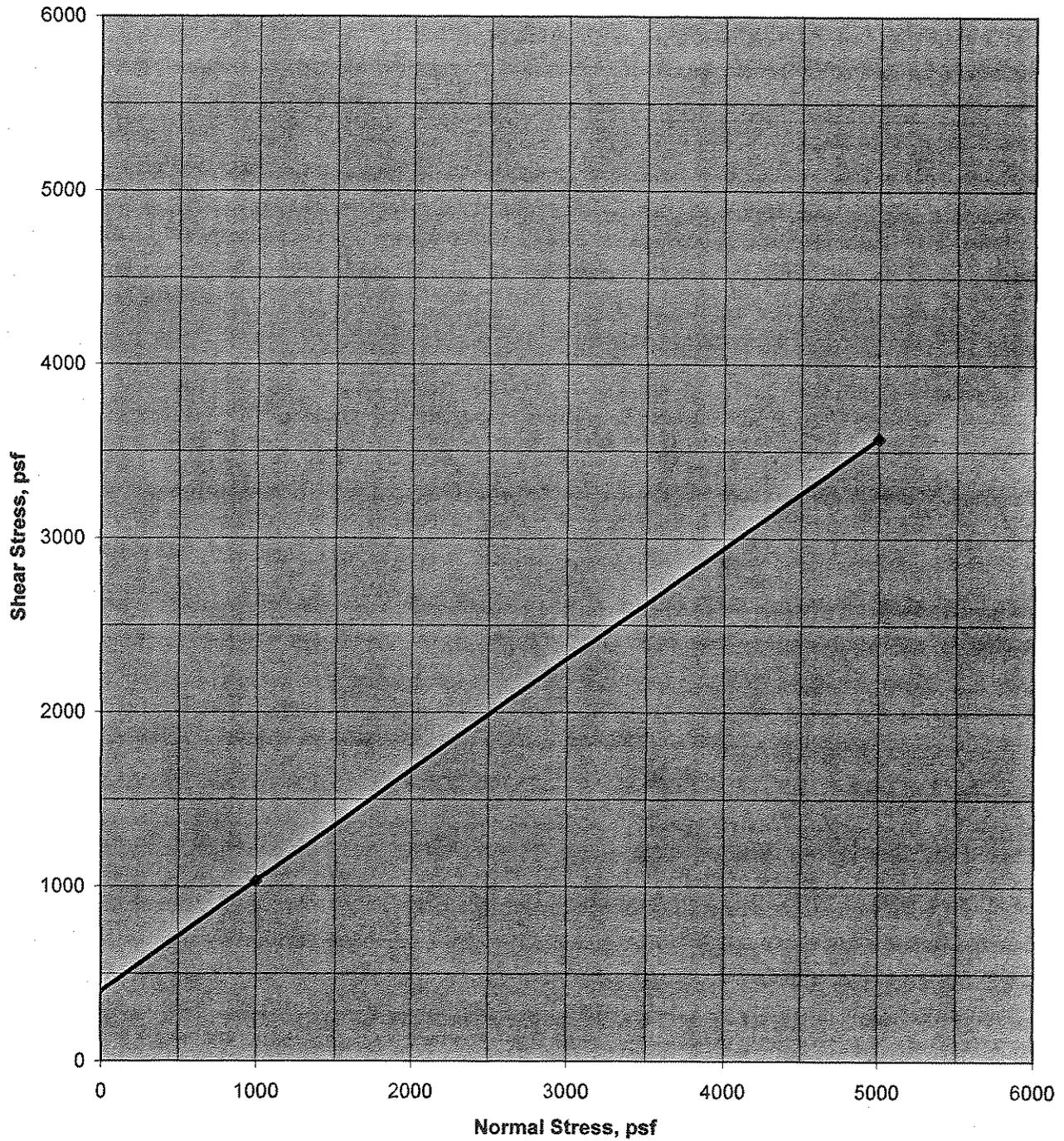
2305 EDGEWATER WAY  
VT-23780-01  
Undisturbed Samples from BA2@25'  
Peak Shear  
Phi = 41.0 Degrees, Cohesion = 786psf



2305 EDGEWATER WAY  
VT-23780-01  
Undisturbed Samples from BA2@25'  
Ultimate Shear  
Phi = 38.4 Degrees, Cohesion = 240 psf



2305 EDGEWATER WAY  
VT-23780-01  
Undisturbed Samples from BA2@25'  
Residual Shear  
Phi = 32.5 Degrees, Cohesion = 396 psf



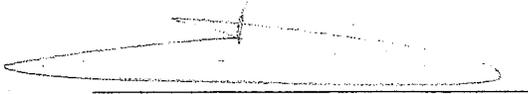
Capco Analytical Services, INC. (CAS)  
1536 Eastman Avenue, Suite B  
Ventura CA 93003  
(805) 644-1095

Client: Earth Systems Southern CA      Sample Matrix: Soil  
Sample ID: TP-2 @ 0-5'      CAS LAB NO: 07105601  
Date Received: 06/05/07      Date Sampled: 06/05/07

WET CHEMISTRY ANALYSIS SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	METHOD	ANALYZED
*Chloride	14	mg/Kg	1	10	300.0M	06/06/07
pH	7.0	S.U.	1	--	9045	06/05/07
*Resistivity	3650	ohms-cm	1	--	CA Test 424	06/06/07
*Sulfate	120	mg/Kg	1	10	300.0M	06/06/07

\*Sample was extracted using a 1:3 ratio of soil and DI water.  
Results were based on the original sample weight.  
PQL: Practical Quantitation Limit

  
Principal Analyst

**APPENDIX C**

**Slope Stability Analyses**

# Static Slope Stability Analyses for 2215 and 2305 Edgewater Way Santa Barbara, CA

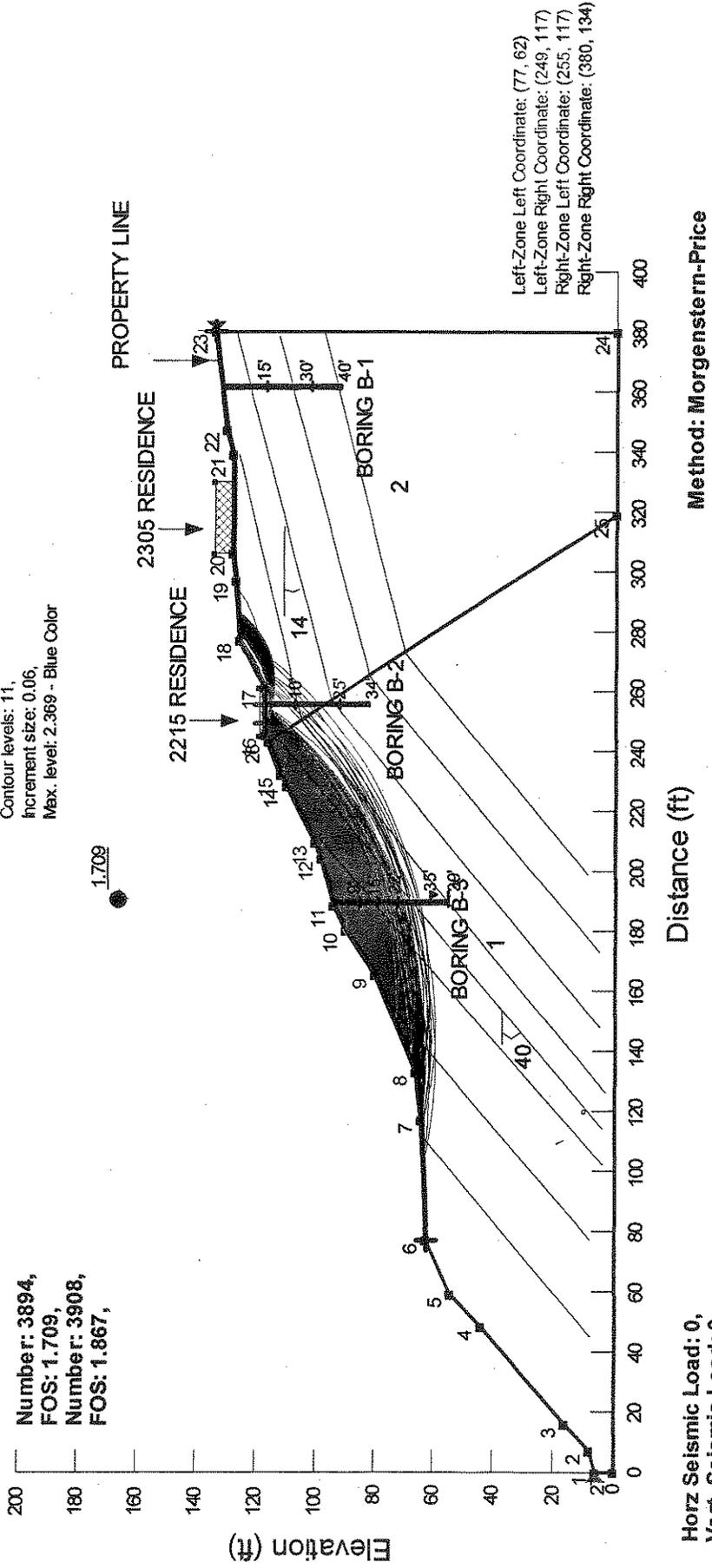
VT-23780-01 Entry-Exit M-1 -static.gsz Run By: Dr. Alexander Bykovtsev, Ph.D., P.E. 2/6/2008 1:32:40 PM

## Entry-Exit Analyses

- 1 - Monterey Formation -bedded 40 degree., Phi-Anisotropic Strength Fn.: Bykovtsev's function (38-42 bedding, min 0.29= 11/88) , Unit Weight: 92 pcf
  - 2 - Monterey Formation -bedded 14 degree., Phi-Anisotropic Strength Fn.: Bykovtsev's function (13-15 bedding, min 0.57= 20/35) , Unit Weight: 94 pcf
- For 1 - Peak Phi 1= 41.0, C1= 786 psf; For 2 - Peak Phi 2= 44.5, C2= 172 psf;  
 Ultimate Phi 1= 38.4, C1= 240 psf; Ultimate Phi 2= 35.4, C2= 0 psf;  
 Residual Phi 1= 32.5, C1= 396 psf; Residual Phi 2= 34.2, C2= 0 psf;

Min. level: 1.709, - Red Color  
 Contour levels: 11.  
 Increment size: 0.06,  
 Max. level: 2.369 - Blue Color

Number: 3894,  
 FOS: 1.709,  
 Number: 3908,  
 FOS: 1.867,



Horz Seismic Load: 0,  
 Vert Seismic Load: 0

Method: Morgenstern-Price



**Earth Systems**  
 Southern California

2215 AND 2305 EDGEWATER WAY  
 SANTA BARBARA, CALIFORNIA

VT - 23780-01  
 FEBRUARY, 2008

# Seismic Slope Stability Analyses for 2215 and 2305 Edgewater Way Santa Barbara, CA

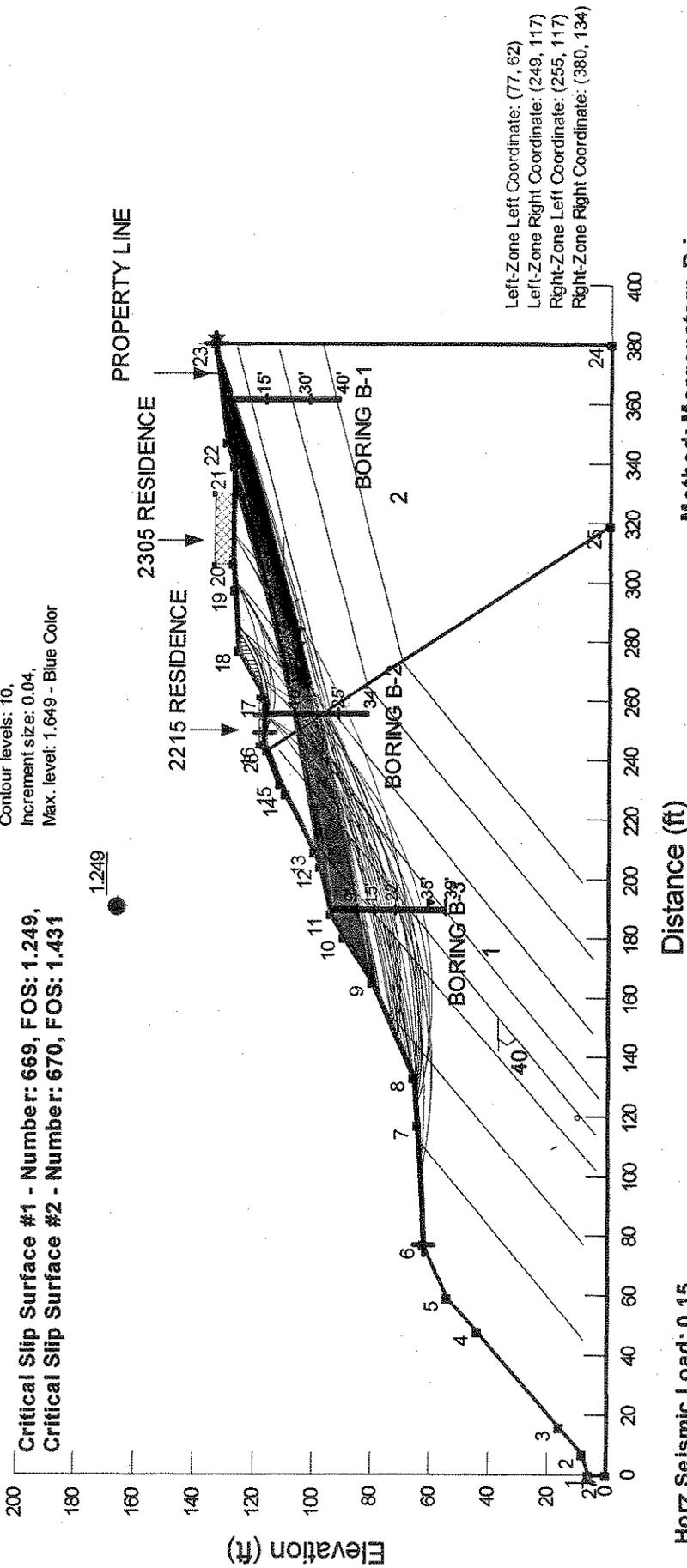
VT-23780-01 Entry-Exit M-1 - seismic.gsz Run By: Dr. Alexander Bykovtsev, Ph.D., P.E. 2/6/2008 2:03:20 PM

## Entry-Exit Analyses

- 1 - Monterey Formation - bedded 40 degree; Phi-Anisotropic Strength Fr.: Bykovtsev's function seismic (38-42 bedding, min 0.27= 11/41) , Unit Weight: 92 pcf
  - 2 - Monterey Formation - bedded 14 degree; Phi-Anisotropic Strength Fr.: Bykovtsev's function seismic (13-15 bedding, min 0.44= 20/45) , Unit Weight: 94 pcf
- For 1 - Peak Phi 1= 41.0, C1= 786 psf; For 2 - Peak Phi 2= 44.5, C2= 172 psf;  
 Ultimate Phi 1= 38.4, C1= 240 psf; Ultimate Phi 2= 35.4, C2= 0 psf;  
 Residual Phi 1= 32.5, C1= 396 psf; Residual Phi 2= 34.2, C2= 0 psf;

Min. level: 1.249, - Red Color  
 Contour levels: 10,  
 Increment size: 0.04,  
 Max. level: 1.649 - Blue Color

Critical Slip Surface #1 - Number: 669, FOS: 1.249,  
 Critical Slip Surface #2 - Number: 670, FOS: 1.431



Horz Seismic Load: 0.15,  
 Vert Seismic Load: 0

Method: Morgenstern-Price



2215 AND 2305 EDGEWATER WAY  
 SANTA BARBARA, CALIFORNIA

VT - 23780-01  
 FEBRUARY, 2008

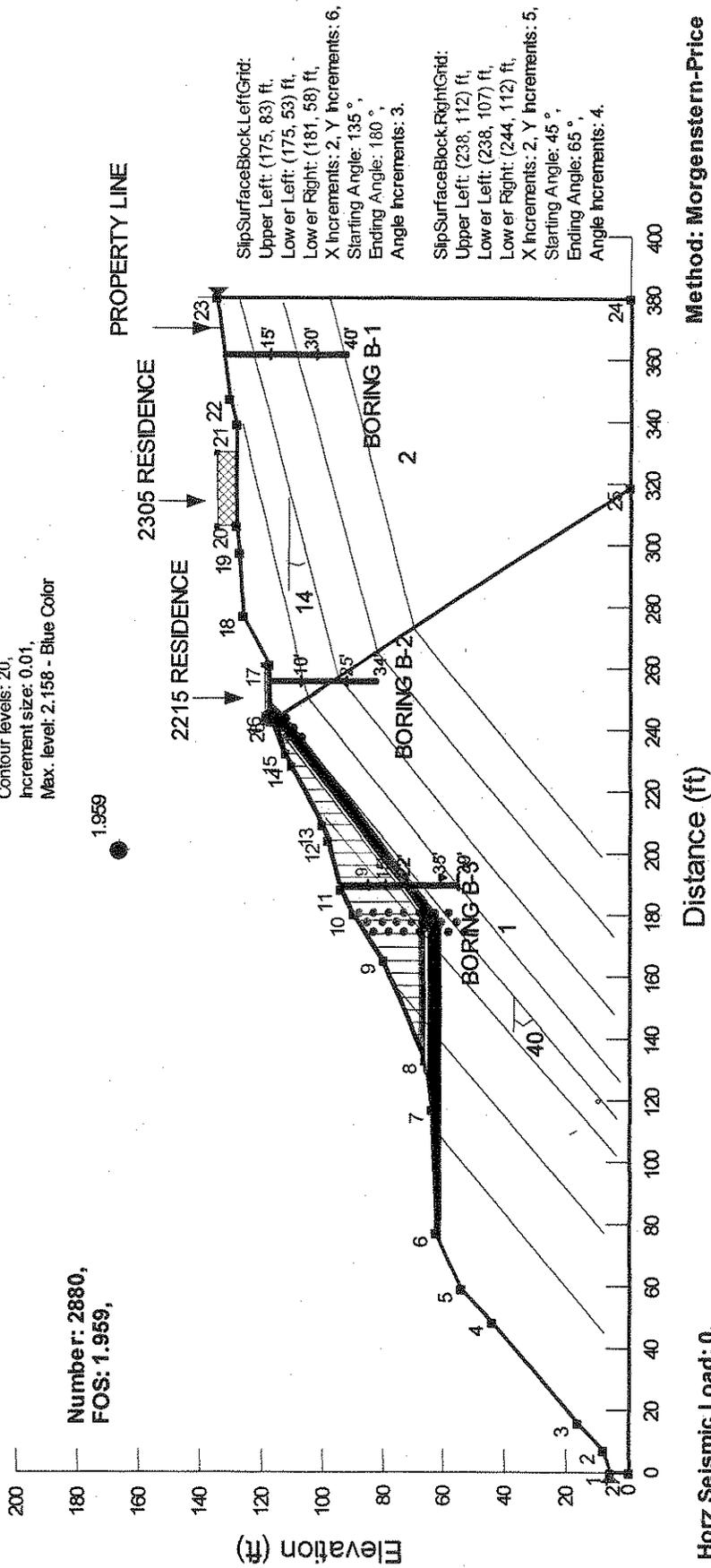
# Static Slope Stability Analyses for 2215 and 2305 Edgewater Way Santa Barbara, CA

VT-23780-01 Block Analyses M-1 -static-07.gsz Run By: Dr. Alexander Bykovtsev, Ph.D., P.E. 2/6/2008 11:37:30 AM

## BLOCK Analyses for Anisotropic Material -1

- 1 - Monterey Formation -bedded 40 degree, Phi-Anisotropic Strength Fr.: Bykovtsev's function (38-42 bedding, min 0.29= 11/38) , Unit Weight: 92 pcf
  - 2 - Monterey Formation -bedded 14 degree, Phi-Anisotropic Strength Fr.: Bykovtsev's function (13-15 bedding, min 0.57= 20/35) , Unit Weight: 94 pcf
- For 1 - Peak Phi 1= 41.0, C1= 766 psf;  
 Ultimate Phi 1= 38.4, C1= 240 psf;  
 Residual Phi 1= 32.5, C1= 396 psf;
- For 2 - Peak Phi 2= 44.5, C2= 172 psf;  
 Ultimate Phi 2= 35.4, C2= 0 psf;  
 Residual Phi 2= 34.2, C2= 0 psf;

Mfn. level: 1.958, - Red Color  
 Contour levels: 20,  
 Increment size: 0.01,  
 Max. level: 2.158 - Blue Color



Method: Morgenstern-Price

Horz Seismic Load: 0,  
 Vert Seismic Load: 0



**Earth Systems**  
 Southern California

2215 AND 2305 EDGEWATER WAY  
 SANTA BARBARA, CALIFORNIA

VT - 23780-01  
 FEBRUARY, 2008

# Seismic Slope Stability Analyses for 2215 and 2305 Edgewater Way Santa Barbara, CA

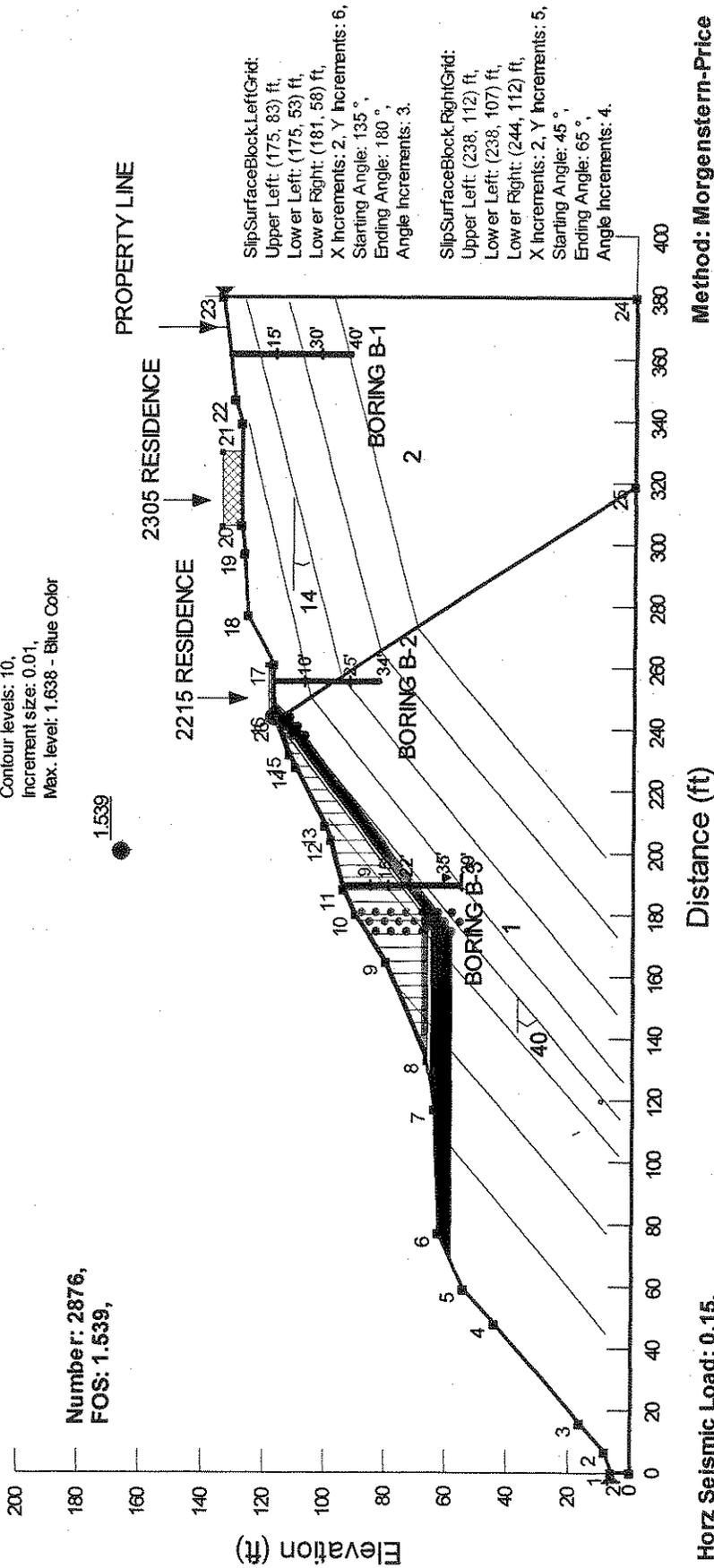
VT-23780-01 Block Analyses M-1 - seismic.gsz Run By: Dr. Alexander Bykovtsev, Ph.D., P.E. 2/6/2008 11:38:22 AM

## BLOCK Analyses for Anisotropic Material -1

- 1 - Monterey Formation - bedded 40 degree; Phi-Anisotropic Strength Fn.: Bykovtsev's function seismic (38-42 bedding, min 0.27= 11/41) , Unit Weight: 92 pcf
- 2 - Monterey Formation - bedded 14 degree; Phi-Anisotropic Strength Fn.: Bykovtsev's function seismic (13-15 bedding, min 0.44= 20/45) , Unit Weight: 94 pcf

For 1 - Peak Phi 1= 41.0, C1= 786 psf; For 2 - Peak Phi 2= 44.5, C2= 172 psf;  
 Ultimate Phi 1= 38.4, C1= 240 psf; Ultimate Phi 2= 35.4, C2= 0 psf;  
 Residual Phi 1= 32.5, C1= 396 psf; Residual Phi 2= 34.2, C2= 0 psf.

Min. level: 1.538 - Red Color  
 Contour levels: 10,  
 Increment size: 0.01,  
 Max. level: 1.638 - Blue Color



Horz Seismic Load: 0.15,  
 Vert Seismic Load: 0

Method: Morgenstern-Price

Number: 2876,  
 FOS: 1.539,



**Earth Systems**  
 Southern California

2215 AND 2305 EDGEWATER WAY  
 SANTA BARBARA, CALIFORNIA

VT - 23780-01

FEBRUARY, 2008

# Static Slope Stability Analyses for 2215 and 2305 Edgewater Way Santa Barbara, CA

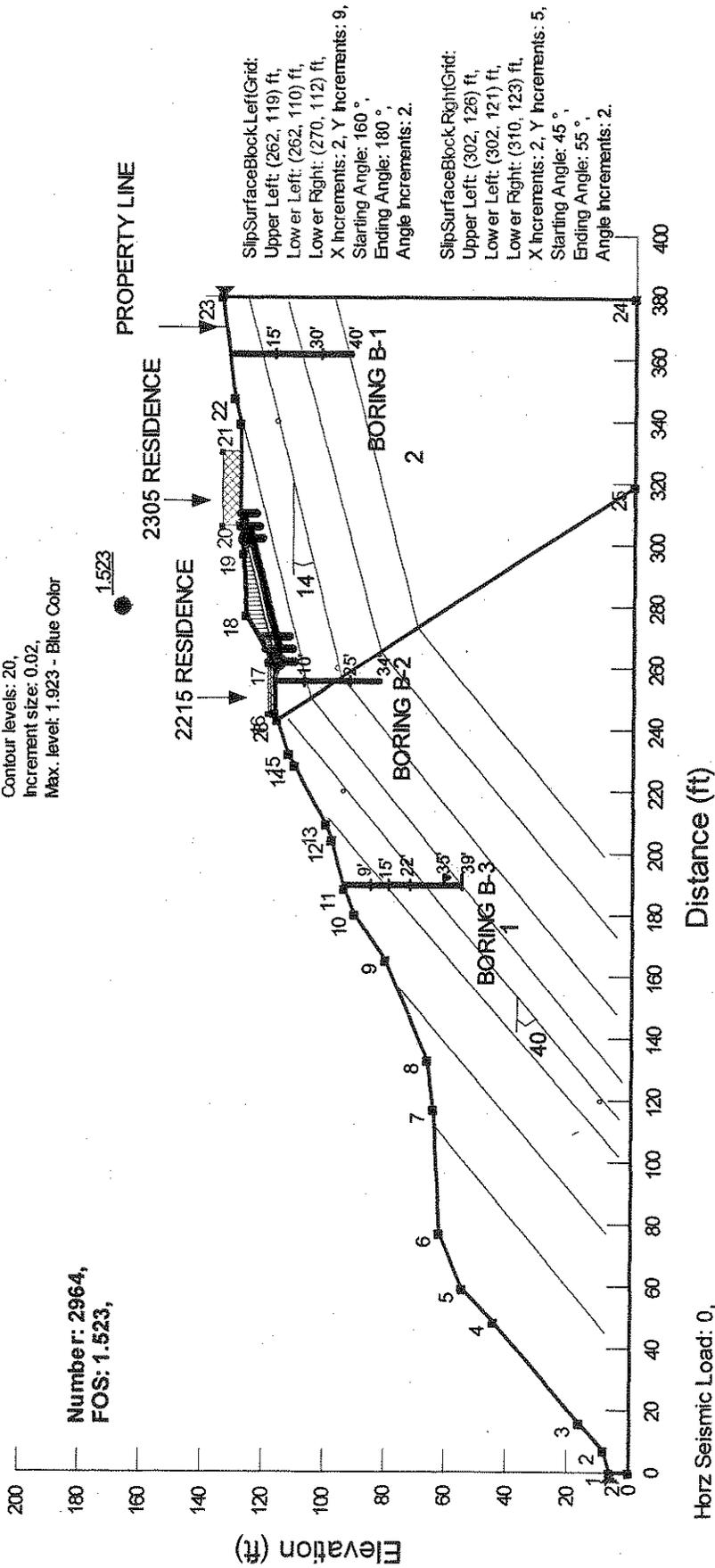
VT-23780-01 Block Analyses M-2 -static-07.gsz Run By: Dr. Alexander Bykovtsev, Ph.D., P.E. 2/6/2008 11:40:29 AM

## BLOCK Analyses for Anisotropic Material -2

- 1 - Monterey Formation -bedded 40 degree; Phi-Anisotropic Strength Fn.: Bykovtsev's function (38-42 bedding, min 0.29= 11/38) , Unit Weight: 92 pcf
  - 2 - Monterey Formation -bedded 14 degree; Phi-Anisotropic Strength Fn.: Bykovtsev's function (13-15 bedding, min 0.57= 20/35) , Unit Weight: 94 pcf
- For 1 - Peak Phi 1= 41.0, C1= 786 psf; Ultimate Phi 1= 38.4, C1= 240 psf; Residual Phi 1= 32.5, C1= 396 psf;  
 For 2 - Peak Phi 2= 44.5, C2= 172 psf; Ultimate Phi 2= 35.4, C2= 0 psf; Residual Phi 2= 34.2, C2= 0 psf;

SafetyMap  
 Min. level: 1.523, - Red Color  
 Contour levels: 20,  
 Increment size: 0.02,  
 Max. level: 1.923 - Blue Color

Number: 2964,  
 FOS: 1.523,



Horz Seismic Load: 0,  
 Vert Seismic Load: 0

Method: Morgenstern-Price



**Earth Systems**  
 Southern California

2215 AND 2305 EDGEWATER WAY  
 SANTA BARBARA, CALIFORNIA

VT - 23780-01

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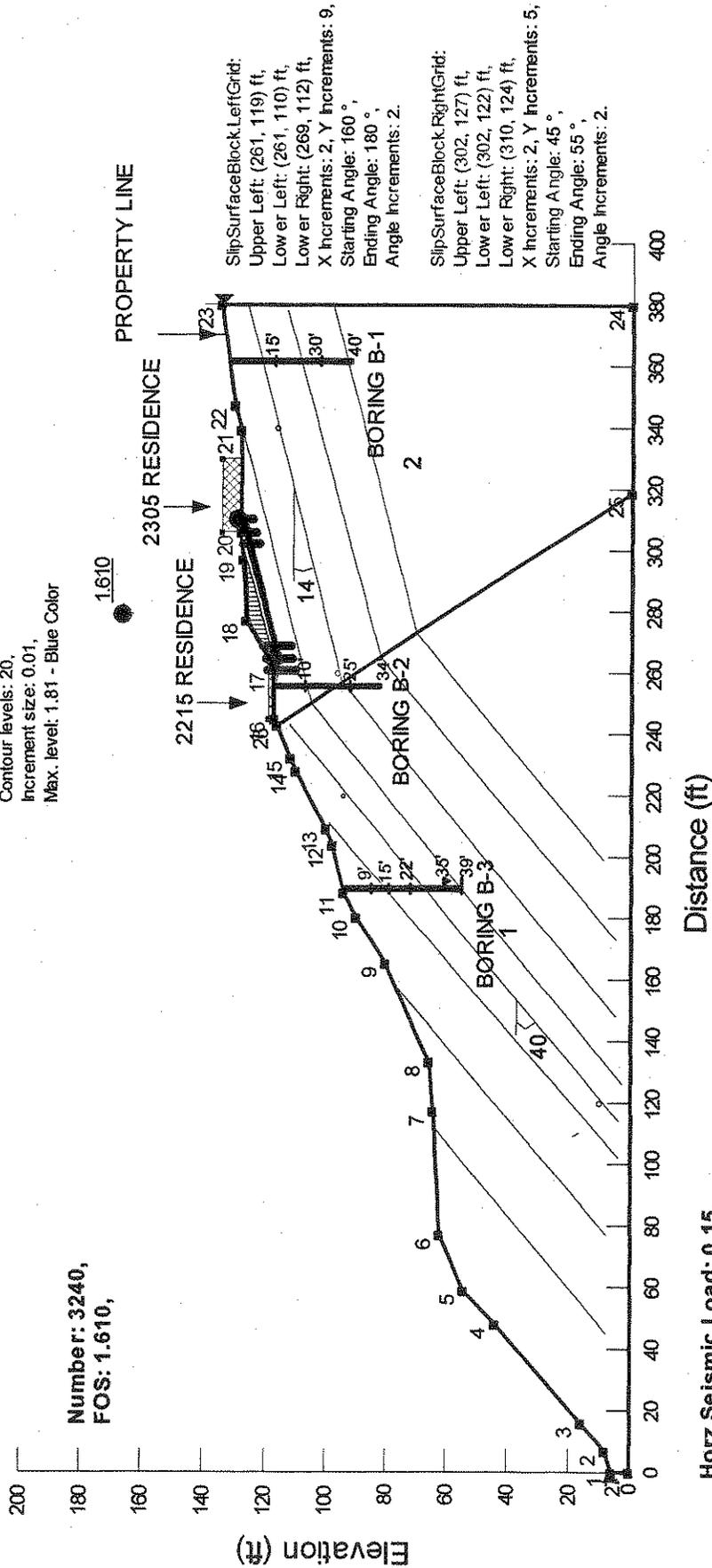
# Seismic Slope Stability Analyses for 2215 and 2305 Edgewater Way Santa Barbara, CA

VT-23780-01 Block Analyses M-2 -seismic.gsz Run By: Dr. Alexander Bykovtsev, Ph.D., P.E. 2/6/2008 11:41:42 AM

## BLOCK Analyses for Anisotropic Material -2

- 1 - Monterey Formation -bedded 40 degree; Phi-Anisotropic Strength Fn.: Bykovtsev's function seismic (38-42 bedding, min 0.27= 11/41) , Unit Weight: 92 pcf
  - 2 - Monterey Formation -bedded 14 degree; Phi-Anisotropic Strength Fn.: Bykovtsev's function seismic (13-15 bedding, min 0.44= 20/45) , Unit Weight: 94 pcf
- For 1 - Peak Phi 1=41.0, C1= 786 psf; For 2 - Peak Phi 2= 44.5, C2= 172 psf;  
 Ultimate Phi 1= 38.4, C1= 240 psf; Ultimate Phi 2= 35.4, C2= 0 psf;  
 Residual Phi 1= 32.5, C1= 396 psf; Residual Phi 2= 34.2, C2= 0 psf;

SafetyMap  
 Min. level: 1.61, - Red Color  
 Contour levels: 20,  
 Increment size: 0.01,  
 Max. level: 1.81 - Blue Color



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