



Planning & Building Department

455 County Center, 2nd Floor
Redwood City, California 94063
650/363-4161 Fax: 650/363-4849

Mail Drop PLN122
plngbldg@smcgov.org
www.co.sanmateo.ca.us/planning

PLANNING PERMIT APPLICATION REFERRAL

Date: June 20, 2017

MWSD Projects Only:
Urban / Rural
(E) Well: Y / N Year: \_\_\_\_
2nd Unit Project: Y / N

TO:

- X California Coastal Commission
X Geotechnical Department
X Midcoast Community Council

FROM: Camille Leung, Project Planner
CLeung@smcgov.org
650 363-1826

INSTRUCTIONS:

Please review this form and the attached planning permit application materials with regard to your area of responsibility. For additional information, or to discuss the project, please feel free to contact me. Please notify me immediately if you require additional plans, specifications, reports or other application materials. Then complete your review and return this form only by 07/04/2017 to avoid delay in permit processing. Thank you for your cooperation.

APPLICATION INFORMATION:

Planning Case Number: PLN2016-00327
Property Owner: KHIMANI ANISH
Project Applicant: DEILLY ECHEVERRI (707) 399-0200

Assessor's Parcel Number: 037258240

PROJECT LOCATION: 105 SAN LUCAS AVE, MOSS BEACH, CA

PROJECT DESCRIPTION:

REVISED 6/2/17: 'After-the-Fact' CDP to legalize installation of Geogrid system and associated re-grading (100 cy of fill) to stabilize the site and correct unauthorized retaining wall work and vegetation removal performed in Fall of 2016, located between back of existing residence & coastal bluffs. Reference BLD2016-00745, SWN 2016-00035, and VIO 2016-00139.

Appealable to the Coastal Commission.



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### PLANNING PERMIT APPLICATION REFERRAL

Date: June 20, 2017

#### DECISION MAKER:

Staff                                       Zoning Hearing Officer  
 Board of Supervisors                       Design Review Committee/Officer

Planning Commission

#### COMMENTS ON PROPOSAL:

State any comments, concerns or recommendations you have with regard to this project. Please be specific in project references. Attach additional sheets as necessary.

No Comments                       Refer to Permit Plan for Comments  
 Other Comments: \_\_\_\_\_

#### RECOMMENDED CONDITIONS OF APPROVAL (AGENCIES ONLY):

List any conditions which you would recommend be imposed if the project is approved. Again, please be specific, use exact working and indicate any adopted plans, policies or ordinances upon which your recommendations are based. Attach additional sheets as necessary.

No Recommended Conditions                       Refer to Permit Plan for Comments  
 Refer to Attached Material for Conditions  
 Other Conditions: \_\_\_\_\_

Name of Person Completing this Form (Print): \_\_\_\_\_ Date: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

#### RETURN THIS FORM TO:

Camille Leung  
Planning and Building Department  
455 County Center, 2nd Floor  
Mail Drop PLN122  
Redwood City, CA 94063

RCJ2016-00745

# Regreen™

Wheatgrass X Wheat, Elymus X Triticum

RESUBMITTAL

MAY 12 2017

San Mateo County  
Building Inspection



A quick germinating, rapid growing ground cover, Regreen will stabilize the soil surface, but won't reseed itself and compete with desired species. Why??? Because its seeds are sterile!

## Cool Season, Soil Stabilizing Nurse Crop

Combining the best characteristics of wheat and wheatgrass, Regreen is an effective aid during the re-establishment of native plant communities. A highly versatile temporary cover crop, this hybrid produces sterile seeds. After it completes its life cycle, it is programmed to vacate the site and allow other vegetation to develop free from the competition of a new generation of plants. In California, Regreen is planted before and through winter moisture periods and may be sown before snow cover at higher elevations. Large-seeded, Regreen germinates quickly and forms a dense, fibrous root system stabilizing the soil surface and providing the anchor for vigorous seedlings. A deep root system also allows the plant to be drought tolerant, winter hardy and adaptable to varying soil and moisture conditions. With characteristics from both parents, wheat and wheatgrass, Regreen is ideal for aiding in the establishment of important native plant communities. This long-lived annual plant will grow in a variety of soil types and environmental conditions. If your objective calls for quick cover and long-term establishment, Regreen may be your best alternative!

## Applications

Sites include: erodible hillsides, mining sites, ski areas, forest fires, landfills, waterways, wetlands, roadsides, pipelines, and more. Use your imagination to put this plant to work for you.



Avalon Canyon Slide Repair - March 1999 - Quick Cover



Avalon Canyon Slide Repair - July 1999 - Native Plant Establishment

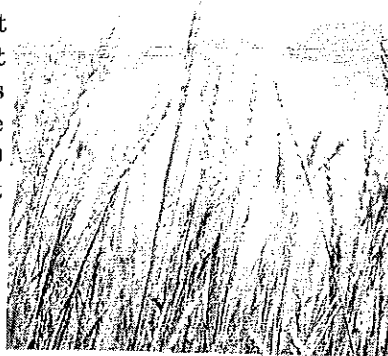
For restoration and erosion control, Regreen can be used anytime the soil is disturbed. The Avalon Canyon Emergency Slide Repair pictured here illustrates one successful planting using Regreen.

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# Plant Description and Seeding Rates

## Plant Description

Technically speaking, Regreen is a cross between wheat and wheatgrass (*Elymus X Triticum*). Cross parenting in northern latitude production fields produces a plant that is one-quarter wheatgrass and three-quarters wheat. The plant takes on many of the strong plant characteristics of wheat such as quick germination, large seed size (approximately 10,000 - 12,000 seeds per pound), and excellent seedling vigor. Dense root development and drought and disease tolerance are attributed to the *Elymus* parent. Regreen produces a cereal grain that is nutritious yet non-viable. Site managers can now be assured that their nurse crop will not be volunteering new seedlings to compete with other desirable plants.



Regreen

## Seeding Rates and Planting Suggestions

When seeded in a mix with other perennial plants to provide some stabilizing cover and minimal competition, 10-20 pounds per acre is usually adequate. If a monoculture is desired for maximum soil stabilization, 60-80 pounds per acre is desirable. For best results, seed should be placed in a firm seed bed or planted under a protective clean straw-mulch or Bonded Fiber Matrix (BFM) product. In particularly dry sites, place seed at a depth of 1 inch before mulching so that germination will not occur until sufficient precipitation has penetrated the soil and will be available to support plant life.

Use a drill, hydroseeder or a spin spreader to apply the seed.

## Native Grasses and *Regreen*<sup>TM</sup>

When the success of your project depends on erosion control and the establishment and survival of slow developing or sensitive species, Regreen can serve as the nurse crop. Regreen stabilizes the soil and protects young seedlings. If planted a year in advance, Regreen can be established as a monoculture to stabilize the site and reduce the resident seed bank. Alternatively, the Regreen can be planted in conjunction with native mixtures or other sustainable plant species. The skeletons of dying Regreen plants offer protection from wind and will assist in protecting the soil surface from initial rains during the second growing season. Use Regreen to **enhance** the success of your project.



533 Hawthorne Place  
Livermore, CA 94550  
(800) 733-3462

info@pcseed.com

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### NATIVE EROSION CONTROL MIX

#/ Ac. SPECIES/Common Name – 45 Total lbs lbs.

25	Bromus carinatus California Brome
10	Elymus glaucus/ Blue Wildrye
6	Festuca microstachys/ Small Fescue
4	Trifolium willdenovii/ Tomcat Clover

This native erosion control mixture features prompt germinating California native grasses that are acclimated to varying harsh site conditions. Please provide adequate surface soil protect to allow these plants to become fully established.

PW 2016-0327

**Peters & Ross**  
*Geotechnical & Geoenvironmental*  
*Consultants*

RECEIVED

JUN 19 2017

San Mateo County  
Planning Division

June 12, 2017  
Project No. 16129.001

Mr. Anish Khimani  
105 San Lucas Avenue  
Moss Beach, CA 94038

**RE: Construction Observation and Testing – Permit No. DPW2017-00138  
Khimani Residence Emergency Slope Restoration and Winterization**

Dear Mr. Khimani:

Pursuant to your request, Peters & Ross observed that the existing retaining wall footing excavations, located along the southern and western property lines, were backfilled with engineered fill and that the adjacent slopes were restored in accordance with the approved winterization plan prepared by Precision Engineering and Construction Inc. and dated June 6, 2016, with latest revision February 2, 2017. These measures were implemented on an emergency basis so that storm water would not flow into the landslide head scarp located along the southern and western property lines.

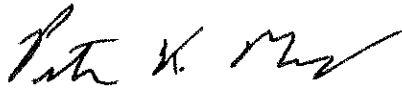
Two 4-inch diameter plastic drainage pipe were encountered near the back left corner of the house and deck area. It is our understanding that storm water flow conveyed in these pipes will be rerouted to the street in a later submittal. In the interm, we recommend that the pipes discharge into a 10 foot long, 6-inch diameter perforated pipe, holes down, placed on contour at the base of the slope in the middle of a 4-foot wide bed of 3 inch rock.

The approved plans are based on a site survey performed by DMG Engineering dated October 9, 2015. On March 29, 2017, Peters & Ross observed that the elevation of the adjacent property at the southwest corner of the retaining wall footing excavation had dropped a couple of feet. We recommended that the proposed backfill slope in this area (about 30 feet starting from the south west property corner - mostly along the southern property line adjacent to the back deck) be steepened to minimize and or eliminate fill being placed on the adjacent property/head scarp area.

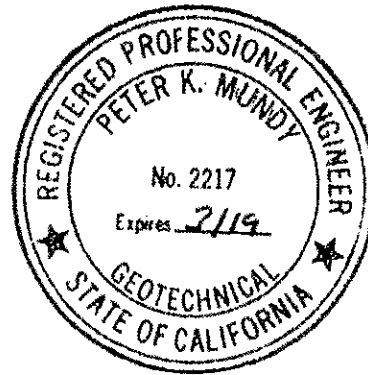
In this 30 foot section of the slope Peters & Ross had the contractor install four 8 foot long primary layers using Miragrid 5XT and three 4 foot long secondary layers using the same grid. The primary layers were spaced 2 foot vertical with the secondary layers being installed between the primary layers. Mr. Farrokh Keshavarzi obtained a sample of the backfill materials and performed a laboratory density test (ASTM D-1557-12). The test resulted in a maximum density of 113.0 pounds per cubic foot (pcf) at optimum moisture content of 12.7 percent. Engineered fill was then placed and compacted in 8 inch loose lifts.

Mr. Keshavarzi performed field density tests using Nuclear Probe Method ASTM 6938-10. Mr. Keshavarzi's field density test results are summarized in the attached Table A. All field density tests exceeded 90 percent of ASTM D-1557. It is our opinion that the engineered fill was placed and compacted in general accordance with the geotechnical recommendations of our report and the requirements of Permit No. DPW2017-00138. This completes our construction observation and testing services. If you have any questions concerning the results of our observations, please call us.

Very truly yours,



Peter K. Mundy, P.E., G.E.  
Geotechnical Engineer 2217



**KHIMANI RESIDENCE WINTERIZATION**  
**105 San Lucas Avenue**  
**Moss Beach, California**

**TABLE A**  
**FIELD DENSITY TEST SUMMARY**

Test No.	Date of Test	Location	Elev. ft.	Operation	Moisture Content (%)	Dry Density (pcf)	Max. Dry Density (pcf)	Degree of Compaction (%)	Min. Comp. Specified (%)	Curve No.	Pass/Fail
1	4/4/17	Front	2.5	Fill	16.0	108.3	113.0	95.8	90	1	Pass
2	4/4/17	Back	f.g.	Fill	10.2	108.8	113.0	96.3	90	1	Pass
3	4/4/17	North	f.g.	Fill	12.7	109.2	113.0	96.6	90	1	Pass
4	4/4/17	Middle	2.5	Fill	17.5	104.9	113.0	92.8	90	1	Pass
5	4/5/17	Middle	f.g.	Fill	18.5	104.9	113.0	92.8	90	1	Pass
6	4/5/17	Front	f.g.	Fill	18.8	109.7	113.0	97.1	90	1	Pass

1. Field density tests performed using Nuclear Probe Method ASTM 6938-10.
2. Approximate elevations of tests determined from observations of grade stakes at the site.
3. Abbreviations used on the table refer to the following:

No. = number	pcf = pounds per cubic foot
Elev. = elevation	Max. = maximum
ft = feet	Min. = minimum
% = percent	Comp. = compaction
f.g. = finished grade	



**Peters & Ross**  
**Geotechnical & Geoenvironmental**  
**Consultants**

February 6, 2017  
Project No. 16129.001

Mr. Anish Khimani  
105 San Lucas Avenue  
Moss Beach, CA 94038

**Geotechnical Winterization Plan Review – Khimani Residence Retaining Wall**

Dear Mr. Khimani:

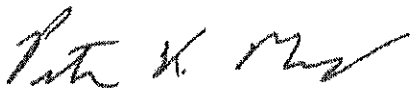
In accordance with your request, Peters & Ross has reviewed Sheet C-3.2 of the winterization plan prepared by Precision Engineering and Construction, Inc. of Belmont, California, dated June 6, 2016, with latest revision February 2, 2017. The purpose of our review was to assess if the plans complied with the geotechnical recommendations presented in our geotechnical report dated July 15, 2016, and our understanding of a meeting with the County on January 31, 2017.

Based on our review of the plans, we find that they substantially conform to the state of practice and the geotechnical recommendations provided in our report.

It is our understanding that the existing foundation excavations will be backfilled with engineered fill. Engineered fill shall consist of on-site spoils that are free of organic materials. Imported fill, if needed, should contain no rocks with a diameter of 4 inches or more, and should not contain organic, contaminated, or other deleterious material. It should have a plasticity index not exceeding 20 percent. Peters & Ross should check the suitability of prospective fill before it is transported to the site. In areas where fill will be placed, the ground surface should be scarified to a depth of at least 6 inches, moisture conditioned as necessary to achieve a moisture content between optimum and optimum plus 3 percent, and compacted to at least 90 percent relative compaction (as determined by a laboratory compaction test performed in accordance with ASTM D1557-12). Fill should be placed on level benches in layers not more than 8 inches thick. Each layer should be moisture conditioned as above, and compacted to at least 90 percent relative compaction.

We appreciate the opportunity to provide geotechnical engineering services to you. If you have any questions, please call.

Yours very truly,

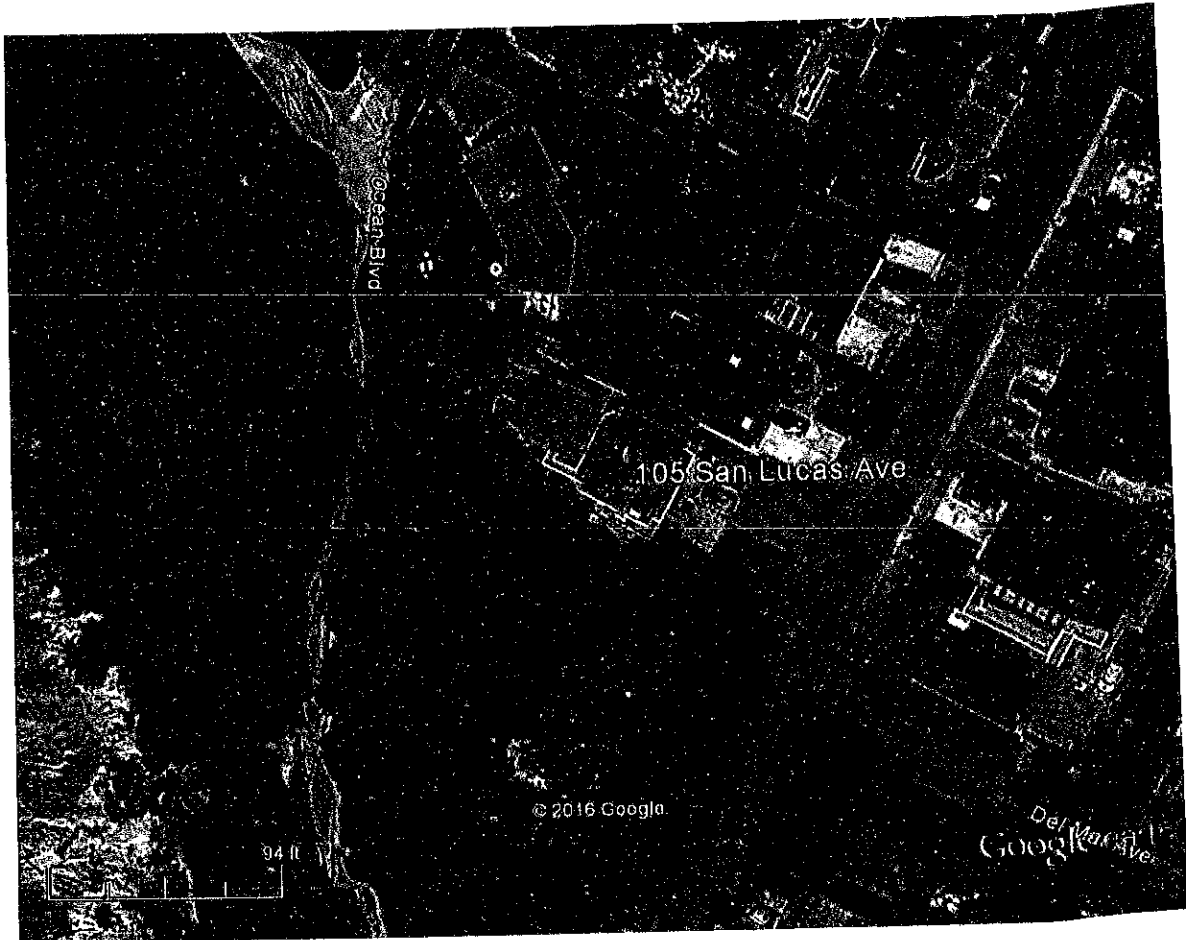


Peter K. Mundy, P.E., G.E.  
G.E. No. 2217



**Peters & Ross**  
***Geotechnical & Geoenvironmental Consultants***

**Geotechnical Investigation  
Khimani Residence Wall**



**105 San Lucas Avenue, Moss Beach, California**

Project No. 16129.001

July, 2016

*Pin 2014 - 327*

**Peters & Ross**  
*Geotechnical & Geoenvironmental*  
*Consultants*

July 15, 2016  
Project No. 16129.001

Mr. Anish Khimani  
105 San Lucas Avenue  
Moss Beach, CA 94038

**Geotechnical Investigation – Khimani Residence Wall**

Dear Mr. Khimani:

In accordance with your authorization, Peters & Ross has completed a geotechnical investigation for the above referenced project. The accompanying report presents the results of our field investigation, laboratory testing, and engineering analyses. Based on this information, it is Peters & Ross' opinion that the site is unsuitable for a masonry wall. We recommend that the cut made for the masonry wall be restored using either a reinforced soil slope or a geogrid reinforced segmental wall.

Peters & Ross should also be retained:

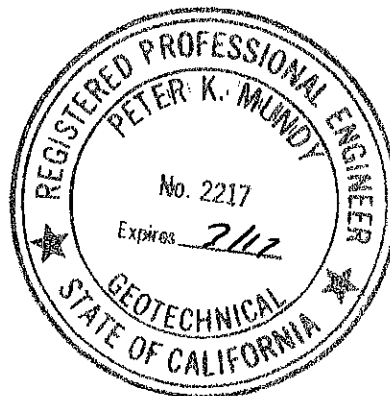
- to review geotechnical aspects of project plans and specifications,
- to provide supplemental recommendations should significant changes in the planned improvements be made, and
- to provide geotechnical engineering observation and testing services during construction, in order to check that the recommendations presented in this report are properly implemented into the completed project.

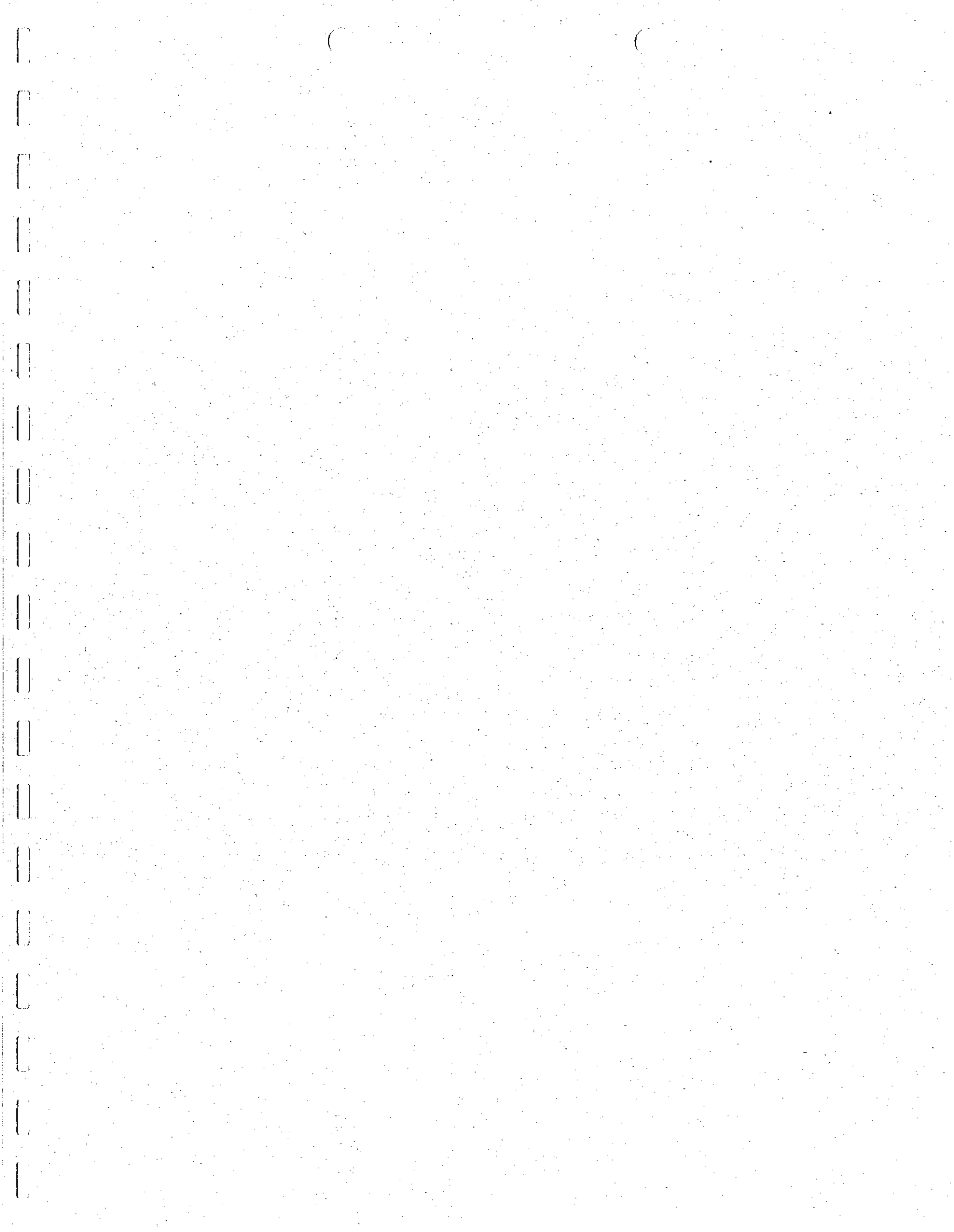
We appreciate the opportunity to provide geotechnical engineering services to you. If you have any questions, please call.

Very truly yours,  
PETERS & ROSS



Peter K. Mundy, P.E., G.E.  
Geotechnical Engineer 2217





## INTRODUCTION

This report presents the results of a geotechnical investigation performed by Peters & Ross for the proposed retaining wall located on the slope behind the existing house at 105 San Lucas Avenue in Moss Beach, California. The location of the site is shown on the Site Vicinity Map (Figure 1). The ground surface topography near the site is shown on Figure 2.

### Project Description

The project site is a developed 0.16 acre downslope lot located on the west side of San Lucas Avenue. A two story wood-frame house was constructed in the central portion of the lot. Based on information provided by Sinbordes Design, current plans are to construct a 5-foot high masonry retaining wall along 39 feet of the western property line and 67 feet of the southern property line.

### Scope of Services

Peters & Ross scope of services for the project was presented in our proposal dated April 26, 2016. Our services on the project were limited to the following:

- Drilling two deeper exploratory test borings
- Logging and obtaining samples of the materials encountered in the test borings
- Performing laboratory tests on selected samples
- Performing engineering analyses sufficient to develop conclusions and recommendations regarding:
  1. Site geology and seismicity
  2. Soil and groundwater conditions
  3. Site preparation, excavation, and grading
  4. The most appropriate type of retaining wall for the site
  5. Geotechnical design parameters for the wall
  6. Geotechnical aspects of site drainage
  7. Construction considerations
- Preparing this report.

## FIELD EXPLORATION AND LABORATORY TESTING

Subsurface conditions were explored by drilling two deeper exploratory test borings rather than 3 shallow test borings. One was drilled to a depth of 25 feet and the second was drilled to a depth of 28.5 feet using 3.5-inch portable hydraulic auger operated by DeNovo Drilling of Richmond, California. The locations of the borings are shown on the Site Plan, Figure 3. Samples of the materials encountered in the borings were obtained at

frequent depth intervals, for field classification and laboratory testing. A description of the drilling and sampling equipment used and other details of the subsurface exploration, as well as the logs of the test borings, are presented in Appendix A. The laboratory tests performed are discussed in Appendix B.

## **SITE CONDITIONS**

### **Site Geology and Seismicity**

The property is located at the top of the coastal bluff above the Pacific Ocean. Geologic mapping by Pampeyan (1994) indicates that the site is underlain by upper Pleistocene age marine terrace deposits (Qmt). The marine terrace deposits generally consist of poorly to moderately consolidated marine, eolian, and alluvial sand, silt, gravel, and clay deposits. The marine terrace deposits are underlain by Pliocene age Purisima Formation (Tp). The Purisima Formation consists of interbedded mudstone, siltstone, and sandstone.

Landslide mapping of the area by Pampeyan (1994) shows a large landslide just west of the site. William Cotton and Associates developed a geologic hazard map for the County of San Mateo in 1980. They mapped the subject site as being within Zone 1 which includes all properties that are affected by active landslide processes. William Cotton and Associates (1980) stated that the feasibility of stabilizing the bluff is extremely low. In 2005, the County geologist increased the boundary of the active slide to include the subject property as shown in Figure 4.

The site is within the seismically active San Francisco Bay Area. Several active faults capable of generating strong earthquake groundshaking at the site are located nearby. The closest of these are the Seal Cove trace of the San Gregorio Fault which is about 400 feet northeast of the site and the San Andreas Fault which is about 11 kilometers northeast. The site is located within the Active Fault Near-Source Zone which means that the project will be subject to a large magnitude earthquake that will cause strong groundshaking.

### **Subsurface Conditions**

Generally, 20 feet to 22 feet of marine terrace deposits were encountered. Atterberg limits tests indicate that the clayey sand materials from Boring 2 at a depth of 7.5 feet have a liquid limit of 38 percent and a plasticity index of 15 percent, with 35 percent passing the #200 sieve. These results indicate that the clayey sand materials have a low expansion potential (expansive soils shrink and swell in response to changes in moisture). In Boring 2 the marine terrace deposits were overlain by 5 feet of sandy lean clay fill materials. The marine terrace deposits were underlain by fine sandstone which extended to the depths explored.

### Groundwater

Groundwater was not encountered and boreholes were backfilled immediately after drilling. It should be noted that fluctuations in the groundwater level may occur due to variations in rainfall, temperature, and other factors not evident at the time the measurements were made.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the field investigation, laboratory testing, and engineering analyses, it is our opinion that the proposed wall is located on an active landslide. Peters & Ross judges that the bluff on which the wall is to be constructed, is unstable and will not support the proposed masonry wall. The primary geotechnical concern is the mapped active landslide. It is our opinion that the risk of the landslide failing is extremely high. Several homes and Ocean Boulevard have been destroyed around the subject property by the active landslide processes. William Cotton and Associates (1980) stated that the feasibility of reducing the risk to acceptable levels is extremely low. Therefore, Peters & Ross recommends that the masonry retaining wall not be constructed. Rather the cut for the wall should be restored using either a geogrid reinforced soil slope or a geogrid reinforced segmental wall. However, all of the conclusions and recommendations presented in this report should be incorporated in the design and construction of the project to avoid possible soil and foundation problems.

### 1. Seismic Concerns

In accordance with Section 1613 of the 2013 CBC, Peters & Ross classifies the site as a D Site Class with a latitude of 37.5157 degrees and a longitude of -122.5113 degrees. The CBC parameters presented in the following table should be used for seismic design.

PERIOD (sec)	0.2	1.0
SPECTRAL RESPONSE $S_s, S_l$	2.272	0.960
SITE COEFFICIENT $F_a, F_v$ (SITE CLASS D)	1.0	1.5
MAXIMUM SPECTRAL RESPONSE $S_{ms}, S_{ml}$	2.272	1.440
DESIGN SPECTRAL RESPONSE $SD_s, SD_l$	1.515	0.960

The site is not within an Alquist-Priolo Earthquake Fault Zone, and therefore the risk of fault rupture at the site is low. No loose, clean sands were observed in the exploratory test borings. Therefore, the risk of significant foundation settlement due to liquefaction or densification during a large magnitude earthquake is low.

### 2. Site Preparation, Excavation, and Grading

Clear the area of vegetation within the limits of the geogrid reinforced soil slope or segmental walls before performing earthwork. In areas where fill will be placed, the ground surface exposed by site clearing and stripping should be scarified to a depth of at least 6 inches,

moisture conditioned as necessary to achieve a moisture content between optimum and optimum plus 3 percent, and compacted to at least 90 percent relative compaction (as determined by a laboratory compaction test performed in accordance with ASTM D1557). Fill should be placed on level benches in layers not more than 8 inches thick. Each layer should be moisture conditioned as above, and compacted to at least 90 percent relative compaction.

Some material generated by onsite excavations may be suitable for reuse as compacted fill, excepting surface stripping containing organic material. Imported fill, if needed, should contain no rocks with a diameter of 4 inches or more, and should not contain organic, contaminated, or other deleterious material. It should have a liquid limit not exceeding 40 percent and a plasticity index not exceeding 20 percent. Peters & Ross should check the suitability of prospective fill before it is transported to the site.

### **3. Retaining Wall Design Parameters**

Peters & Ross estimated geotechnical soil parameters based on the results of our exploratory test borings, laboratory testing, and our engineering judgment. The soil parameters that should be used in design of the segmental wall are summarized in the following table:

Material	Unit Weight (pcf)	Drained Strength Parameters		Undrained Strength Parameters	
		Cohesion, $c'$ (psf)	Friction, $\phi'$ (degrees)	Cohesion, $c$ (psf)	Friction, $\phi$ (degrees)
Marine Terrace Deposits	120	0	25	50	20
Engineered Fill	125	0	32	20	30

Peters & Ross recommends that the segmental wall be buried 2 blocks below the lowest adjacent grade. We recommend that we monitor and test, as appropriate, during sorting, processing, placement and compaction of the onsite soils to verify that the compacted materials meet or exceed the above values.

### **4. Reinforced Soil Slope**

Peters & Ross recommends that the reinforced soil slope consist of an 8-foot long primary geogrid of Fortrac 55 at a vertical spacing of 24 inches and a secondary 4 foot length of Fornit 20 geogrid placed between primary geogrids.

### **5. Plan Review and Services during Construction**

Peters & Ross should be retained to review project plans, to check that the geotechnical engineering recommendations contained in this report are properly incorporated.

Peters & Ross should also be retained to provide geotechnical observation services on an as-needed basis during construction, to check that geotechnical aspects of the work are completed in accordance with the plans. These services should include observing site



grading, engineered fill placement and compaction, and providing consultation to the contractor regarding any geotechnical concerns that arise during construction. Peters & Ross cannot accept responsibility for geotechnical aspects of construction that are not observed by its staff.

Peters & Ross will make every reasonable effort to accommodate the contractor's work schedule during construction, so that necessary observations can be performed in a timely manner to avoid construction delays. However, since our field services are often required on several projects concurrently, we request that 48 hours advance notice be given for site visits, in order to minimize scheduling conflicts.

### **LIMITATIONS**

Peters & Ross services consist of professional opinions and recommendations that are made in accordance with generally accepted geotechnical engineering principles and practices. The opinions and recommendations presented in this report are based on a site reconnaissance, review of published and unpublished geologic maps, two exploratory test borings, laboratory testing, engineering analyses, and discussions with you regarding the planned replacement walls. This warranty is in lieu of all other warranties either expressed or implied.

Subsurface conditions commonly vary significantly from those encountered at the test boring locations. Unanticipated, adverse soil conditions encountered during construction often require additional expenditures to achieve a properly constructed project. It is advised that a contingency fund be established to accommodate possible consulting and construction cost increases due to unanticipated conditions.

### **LIST OF FIGURES**

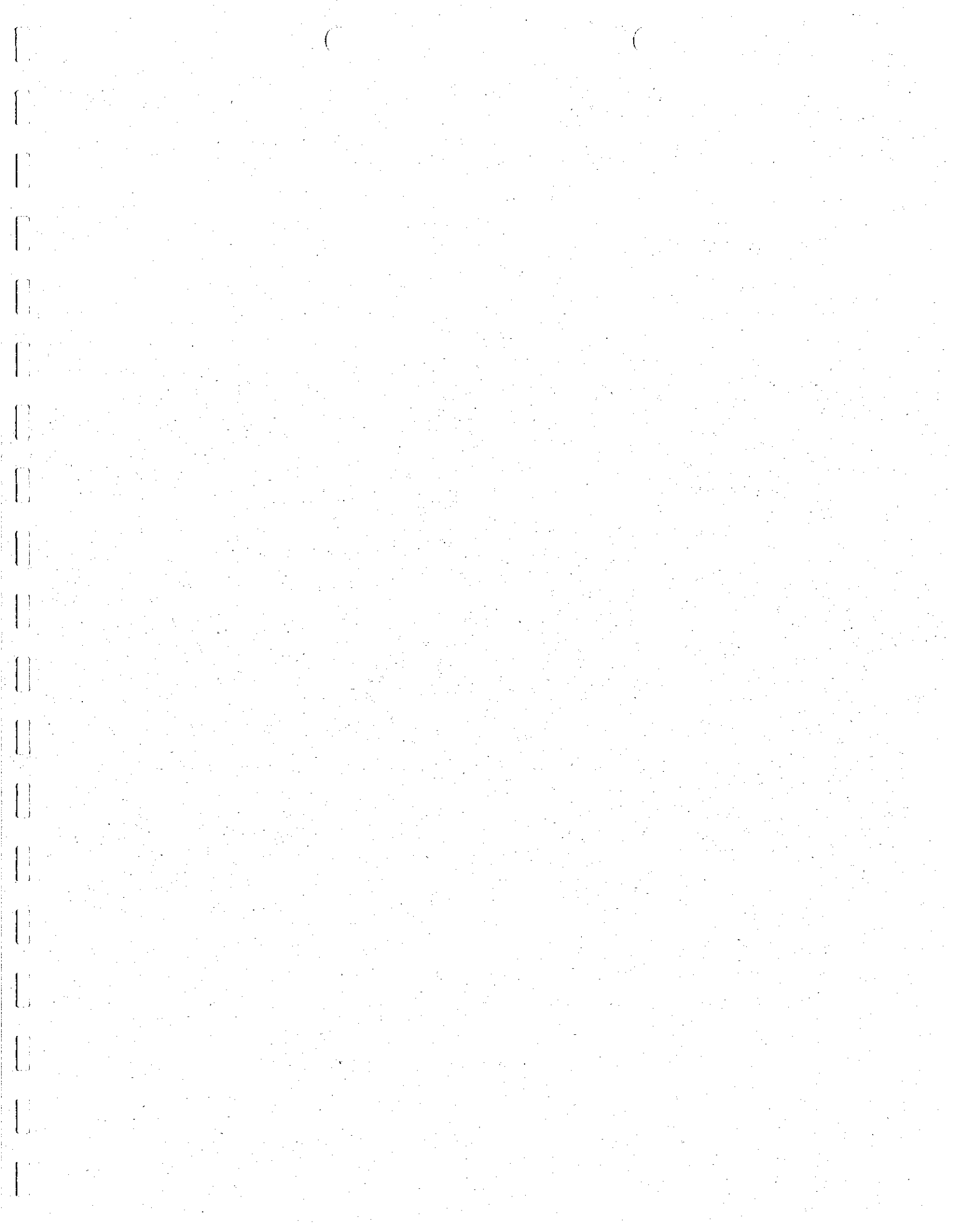
Figure 1	Site Vicinity Map
Figure 2	Site Topography
Figure 3	Site Plan
Figure 4	San Mateo County Landslide Map

### **APPENDICES**

Appendix A	Field Investigation
Appendix B	Laboratory Testing

### **DISTRIBUTION**

5 copies: Mr. Anish Khimani  
105 San Lucas Avenue  
Moss Beach, CA 94038



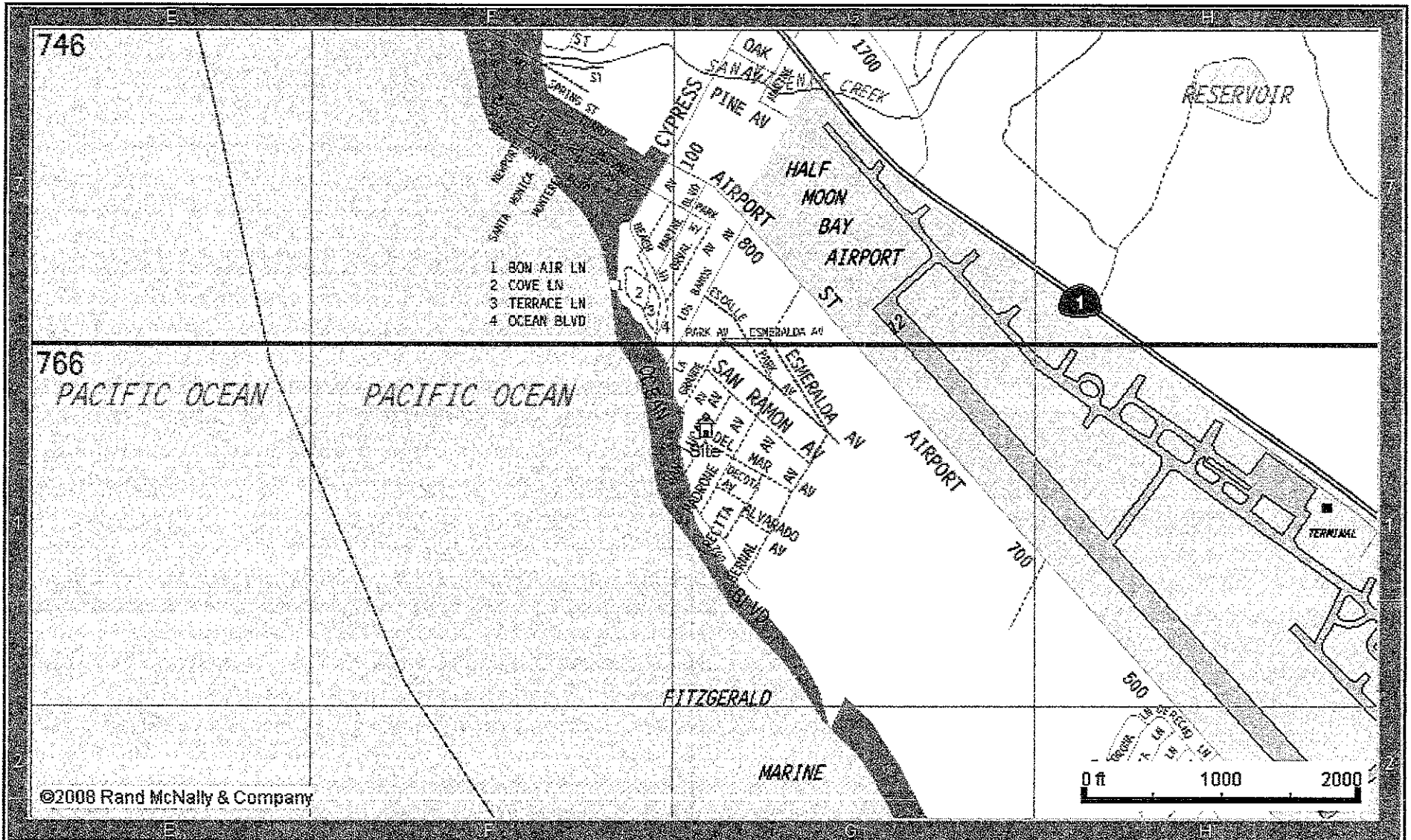


Figure 1 - Site Vicinity Map

**Peters & Ross**  
Geotechnical and  
Geoenvironmental Consultants

114 Hopeco Road  
Pleasant Hill, CA 94523  
tel. (925) 942-3629  
fax. (925) 665-1700  
PetersRoss@aol.com

PROJECT No.

16129.001

DATE

July 2016

Khimani Residence Wall  
105 San Lucas Avenue  
Moss Beach, CA 94038

TOPO! map printed on 07/19/16 from "California.tpo" and "Untitled.tpg"  
 122.51667° W NAD27 122.50000° W

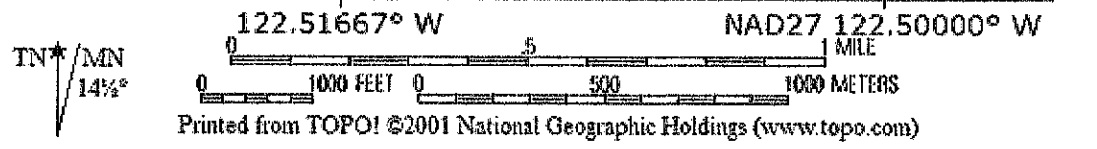
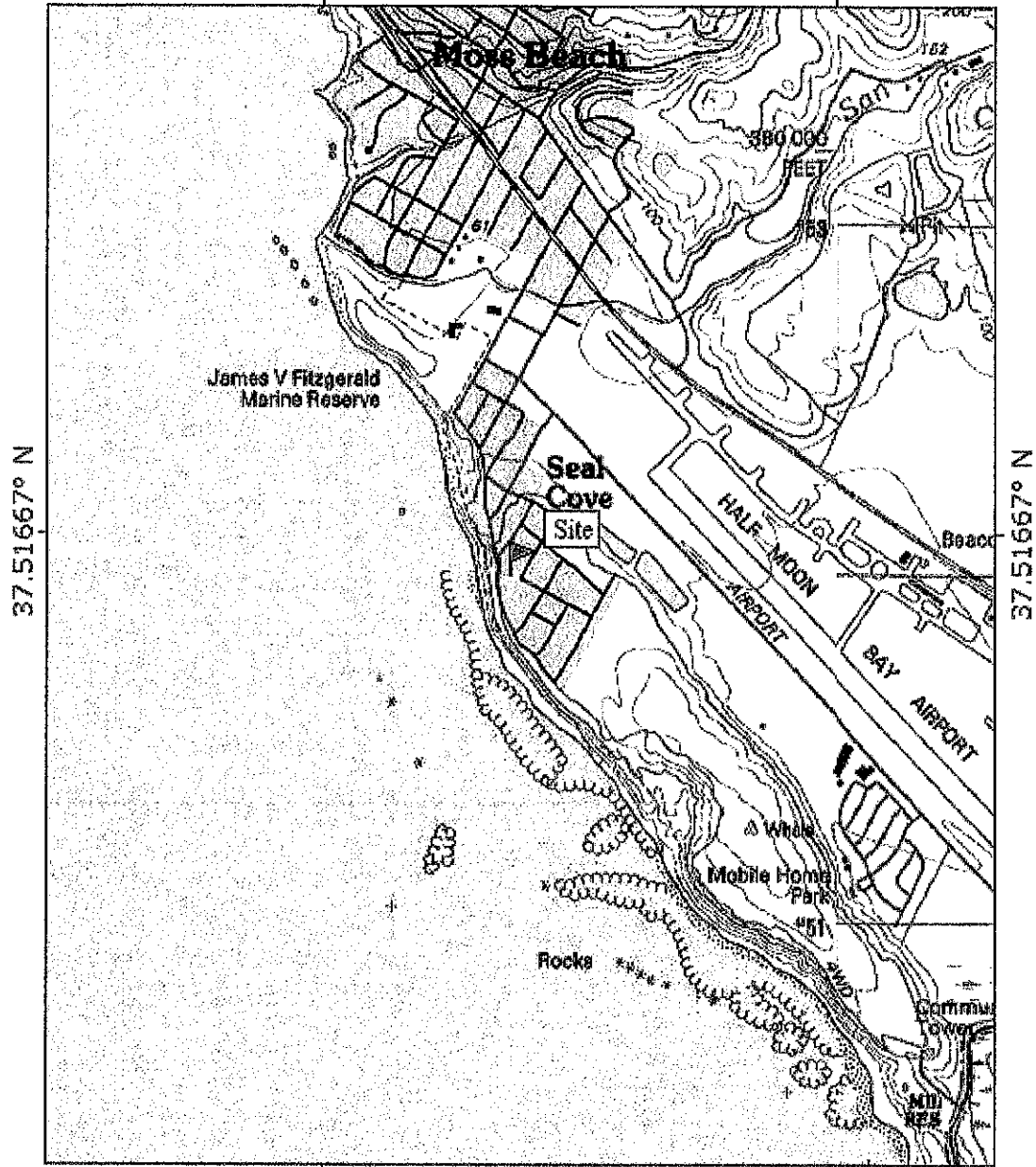


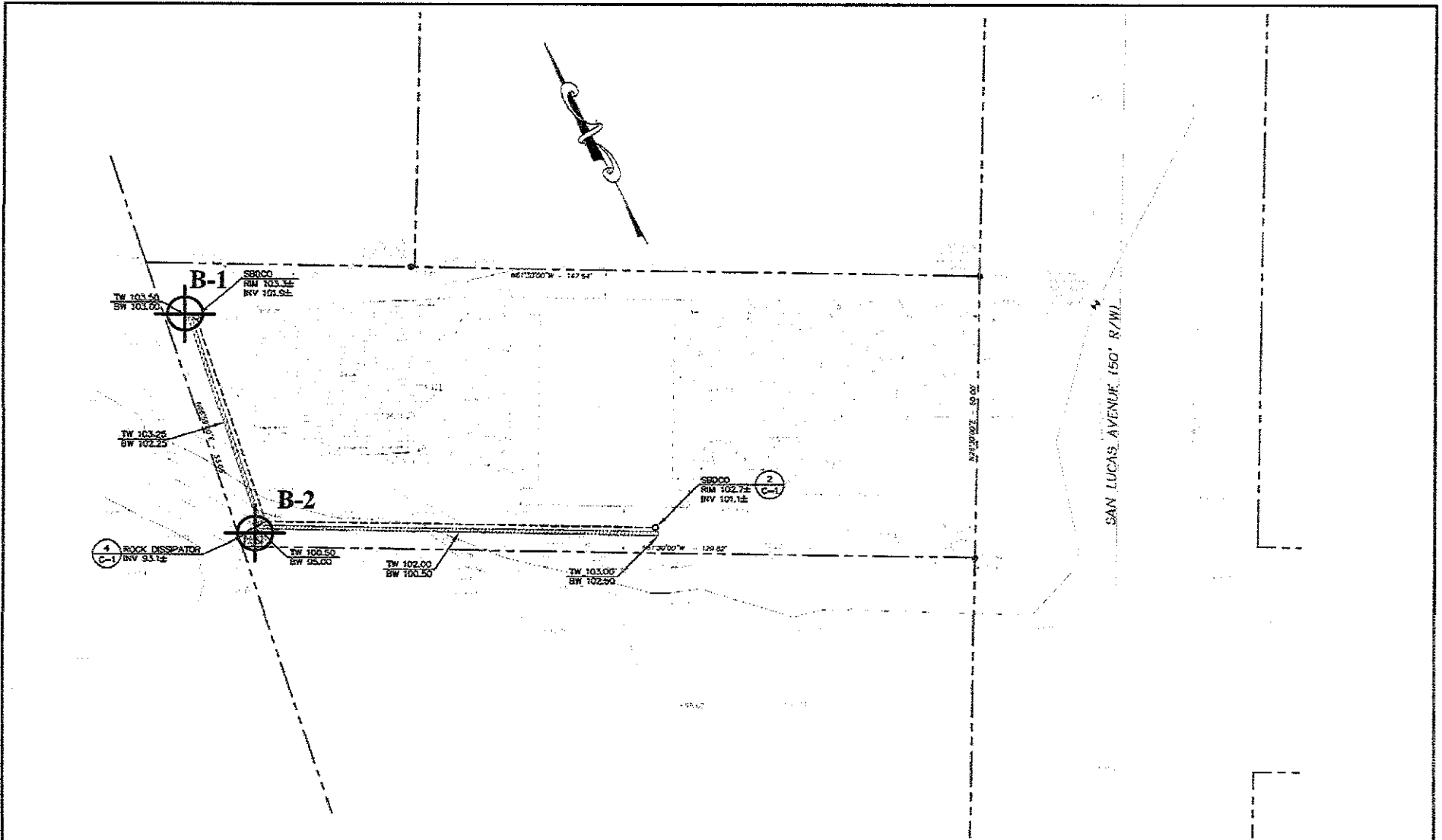
Figure 2 - Site Topography


**Peters & Ross**  
 Geotechnical and  
 Geoenvironmental Consultants

114 Hopeco Road  
 Pleasant Hill, CA 94523  
 tel. (925) 942-3629  
 fax. (925) 665-1700  
 PetersRoss@aol.com

<b>PROJECT No.</b>	16129.001
<b>DATE</b>	July 2016

Khimani Residence Wall  
 105 San Lucas Avenue  
 Moss Beach, CA 94038



 B-1 Approximate Location of Exploratory Test Borings

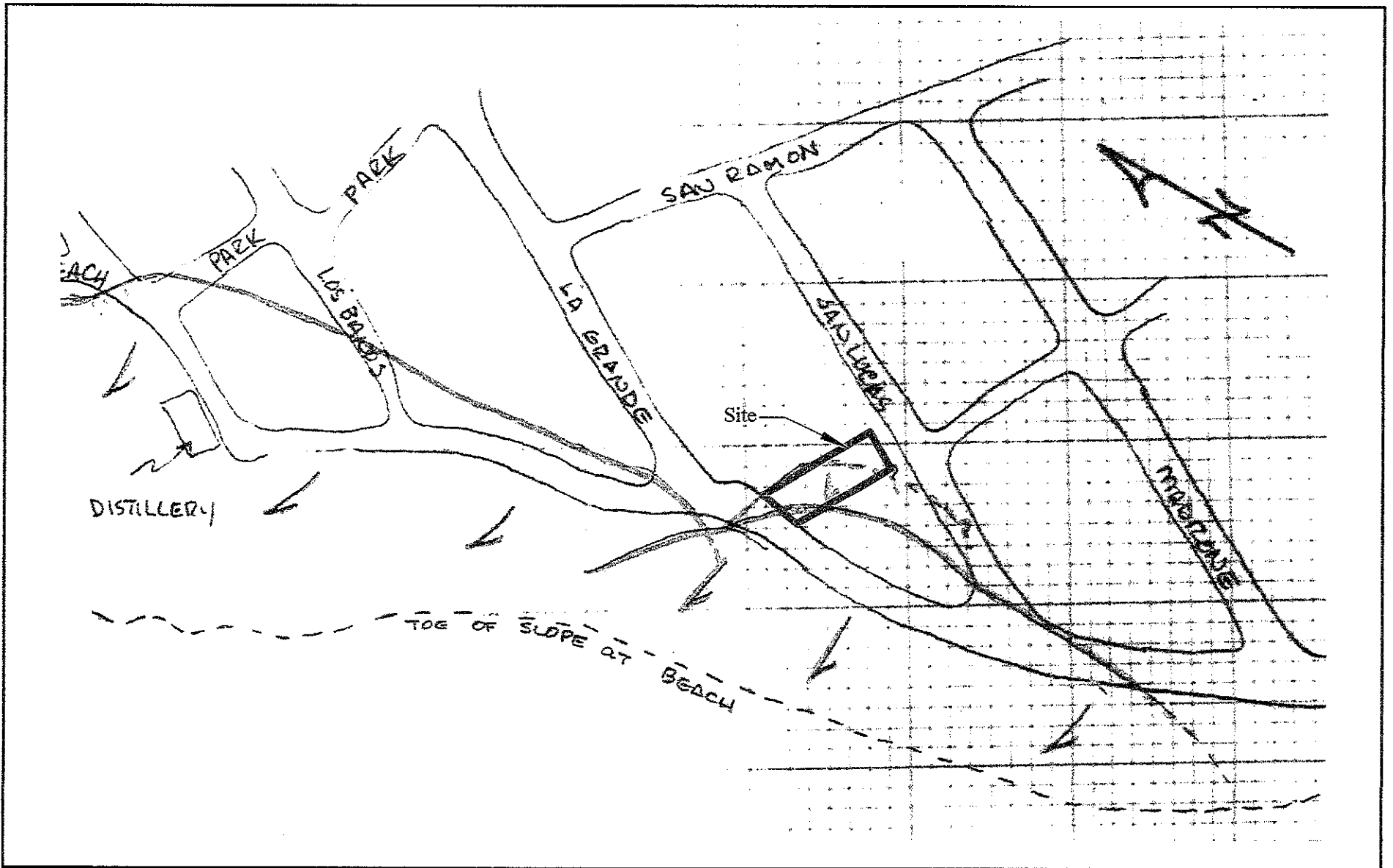
**Figure 3 - Site Plan**

***Peters & Ross***  
 Geotechnical and  
 Geoenvironmental Consultants

114 Hopeco Road  
 Pleasant Hill, CA 94523  
 tel. (925) 942-3629  
 fax. (925) 665-1700  
 PetersRoss@aol.com

<b>PROJECT No.</b>
16129.001
<b>DATE</b>
July 2016

**Khimani Residence Wall**  
 105 San Lucas Avenue  
 Moss Beach, CA 94038



# ***Peters & Ross***

Geotechnical and  
Geoenvironmental Consultants

114 Hopeco Road  
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fax. (925) 665-1700  
PetersRoss@aol.com

**Figure 4 - San Mateo County Landslide Map**

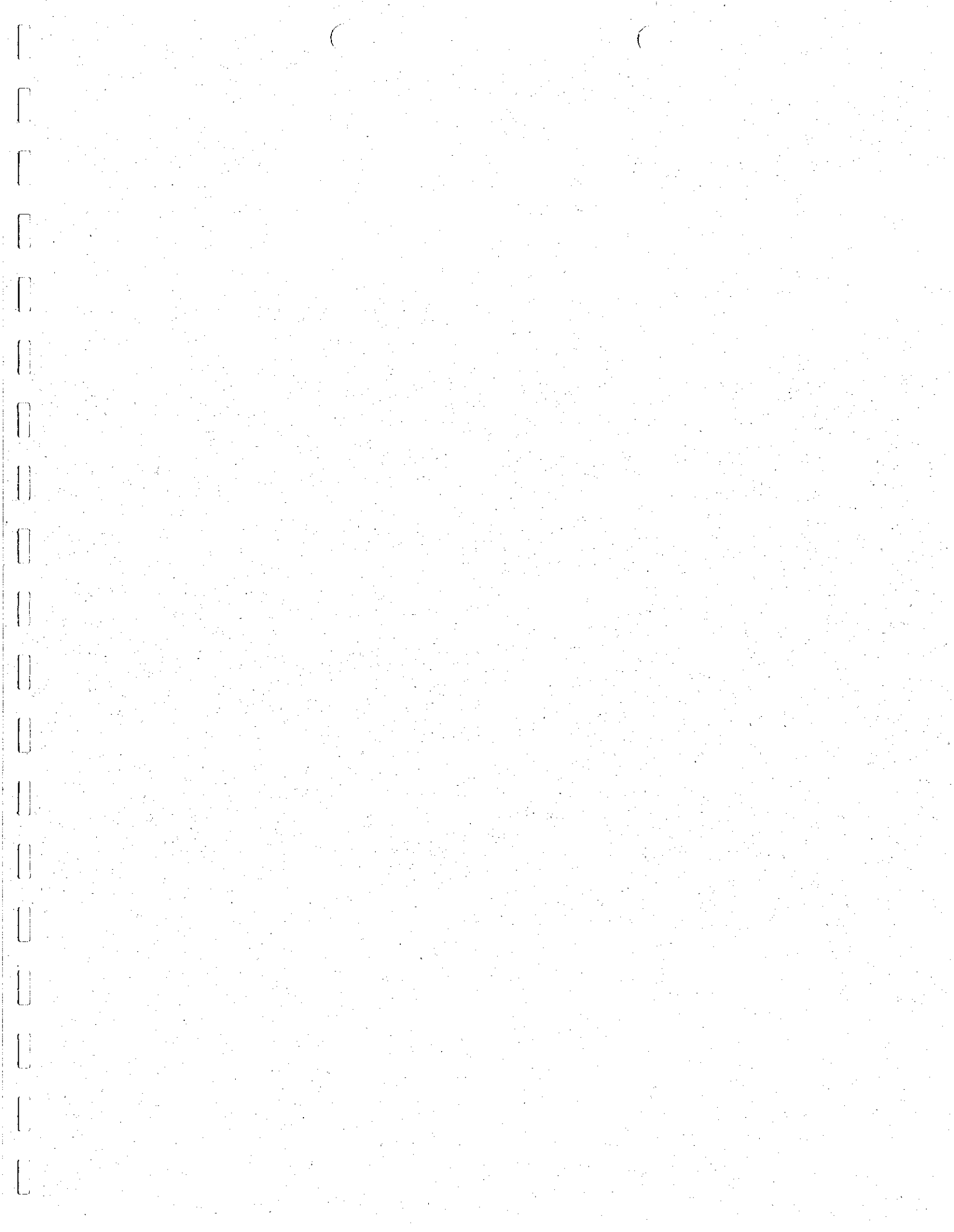
**PROJECT No.**

16129.001

**DATE**

July 2016

Khimani Residence Wall  
105 San Lucas Avenue  
Moss Beach, CA 94038





**APPENDIX A – FIELD INVESTIGATION**

Peters & Ross explored subsurface conditions at the site by drilling two exploratory test borings to a maximum depth of 28.5 feet. The location of the test borings are shown on the Site Plan.

The borings were drilled using a portable hydraulic auger and our field engineer continuously logged the materials encountered. The boring logs that show the materials encountered are included in this Appendix. Soils are classified in accordance with the Unified Soil Classification System.

The boring logs indicate Peters & Ross interpretations of subsurface conditions encountered at the locations and times the borings were drilled, and may not be representative of subsurface conditions at other locations and times. Stratification lines represent the approximate boundaries between soil and rock types. The transitions between soil and rock layers are often gradual.

Samples of the materials encountered were obtained at frequent depth intervals, for visual classification and laboratory testing. Samples were obtained using a Modified California sampler (outer diameter of 3.0 inches, inner diameter of 2.5 inches) with thin-wall brass sampler liners, and a Standard Penetration Test sampler (outer diameter of 2.0 inches, inner diameter of 1.375 inches). A 140 pound safety hammer was used to drive the samplers. The hammer was lifted and dropped 30 inches using a rope and cat head system.

Project Name: Khimani Residence Wall

Project No.: 16129.001

Location: 105 San Lucas Ave., Moss Beach, CA

Client: Anish Khimani

Drilling Method: Portable Hydraulic Auger

Date Drilled: 5/3/16

Elevation: 102 feet

Water Level: Not Encountered

Remarks: Samplers driven with 140 lb safety hammer lifted and dropped 30 inches using a rope and cathead system

DESCRIPTION	SYMBOL	DEPTH FT.	SAMPLE TYPE	BLOWS/FT.	MOISTURE %	DRY DENSITY PCF	UNCONFINED STRENGTH KSF	REMARKS
Ground Surface		0						
<b>Sandy Lean CLAY (CL)</b> yellow brown, stiff, moist, white pebbles	[Pattern]		MC	33	20	104	(4.25)	
<b>Clayey SAND (SC)</b> mottled dark orange brown, medium dense, medium to coarse grained			SS	19	15			
		5						
			SS	24	17			
<b>Silty SAND (SM)</b> gray to yellow brown, medium dense, fine grained		10	SS	22	16			
		15	SS	16	15			
		20						

Project Name: Khimani Residence Wall  
 Location: 105 San Lucas Ave., Moss Beach, CA  
 Drilling Method: Portable Hydraulic Auger  
 Elevation: 102 feet

Project No.: 16129.001  
 Client: Anish Khimani  
 Date Drilled: 5/3/16  
 Water Level: Not Encountered

Remarks: Samplers driven with 140 lb safety hammer lifted and dropped 30 inches using a rope and cathead system

DESCRIPTION	SYMBOL	DEPTH FT.	SAMPLE TYPE	BLOWS/FT.	MOISTURE %	DRY DENSITY PCF	UNCONFINED STRENGTH KSF	REMARKS
Silty SAND (SM) gray to yellow brown, medium dense, fine grained	[Symbol: Diagonal lines]	25	SS	18	17			* = 50/4"
Silty Fine SANDSTONE dark gray, moist, soft hardness, well cemented								
End of Borehole = 25 feet			SS	*	9			
		30						
NOTES: 1. Penetration resistance values are not standard N values, they are the values measured in the field. 2. Stratification lines represent the approximate boundaries between material types, and the transitions may be gradual. 3. Groundwater was not encountered and the borehole was backfilled with cuttings immediately after drilling. 4. Shear strength values in parentheses are in tons per square foot and were obtained using a pocket penetrometer.								
		35						
		40						

Project Name: Khimani Residence Wall

Project No.: 16129.001

Location: 105 San Lucas Ave., Moss Beach, CA

Client: Anish Khimani


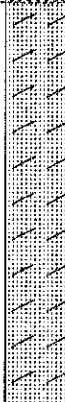


Drilling Method: Portable Hydraulic Auger

Date Drilled: 5/3/16

Elevation: 94 feet

Water Level: Not Encountered

Remarks: Samplers driven with 140 lb safety hammer lifted and dropped 30 inches using a rope and cathead system

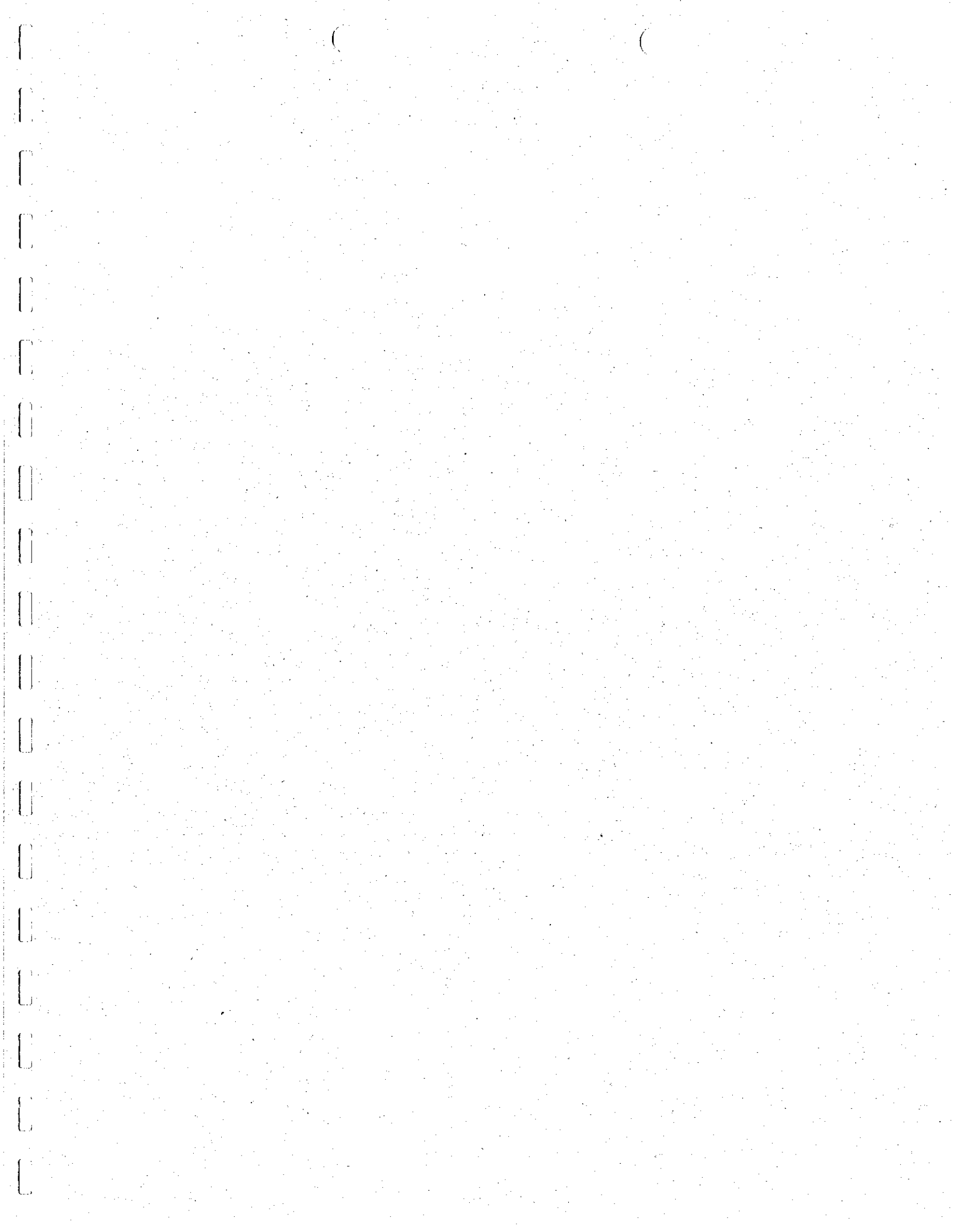
DESCRIPTION	SYMBOL	DEPTH FT.	SAMPLE TYPE	BLOWS/FT.	MOISTURE %	DRY DENSITY PCF	UNCONFINED STRENGTH KSF	REMARKS
Ground Surface		0						
<b>Sandy Lean CLAY (CL-FILL)</b> mottled yellowish brown with dark brown, medium stiff, moist		0						
			MC	10	16	107	(3.5)	
<b>Clayey SAND (SC)</b> mottled dark orange brown, medium dense, fine to coarse grained, abundant white quartz subangular fragments, poorly cemented		5						
			MC	11	16	107	(>4.5)	LL=38%, PI=15% -200 = 35 percent
<b>SAND (SP)</b> dark orange brown, medium dense, medium to coarse grained		10						
			MC	13	11	108	(3.5)	
<b>Silty SAND (SM)</b> dark orange brown, loose, medium to coarse grained		15						
			SS	8	8			
		20						

Project Name: Khimani Residence Wall  
 Location: 105 San Lucas Ave., Moss Beach, CA  
 Drilling Method: Portable Hydraulic Auger  
 Elevation: 94 feet

Project No.: 16129.001  
 Client: Anish Khimani  
 Date Drilled: 5/3/16  
 Water Level: Not Encountered

Remarks: Samplers driven with 140 lb safety hammer lifted and dropped 30 inches using a rope and cathead system

DESCRIPTION	SYMBOL	DEPTH FT.	SAMPLE TYPE	BLOWS/FT.	MOISTURE %	DRY DENSITY PCF	UNCONFINED STRENGTH KSF	REMARKS
<b>Silty SAND (SM)</b> dark orange brown, loose, medium to coarse grained		25						
<b>Silty Fine SANDSTONE</b> dark gray, moist, soft hardness, well cemented								
End of Borehole = 28.5 feet		30						
<b>NOTES:</b> 1. Penetration resistance values are not standard N values, they are the values measured in the field. 2. Stratification lines represent the approximate boundaries between material types, and the transitions may be gradual. 3. Groundwater was not encountered and the borehole was backfilled with cuttings immediately after drilling. 4. Shear strength values in parentheses are in tons per square foot and were obtained using a pocket penetrometer.								
		35						
		40						



## APPENDIX B - LABORATORY TESTING

Laboratory tests were performed on representative samples of the materials encountered in the test borings, to achieve a quantitative and qualitative evaluation of the physical and mechanical properties of the materials that underlie the site. The tests included moisture content/dry density determinations, #200 washed sieve tests, and Atterberg limits tests. The test results are presented on the boring logs in Appendix A. Test reports provided by the testing laboratory are included in this Appendix. Brief descriptions of the tests performed follow.

**Moisture Content/Dry Density (ASTM 2937):** Performed on undisturbed samples to determine the moisture content (the ratio of the weight of water to the weight of solids in the field sample, expressed as a percentage) and dry density (the ratio of the weight of solids in the field sample to its volume, expressed in pounds per cubic foot).

**#200 Washed Sieve Test (ASTM D-1140):** Performed on undisturbed or disturbed samples to determine the fine-grained (silt and clay) fraction of the materials. The fine-grained fraction is used to classify the soils according to the Unified Soils Classification System.

**Atterberg Limits Test (ASTM D-4318):** Performed on undisturbed or disturbed samples to determine the liquid limit (LL) and plastic limit (PL) of the samples. These limits are used to classify fine-grained soils and to evaluate the plasticity index (PI), the moisture content range over which the material exhibits plasticity. Atterberg limits correlations also provide an indication of the compressibility and expansion potential of the sample.





# B. HILLEBRANDT SOILS TESTING, INC.

29 Sugarloaf Terrace, Alamo, CA 94507 - Tel: (510) 409-2916 - Fax: (925) 891-9267 - Email: soiltesting@aol.com

## MOISTURE CONTENT/DRY DENSITY

Job #: 16129.001  
Job Name: Khimani Residence Wall  
Date: 5/21/2016  
Tested by: Brad Hillebrandt

Additional Tests:			PI, -200			
Boring #:	B-1	B-2	B-2	B-2		
Depth:	2.5	4.5	7.5	13.5		
Sample Description:	Yellowish brown sandy CLAY	Dark brown clayey SAND	Yellowish brown silty SAND	Yellowish brown clayey SAND		
Can #:	332	306	310	341		
Wet Sample + can	351.0	298.6	278.6	340.3		
Dry Sample + can	298.2	263.5	244.8	310.3		
Weight can	37.8	37.5	38.0	38.0		
Weight water	52.8	35.1	33.8	30		
Weight Dry Sample	260.4	226	206.8	272.3		
<b>WATER CONTENT (%)</b>	<b>20.3%</b>	<b>15.5%</b>	<b>16.3%</b>	<b>11.0%</b>		
Weight Sample + Liner	1116.2	1008.6	1099.7	1020.5		
Weight Liner	221.9	211.5	210.1	216.6		
Sample Length	6.0	5.5	6.0	5.65		
Sample Diameter	2.40	2.39	2.40	2.40		
<b>DRY DENSITY (pcf)</b>	<b>104.4</b>	<b>106.5</b>	<b>107.3</b>	<b>107.9</b>		

# B. HILLEBRANDT SOILS TESTING, INC.

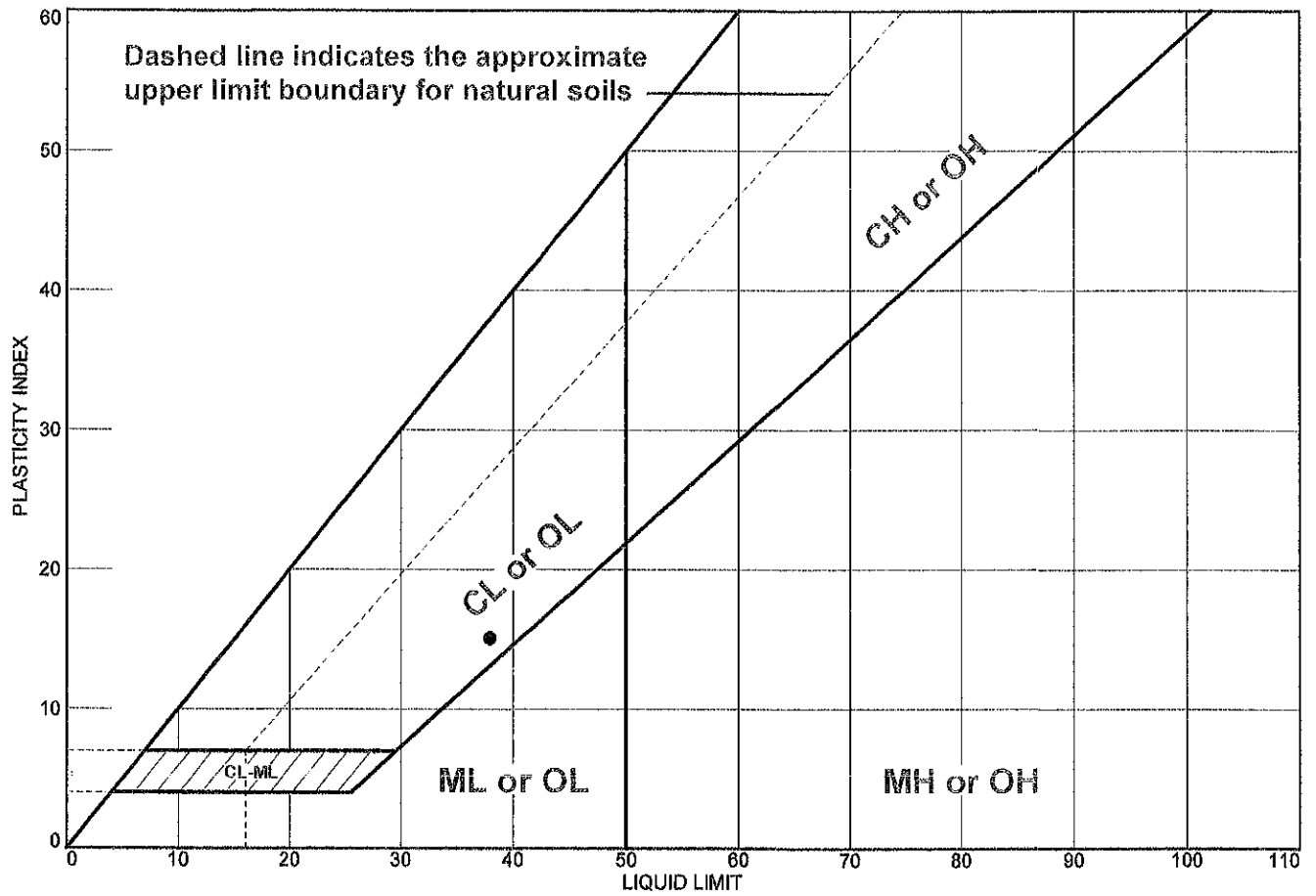
29 Sugarloaf Terrace, Alamo, CA 94507 - Tel: (510) 409-2916 - Fax: (925) 891-9267 - Email: soiltesting@aol.com

## MOISTURE CONTENT WORKSHEET

Job #: 16129.001  
 Job Name: Khimani Residence Wall  
 Date: 5/21/2016  
 Tested by: B. Hillebrandt

Additional Tests:									
Boring #:	B-1	B-1	B-1	B-1	B-1	B-1	B-2	B-2	
Depth:	4.5	7.5	10.5	16.5	22.5	25.0	19.5	28.5	
Sample Description:	Yellowish brown silty SAND	Yellowish brown silty SAND	Yellowish brown silty SAND	Yellowish brown silty SAND	Olive brown silty SAND with clay	Dark gray SILTSTONE	Olive brown silty SAND with clay	Dark gray SILTSTONE	
Can #:	316	367	303	370	327	363	314	346	
Wet Sample + can	268.5	313.1	248.1	289.5	299.5	203.4	282.5	217.3	
Dry Sample + can	238.9	273.2	219.8	256.9	261.7	190.1	263.7	200.0	
Weight can	37.7	33.7	37.4	37.8	38.1	33.4	38.0	38.1	
Weight water	29.6	39.9	28.3	32.6	37.8	13.3	18.8	17.3	
Weight Dry Sample	201.2	239.5	182.4	219.1	223.6	156.7	225.7	161.9	
<b>WATER CONTENT (%)</b>	<b>14.7%</b>	<b>16.7%</b>	<b>15.5%</b>	<b>14.9%</b>	<b>16.9%</b>	<b>8.5%</b>	<b>8.3%</b>	<b>10.7%</b>	

# LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Yellowish brown silty SAND	38	23	15	52.6	34.5	SC

<p><b>Project No.</b> 16129.001    <b>Client:</b> Peters &amp; Ross</p> <p><b>Project:</b> Khimani Residence Wall</p> <p>● <b>Source of Sample:</b> B-2    <b>Depth:</b> 7.5'</p>	<p><b>Remarks:</b></p>
<p><b>B. HILLEBRANDT SOILS TESTING, INC.</b>                  +1 510-409-2816                  SoilTesting@aol.com</p>	

Figure

Tested By: BH \_\_\_\_\_

**LIQUID AND PLASTIC LIMIT TEST DATA**

5/27/2016

**Client:** Peters & Ross

**Project:** Khimani Residence Wall

**Project Number:** 16129.001

**Location:** B-2

**Depth:** 7.5'

**Material Description:** Yellowish brown silty SAND

**%<#40:** 52.6

**%<#200:** 34.5

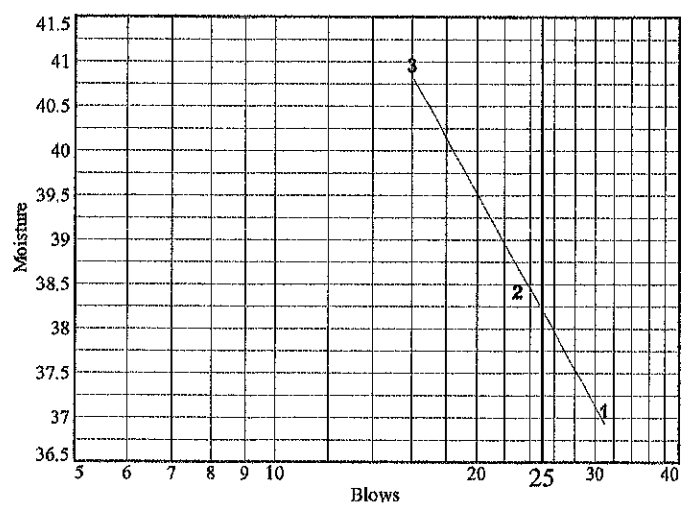
**USCS:** SC

**AASHTO:** A-2-6(1)

**Tested by:** BH

**Liquid Limit Data**

Run No.	1	2	3	4	5	6
Wet+Tare	27.50	24.96	28.60			
Dry+Tare	23.12	21.16	23.57			
Tare	11.31	11.27	11.29			
# Blows	31	23	16			
Moisture	37.1	38.4	41.0			



**Liquid Limit=** 38  
**Plastic Limit=** 23  
**Plasticity Index=** 15  
**Natural Moisture=** 16.3  
**Liquidity Index=** -0.4

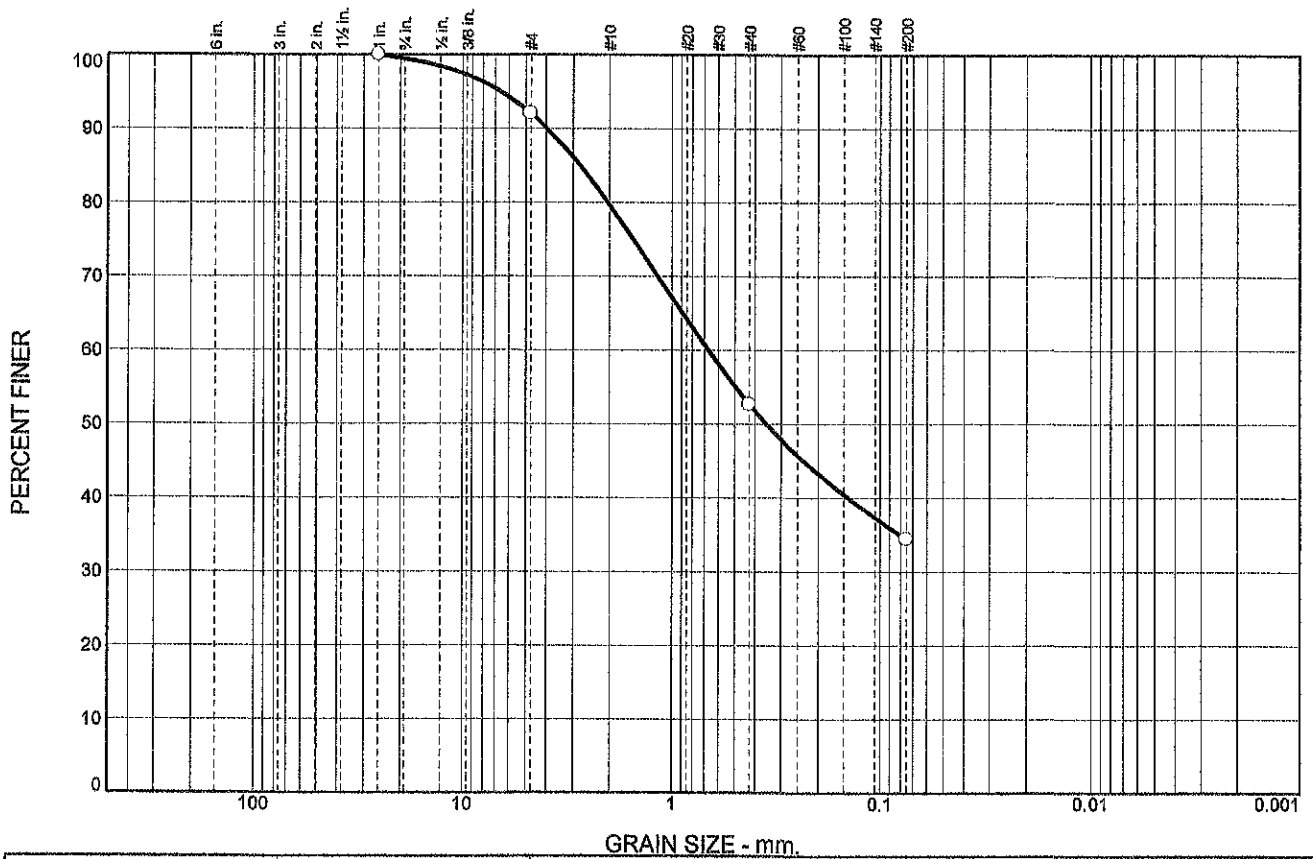
**Plastic Limit Data**

Run No.	1	2	3	4
Wet+Tare	17.44	17.82		
Dry+Tare	16.29	16.62		
Tare	11.29	11.31		
Moisture	23.0	22.6		

**Natural Moisture Data**

Wet+Tare	Dry+Tare	Tare	Moisture
278.6	244.8	38.0	16.3

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	B-2		7.5'	Yellowish brown silty SAND	SC

<b>B. HILLEBRANDT SOILS TESTING, INC.</b> +1 510-409-2816 SoilTesting@aol.com	Client: Peters & Ross Project: Khimani Residence Wall Project No.: 16129.001
---	--

Figure

Tested By: BH \_\_\_\_\_

**GRAIN SIZE DISTRIBUTION TEST DATA**

5/27/2016

**Client:** Peters & Ross  
**Project:** Khimani Residence Wall  
**Project Number:** 16129.001  
**Location:** B-2  
**Depth:** 7.5'  
**Material Description:** Yellowish brown silty SAND  
**USCS:** SC  
**Tested by:** BH

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
244.80	38.00	1"	0.00	0.00	100.0
		#4	16.43	0.00	92.1
		#40	81.49	0.00	52.6
		#200	37.63	0.00	34.5

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.5	7.4	7.9	12.5	27.0	18.1	57.6			34.5

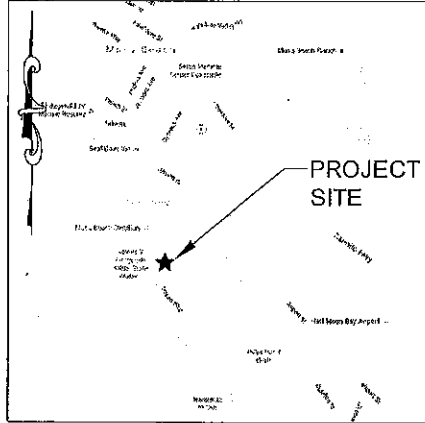
D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
					0.1423	0.3520	0.6703	2.0449	2.7822	3.9788	6.5703

<b>Fineness Modulus</b>
2.12

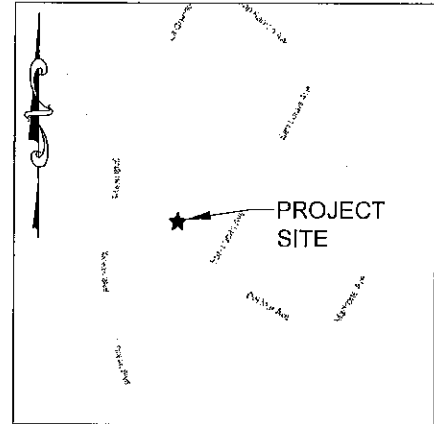
# KHIMANI RESIDENCE

## 105 SAN LUCAS AVENUE

### MOSS BEACH (SMCO), CA 94038



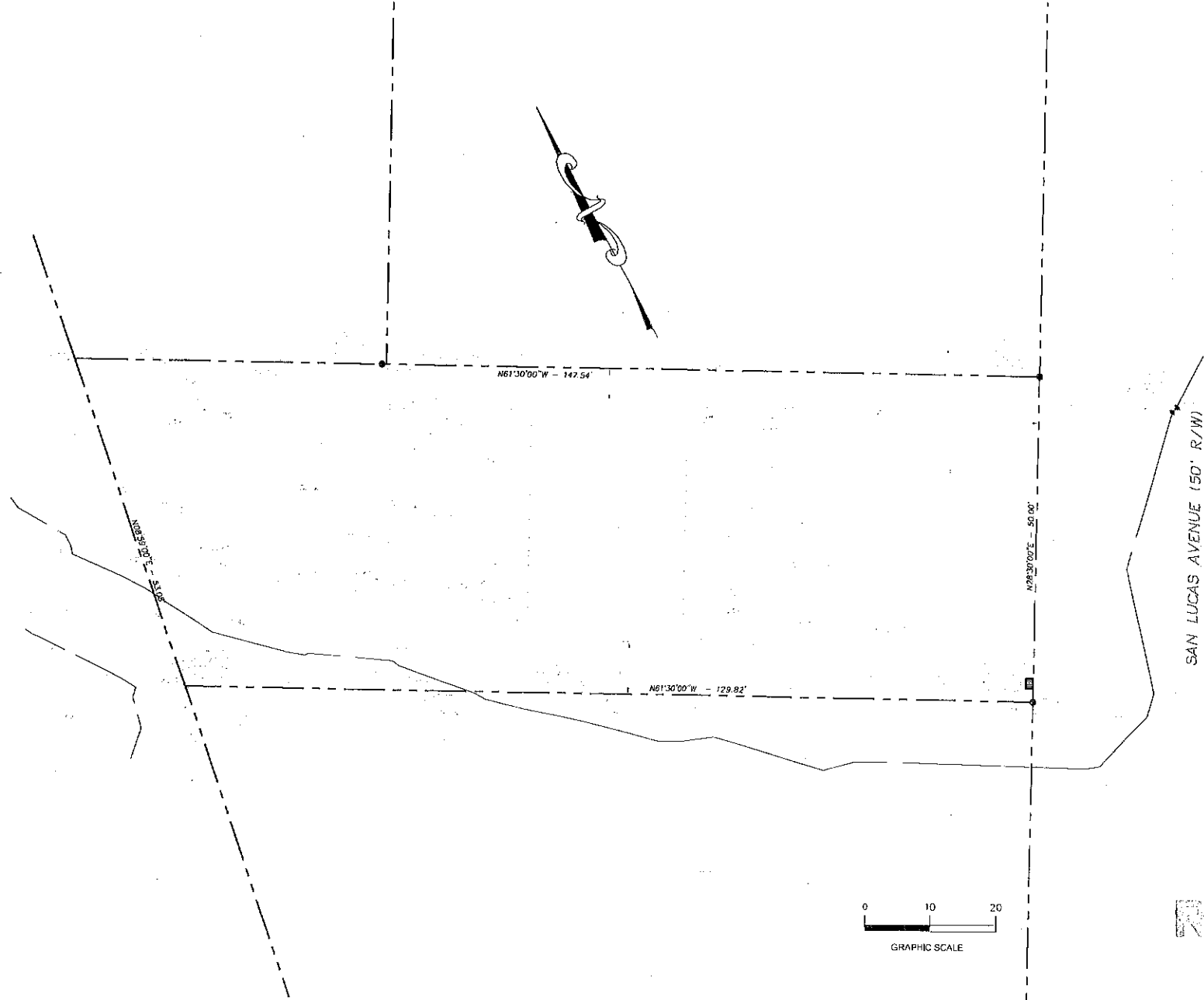
**VICINITY MAP**  
N.T.S.



**LOCATION MAP**  
N.T.S.

**ABBREVIATIONS**

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AD	AREA DRAIN
AID	ATRIUM DRAIN
BFP	BACK FLOW PREVENTION DEVICE
BW	BOTTOM OF WALL ELEVATION
CB	CATCH BASIN
CL	CENTER LINE
CS	CRAWL SPACE ELEVATION
CIP	CAST IRON PIPE
CONC	CONCRETE
DD	DECK DRAIN
DDCV	DOUBLE DETECTOR CHECK VALVE
DG	DECOMPOSED GRANITE
DIP	DUCTILE IRON PIPE
DS	ROOF DOWN SPOUT
DWY	DRIVEWAY
(E)	EXISTING
ELEC	ELECTRICAL
EM	ELECTRICAL METER
EP	EDGE OF PAVEMENT
FC	FACE OF CURB ELEVATION
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR ELEVATION
FG	FINISHED GROUND ELEVATION
FL	FLOW LINE ELEVATION
FM	FORCE MAIN LINE
FS	FINISHED SURFACE ELEVATION
FP	FINISHED PAVEMENT ELEVATION
FW	FIRE WATER LINE
GB	GRADE BREAK
GM	GAS METER
GR	GRATE ELEVATION
GV	GATE VALVE
HP	HIGH POINT
HW	HEATED WATER LINE
INV	PIPE INVERT ELEVATION
JT	JOINT TRENCH
JP	JOINT POLE
LD	LANDSCAPE DRAIN
LF	LINEAR FEET
LP	LOW POINT
(N)	NEW
PIV	POST INDICATOR VALVE
PDC	POINT OF CONNECTION
RM	RIM ELEVATION
S	SLOPE
SAP	SEE ARCHITECTURAL PLANS
SBD	STORM SUB DRAIN
SBDCCO	STORM SUB DRAIN CLEANOUT
SD	STORM DRAIN
SDCO	STORM DRAIN CLEANOUT
SR	SEE GEOTECHNICAL REPORT
SICB	SIDE INLET CATCH BASIN
SLP	SEE LANDSCAPE PLANS
SPP	SEE PLUMBING PLANS
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSP	SEE STRUCTURAL PLANS
TW	TOP OF WALL ELEVATION
TYP	TYPICAL
VD	PIPE VERTICAL DROP
W	DOMESTIC WATER LINE
WM	WATER METER

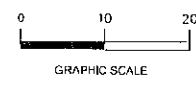


**LEGEND:**

EXISTING	PROPOSED	DESCRIPTION
SS	SS	SANITARY SEWER
SD	SD	STORM DRAIN
---	---	STORM SUB-DRAIN (PERFORATED PIPE)
---	---	TRANSITION FROM PERF. PIPE TO SOLID PIPE
FM	FM	FORCE MAIN
FW	FW	FIRE WATER LINE
W	W	DOMESTIC WATER SERVICE
IRR	IRR	IRRIGATION SERVICE
G	G	NATURAL GAS
E	E	ELECTRIC
JT	JT	JOINT TRENCH
F	F	FENCE
o	o	CLEAN OUT
DDCV	DDCV	DOUBLE DETECTOR CHECK VALVE
P	P	POST INDICATOR VALVE
V	V	VALVE
MB	MB	METER BOX
SL	SL	STREET LIGHT
AD	AD	AREA DRAIN
CB	CB	CATCH BASIN
FH	FH	FIRE HYDRANT
FDC	FDC	FIRE DEPARTMENT CONNECTION
B	B	BENCHMARK
M	M	MANHOLE
S	S	SIGN
DS	DS	DOWNSPOUT
SB	SB	SPLASH BLOCK
C	C	CONTOURS
PL	PL	PROPERTY LINE
ST	ST	SETBACK

**SHEET INDEX**

SHEET NO.	DESCRIPTION
C-0	TITLE SHEET
C-1	NOTES AND DETAIL SHEET
C-2	GRADING AND DRAINAGE PLAN



RECEIVED

MAY 12 2017

San Mateo County  
Planning and Building Department

PLN2016-00327

**PRECISION ENGINEERING AND CONSTRUCTION, INC.**  
 T: 855.226.3840  
 Trawick@precisione.com  
 801 Waterline Street  
 Belmont, CA 94022

DATE	REVISIONS:
07/28/2018	COUNTY COMMENTS
10/03/2016	COUNTY COMMENTS
02/02/2017	COUNTY COMMENTS
05/11/2017	COUNTY COMMENTS



**TITLE SHEET**  
**KHIMANI RESIDENCE**  
**105 SAN LUCAS AVENUE**  
**MOSS BEACH (SMCO), CA 94038**

Date:	06/06/2016
Scale:	AS SHOWN
Design:	AJP
Check:	TRL
Drawing Number:	C-0
PEC Job No.:	PEC 16-063



**CAUTION:**

- THE LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. (A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES); CONTRACTOR SHALL VERIFY LOCATION AND DEPTH PRIOR TO ANY EXCAVATION OR IMPROVEMENT.
- CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. PHONE (800) 642-2444. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AND SHALL CLEARLY MARK (AND THEN PRESERVE THESE MARKERS) FOR THE DURATION OF CONSTRUCTION OF ALL TELEPHONE, DATA, STREET LIGHT, SIGNAL LIGHT AND POWER FACILITIES THAT ARE IN OR NEAR THE AREA OF CONSTRUCTION PRIOR TO BEGINNING ANY WORK ON THIS SITE.
- THESE DRAWINGS DO NOT ADDRESS CONTRACTOR MEANS AND METHODS OF CONSTRUCTION OR PROCESSES THAT MAY BE ASSOCIATED WITH ANY TOXIC SOILS IF FOUND ON SITE. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL CITY AND COUNTY STANDARDS AND APPROPRIATE REGULATIONS IF TOXIC SOILS ARE ENCOUNTERED OR SUSPECTED OF BEING CONTAMINATED.

**GENERAL SITE NOTES:**

- CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING ON THIS WORK AND CONSIDER THE EXISTING CONDITIONS AND SITE CONSTRAINTS IN THE BID. CONTRACTOR SHALL BE IN THE POSSESSION OF AND FAMILIAR WITH ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS AND SPECIFICATIONS PRIOR TO SUBMITTING OF A BID.
- THE CONTRACTOR SHALL MAINTAIN ALL SAFETY DEVICES, AND SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS.
- ALL WORK ON-SITE AND IN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS & SPECIFICATIONS.
- CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND INDEMNIFY AND HOLD THE DISTRICT, THE CONSULTING ENGINEER AND THE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE CONSULTING ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE JOB SITE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT UNAUTHORIZED PERSONS ON THE JOB SITE BY PROVIDING A CONSTRUCTION FENCE AROUND THE ENTIRE AREA OF DEMOLITION AND CONSTRUCTION INCLUDING ALL STAGING AND STORAGE AREAS. CONSTRUCTION FENCE SHALL BE A MINIMUM OF A 6' HIGH GALVANIZED CHAIN LINK WITH GREEN WINDSCREEN FABRIC ON THE OUTSIDE OF THE FENCE.
- EXISTING PEDESTRIAN WALKWAYS, BIKE PATHS AND ACCESSIBLE PATHWAYS SHALL BE MAINTAINED, WHERE FEASIBLE, DURING CONSTRUCTION.
- IF A CONFLICT ARISES BETWEEN THE SPECIFICATIONS AND THE PLAN NOTES, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT IF ONE EXISTS.

**EXISTING CONDITIONS:**

- EXISTING TOPOGRAPHIC SURVEYS PERFORMED BY DMG ENGINEERING, INC. ON OCTOBER 9, 2015 (JOB #15-104). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.
- CLIENT AGREES TO HOLD ENGINEER HARMLESS FROM ANY AND ALL OCCURRENCES RESULTING FROM THE INACCURACIES OF THE CLIENT SUPPLIED TOPOGRAPHIC AND/OR BOUNDARY SURVEY (PREPARED BY OTHERS).

**SURVEYOR'S NOTES:**

**BASIS OF BEARING:**

FOUND IRON PIPE MONUMENTS AT THE FRONT PROPERTY CORNERS ALONG SAN LUCAS AVENUE AS SHOWN ON THE MAP REFERENCED IN THE LEGAL DESCRIPTION. BEARING TAKEN AS NORTH 28°30'00" EAST.

**BENCHMARK:**

ELEVATIONS SHOWN ARE BASED UPON AN ASSUMED ELEVATION. THE ELEVATION OF THE TEMPORARY BENCHMARK SHOWN HEREON (NAIL IN PAVEMENT IN SAN LUCAS AVENUE) TAKEN AS 106.00.

**STORM DRAIN NOTES:**

- USE DETECTABLE METALIZED WARNING TAPE APPROXIMATELY 6" BELOW THE SURFACE. TAPE SHALL BE A BRIGHT COLOR AND IMPRINTED WITH "CAUTION-BURIED STORM DRAIN LINE BELOW".
- PRIVATE STORM DRAIN LINE 4-INCH THROUGH 12-INCH IN NON-TRAFFIC AREAS SHALL BE INSTALLED WITH A MINIMUM OF EIGHTEEN (18) INCHES OF COVER AND SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 PIPE. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS. 22.5° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEES ARE PROHIBITED.
- PRIVATE STORM DRAIN LINE 4-INCH THROUGH 12-INCH WITHIN VEHICULAR TRAFFIC AREAS SHALL BE INSTALLED WITH A MINIMUM OF EIGHTEEN (18) INCHES OF COVER AND SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 PIPE. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS. 22.5° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEES ARE PROHIBITED.
- PAINT THE TOP OF THE CURBS ADJACENT TO EACH CATCH BASIN INSTALLED UNDER THIS WORK OR ADJACENT TO THIS SITE WITH THE WORDS "NO DUMPING". WORDING TO BE BLUE 4" HIGH LETTERS ON A PAINTED WHITE BACKGROUND.
- ALL AREA DRAINS AND CATCH BASINS GRATES WITHIN PEDESTRIAN ACCESSIBLE AREAS SHALL MEET ADA REQUIREMENTS.
- DRAINS SHOWN ON CIVIL PLANS ARE NOT INTENDED TO BE THE FINAL NUMBER AND LOCATION OF ALL DRAINS. PLACEMENT AND NUMBER OF LANDSCAPING DRAINS ARE HIGHLY DEPENDENT ON GROUND COVER TYPE AND PLANT MATERIAL. CONTRACTOR SHALL ADD ADDITIONAL AREA DRAINS AS NEEDED AND AS DIRECTED BY THE LANDSCAPE ARCHITECT/OWNER.

**TREE/PLANT PROTECTION NOTES:**

- PRIOR TO BEGINNING CONSTRUCTION ON SITE, CONTRACTOR SHALL IDENTIFY AND PROTECT EXISTING TREES AND PLANTS DESIGNATED AS TO REMAIN.
- PROTECT EXISTING TREES TO REMAIN FROM SPILLED CHEMICALS, FUEL OIL, MOTOR OIL, GASOLINE AND ALL OTHER CHEMICALLY INJURIOUS MATERIALS AS WELL AS FROM PUDDLING OR CONTINUOUSLY RUNNING WATER. SHOULD A SPILL OCCUR, STOP WORK IN THAT AREA AND CONTACT THE CITY'S ENGINEER/INSPECTOR IMMEDIATELY. CONTRACTOR SHALL BE RESPONSIBLE TO MITIGATE DAMAGE FROM SPILLED MATERIAL AS WELL AS MATERIAL CLEAN UP.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ONGOING MAINTENANCE OF ALL TREES DESIGNATED TO REMAIN AND FOR MAINTENANCE OF RELOCATED TREES STOCKPILED DURING CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REPLACE TREES THAT DIE DUE TO LACK OF MAINTENANCE.

**HORIZONTAL CONTROL NOTES:**

- ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.

**PAVEMENT SECTION:**

- SEE STRUCTURAL DRAWINGS FOR BUILDING SLAB SECTIONS AND PAD PREPARATIONS.
- SEE GEOTECHNICAL REPORT FOR ALL FLATWORK AND VEICULAR PAVEMENT SECTIONS AND BASE REQUIREMENTS.
- THE FINAL OR SURFACE LAYER OF ASPHALT CONCRETE SHALL NOT BE PLACED UNTIL ALL ON-SITE IMPROVEMENTS HAVE BEEN COMPLETED, INCLUDING ALL GRADING, AND ALL UNACCEPTABLE CONCRETE WORK HAS BEEN REMOVED AND REPLACED, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER AND/OR DEVELOPER'S CIVIL ENGINEER.
- ALL PAVING SHALL BE IN CONFORMANCE WITH SECTION 26 "AGGREGATE BASE" AND SECTION 30 "ASPHALT CONCRETE" PER LATEST EDITION OF CALTRANS STANDARD SPECIFICATIONS.

**GRADING NOTES:**

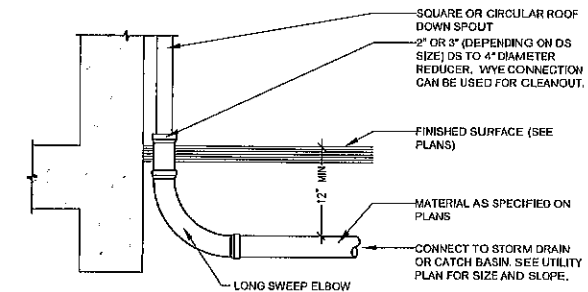
- PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT LEAST 1% UNLESS OTHERWISE NOTED ON THE PLANS. SLOPE LANDINGS 2% (1/4" PER FOOT) AWAY FROM STRUCTURES UNLESS OTHERWISE NOTED ON PLANS. ANY AREAS ON THE SITE NOT CONFORMING TO THESE BASIC RULES DUE TO EXISTING CONDITIONS OR DISCREPANCIES IN THE DOCUMENTS ARE TO BE REPORTED TO THE CIVIL ENGINEER PRIOR TO PROCEEDING WITH PLACEMENT OF BASE ROCK OR FORMWORK FOR CURBS AND/OR FLATWORK.
- CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES BASED ON THE TOPOGRAPHIC SURVEY, THE GEOTECHNICAL INVESTIGATION AND THE PROPOSED SURFACE THICKNESS AND BASE THE BID ACCORDINGLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM IF A SEPARATE DEMOLITION CONTRACT HAS BEEN ISSUED TO TAKE THE SITE FROM THE WAY IT IS AT THE TIME OF THE BID TO THE CONDITIONS DESCRIBED IN THESE DOCUMENTS. BRING ANY DIFFERENCES BETWEEN THE STATE IN WHICH THE SITE IS DELIVERED TO THE CONTRACTOR AND THESE DOCUMENTS TO THE ATTENTION OF THE CIVIL ENGINEER.
- ALL FILL SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT AND THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE PROJECT GEOTECHNICAL ENGINEER TO TAKE THE APPROPRIATE TESTS TO VERIFY COMPACTION VALUES.
- IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
- DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE CIVIL ENGINEER.
- SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONIC, OR ROCKS GREATER THAN 1" IN DIAMETER) MAY BE USED IN LANDSCAPE AREAS, EXCEPT FOR AREAS IDENTIFIED AS IMPORT TOP SOIL BY THE LANDSCAPE DRAWINGS. EXCESS STRIPPINGS SHALL BE REMOVED FROM SITE.
- ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05'. HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1.
- THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT, WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
- THE CONTRACTOR SHALL ADJUST TO FINAL GRADE ALL EXISTING MANHOLES, CURB INLETS, CATCH BASINS, VALVES, MONUMENT COVERS, AND OTHER CASTINGS WITHIN THE WORK AREA TO FINAL GRADE IN PAVEMENT AND LANDSCAPE AREAS UNLESS NOTED OTHERWISE.

**RECORD DRAWINGS:**

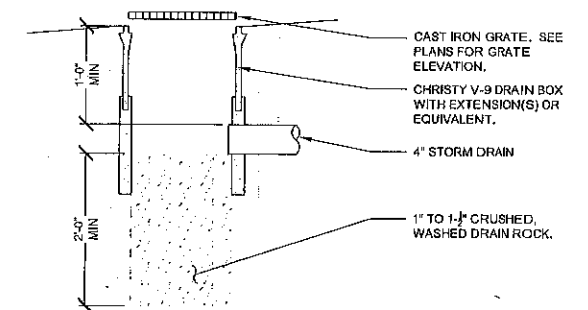
- THE CONTRACTOR SHALL KEEP UP-TO-DATE AND ACCURATE A COMPLETE RECORD SET OF PRINTS OF THE CONTRACT DRAWINGS SHOWING EVERY CHANGE FROM THE ORIGINAL DRAWINGS MADE DURING THE COURSE OF CONSTRUCTION INCLUDING EXACT FINAL LOCATION, ELEVATION, SIZES, MATERIALS, AND DESCRIPTION OF ALL WORK. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS. A COMPLETE SET OF CORRECTED AND COMPLETED RECORD DRAWING PRINTS SHALL BE SUBMITTED TO THE OWNER PRIOR TO FINAL ACCEPTANCE.

**SITE MAINTENANCE**

- UPON PROJECT COMPLETION THE OWNER SHALL BE SOLELY RESPONSIBLE TO ROUTINELY INSPECT AND MAINTAIN ALL ON-SITE STORM DRAIN FACILITIES. STORM DRAIN FACILITIES INCLUDE: ROOF GUTTERS AND DOWNSPOUTS, SURFACE DRAINS AND DISCHARGE POINTS (BUBBLE BOX). STORM DRAIN SYSTEM SHALL BE CLEANED AND/OR FLUSHED ON A BIENNIAL BASIS OR AS FOUND NECESSARY.



**1 DOWNSPOUT CONNECTION**  
SCALE: 3/4"=1'-0"  
SHEET 05-01-02-105B



**2 BUBBLE BOX**  
SCALE: 1\"/>

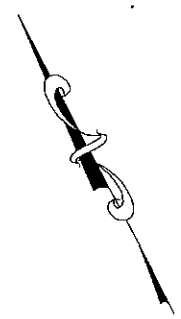
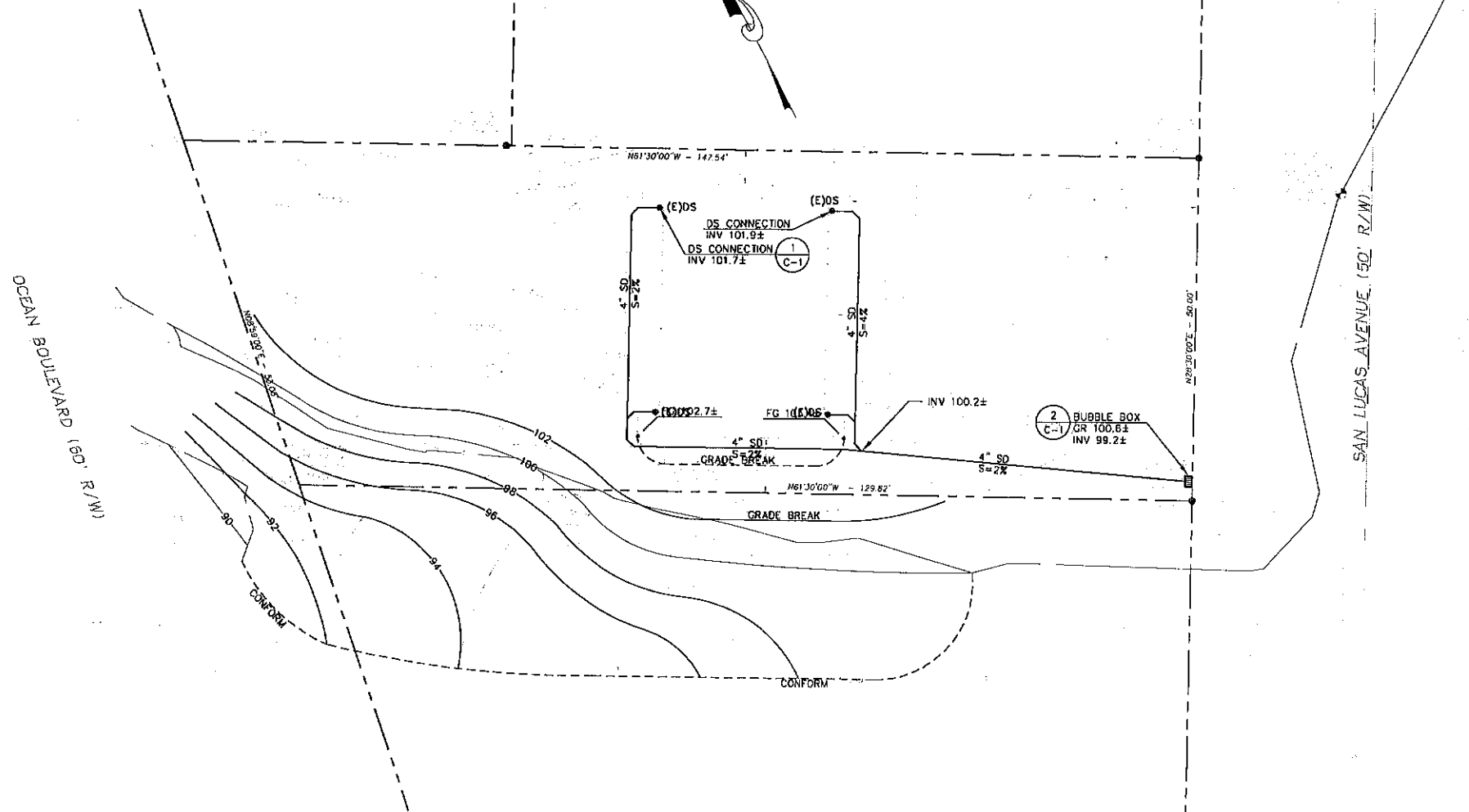
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T: 950.232.8640  
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Trev@precision-ec.com

DATE:	07/26/2016
REVISIONS:	COUNTY COMMENTS
	10/09/2016
	COUNTY COMMENTS
	02/02/2017
	05/11/2017

**NOTES AND DETAIL SHEET**  
KHIMANI RESIDENCE  
105 SAN LUCAS AVENUE  
MOSS BEACH (SMCO), CA 94038

Date: 06/06/2016  
 Title: NONE  
 Design: AJP  
 Check: TRL  
 Drawing Number: C-1  
 PEC Job No.: PEC 16-063





OCEAN BOULEVARD (50' R/W)

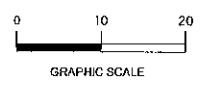
SAN LUCAS AVENUE (50' R/W)

**EARTHWORK QUANTITIES**

CUT	0 C.Y.
FILL	100 C.Y.
TOTAL TO BE MOVED	100 C.Y.
BALANCE	100 C.Y. FILL (IMPORT)

EARTHWORK QUANTITIES SHOWN ABOVE ARE FOR PLANNING PURPOSES ONLY. CONTRACTOR SHALL CALCULATE THEIR OWN EARTHWORK QUANTITIES, AND USE THEIR CALCULATIONS FOR BIDDING AND COST ESTIMATING PURPOSES.

SEE SHEET C-0 FOR LEGEND AND SHEET C-1 FOR NOTES



**GRADING AND DRAINAGE PLAN**  
**KHIMANI RESIDENCE**  
 105 SAN LUCAS AVENUE  
 MOSS BEACH (SMCO), CA 94038

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REVISIONS:	DATE:
△ COUNTY COMMENTS	07/28/2016
△ COUNTY COMMENTS	10/05/2016
△ COUNTY COMMENTS	02/02/2017
△ COUNTY COMMENTS	05/11/2017

Date: 06/06/2016  
 Scale: 1" = 10'  
 Design: AJP  
 Check: TRL  
 Drawing Number: C-2  
 PEC Job No. PEC 16-063



















