Exhibit E

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SOIL SURVEYS GROUP INC.

SOILS ENGINEERING · FOUNDATION ENGINEERING

103 CHURCH ST • SALINAS, CALIFORNIA 93901 • TELEPHONE (831) 757-2172

October 31, 2017
Job #6884

William and Raquel Traina
c/o Conrad Asturi Studios, Inc.
Attn: Edan Asturi
1121 Oakdale, Road, Suite 5
Modesto, CA 95355

Dear Mr. and Mrs. Traina:

Submitted herewith is the report of our Geotechnical and Geological Investigation for the proposed new additions to the existing residence located at 170 Mal Paso Road, APN 243-292-002, in Carmel Highlands, California. Two borings were drilled on June 9, 2017 for geotechnical investigation purposes. Laboratory tests were subsequently made on driven soil core samples taken from the borings to determine the near surface and subsurface soil conditions and suitability for the construction of the proposed new additions to the existing residence. We find that the project site is suitable for the proposed use with the recommendations made herein.

It is a pleasure working with you on this project. If you have any questions regarding our geotechnical and geological investigation or this report, please contact us.

Very truly yours,

SOIL SURVEYS GROUP, INC.

REGISTERED PROFESSIONAL ENGINEER
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cc. Monterey County Resource Management Agency Divisions of Planning and Building Inspection

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SOIL SURVEYS GROUP INC.
103 CHURCH ST • SALINAS, CALIFORNIA 93901 • TELEPHONE (831) 757-2172

GEOTECHNICAL INVESTIGATION

FOR THE PROPOSED NEW ADDITIONS TO THE EXISTING RESIDENCE

LOCATED AT 170 MAL PASO ROAD

APN 243-292-002

CARMEL HIGHLANDS, CALIFORNIA

FOR WILLIAM AND RAQUEL TRAINA

OCTOBER 31, 2017; JOB #6884

I. INTRODUCTION:

This Geotechnical and Geological Investigation was made to determine the suitability of the soils at the project site for the proposed new additions to the existing residence located at 170 Mal Paso Road, APN 243-292-002, in Carmel Highlands, California. Two borings were drilled on June 9, 2017 for geotechnical investigative purposes. Core samples were taken from the borings for laboratory testing. The boring logs, our field observations, and field and laboratory test data were analyzed to determine the following:

1. **Suitability of the soils at the project site for the proposed new additions.**
2. **Expansive, unsuitable or unstable soil conditions, if any.**
3. **Foundation and retaining wall design criteria.**
4. **Subsurface groundwater and soil moisture considerations.**
5. **Surface drainage considerations.**
6. **Geologic analysis of the project site, seismic hazards and seismic design factors per the 2016 California Building Code.**

II. LABORATORY TEST DATA[1]:

Seven moisture density tests and one moisture test were made from the driven core samples. Standard Penetration Tests (SPT) were performed with a Terzaghi Split Spoon sampler. Core samples were also taken with a 2-inch interior diameter (i.d.) Modified California Sampler. Samplers within Boring 1 were driven into the soil by a 140 lb. hammer and samplers within Boring 2 were driven into the soil by a 70 lb. hammer

[1]Boring Logs are located in Appendix A

dropped a vertical distance of 30 inches at each of the sample locations. Results of these tests are shown as follows:

MOISTURE DENSITY TESTS

Boring No.	Depth/ Ft.	Water Content %	Dry Density p.c.f.	Standard penetration Tests, Blows /foot	Pocket Penetrometer Tons S.F.
B-1	1.25-1.75	12.6	115.8	36 (22)*	>4.5
B-1	1.75-2.25	6.3	126.2	78 (49)/9"*	>4.5
B-1	2.25	4.8	Bulk	---	---
B-2	2-2.5	8.1	101.6	9 (5)●	---
B-2	3.5-4	8.9	89.4	11 (3)*●	1.5
B-2	4-4.5	10.6+	125.0+	14 (4)*●	3.0
B-2	5.5-6	10.6	105.2	17 (9)●	0.75
B-2	7-7.5	5.7	104.4	62 (31)●	---

* = 2.5 inch mod. Cal, not SPT () = Blow counts adjusted to approximate SPT values
● = 70 lb. hammer used () = Blow counts adjusted to approximate SPT values
+ = Direct Shear Test - Average values shown

Two Sieve Analysis tests were made from the driven core samples. Results of these tests are shown as follows:

A.S.T.M. D 422 SIEVE ANALYSIS TEST-Percent Passing

Boring No.	Depth/ Ft.	Sieve No. 4	Sieve No. 10	Sieve No. 20	Sieve No. 30	Sieve No. 40	Sieve No. 100	Sieve No. 200
B-1	1.25-1.75	97	75	50	42	36	20	15
B-2	3.5-4	97	78	54	47	40	26	20

Two plasticity index test were performed on driven core samples. Results of these tests are as follows:

PLASTICITY INDEX TEST

Test Hole No.	Depth/ Feet	% Passing Sieve No. 40	% Passing Sieve No. 200	Liquid Limit	Plastic Limit	Plasticity Index
B-1	1.25-1.75	36	15	30	26	4
B-2	3.5-4	40	20	26	non-plastic	non-plastic

The test results for the samples taken from the borings indicate that the fine fraction of the near surface clayey, silty, decomposed granitic, sandy soils are slightly expansive and slightly plastic at 1.25 to 1.75 feet in depth in Boring 1 and non-plastic and non-expansive at 3.5 to 4.0 feet in Boring 2.

One Direct Shear test was taken from a nearby site. Results of this test are summarized as follows (see Appendix B for full report sheet):

Boring No.	Depth/ Ft.	Internal Frict. Angle, φ°	Cohesion, C p.s.f.	Soil Weight p.c.f.	Description of soil
B-2	4-4.5	40	533	138.3	Very dense, dark brown fine to coarse grained SAND (SM)

Boring 1 was located near the future location of the proposed new kitchen addition on the northerly side of the residence. The near surface soil consists of loose to medium dense, slightly clayey, silty, fine to coarse grained, decomposed granitic sand with decomposed granitic gravels to a depth of 2.75 feet underlain by very dense, silty, fine to coarse grained, decomposed granitic sand with decomposed granitic gravels and occasional veins of clay to the bottom of the boring at 15.0 feet in depth.

Boring 2 was located near the southeasterly corner of the existing garage, near the future location of the proposed garage addition. The near surface soil consists of loose, clayey, silty, fine to coarse grained, decomposed granitic sand with scattered, decomposed granitic gravels to a depth of six feet underlain by dense, clayey, silty, fine to coarse grained, decomposed granitic gravels with veins of clay and decomposed granitic gravels to the bottom of the boring at 7.5 feet.

No groundwater was observed in the borings to at a maximum depth explored of 15.0 feet, prior to backfilling the hole with soil cuttings on the date of drilling. The actual depth to groundwater during rainy months is unknown, but it should be noted that groundwater fluctuations can occur due to variations in rainfall, temperature and other factors not evident during the time of our investigation.

III. SUITABILITY OF SITE FOR PROPOSED USE:

No unsuitable or unstable soil conditions were found at the proposed addition locations except for loose near surface soils to depths of two to six feet. In our opinion, the site is suitable for the proposed additions with the recommendations made herein, specifically the recommendations for recompaction of loose soil.

IV. RECOMMENDED FOUNDATION DESIGN CRITERIA:

Spread footings may be used for the building foundations after the site is cleared, grubbed and the proposed building pads are graded, compacted and properly prepared. Spread footings shall be installed to a minimum depth of 12 inches below lowest adjacent grade for one story portions and 18 inches for two story portions of the additions. The minimum depths shall be measured from the **inside building pad soil subgrade.** Mitigation for recompaction of loose soil conditions must be followed.

Allowable foundation pressures after proper compaction of the building pad areas are:
Continuous footings = **1800 p.s.f.**
Isolated rectangular footings = **2000 p.s.f.**

We recommend that continuous footings shall be reinforced with two #4 steel reinforcement bars placed near the bottom of the footing. Spread footings shall also meet the minimum requirements of the 2016 California Building Code and Monterey County building ordinances for width, thickness, embedment and reinforcement steel. The new additions and any future building additions shall be designed in strict accordance with the requirements specified in the 2016 California Building Code, or latest approved edition, to resist seismic forces.

All concrete floor slabs-on-grade shall be a minimum of five inches thick and shall be reinforced with a minimum of #3 steel reinforcement bars at 16 inches on center or #4 steel reinforcement bars placed 30 inches on center, each way and shall be extend into perimeter foundation. *The reinforcement steel must be firmly held in the vertical center of the slabs during placement and finishing of concrete with pre-cast concrete dobies.* All new concrete floor slabs-on-grade shall be underlain by an approved 15 mil. vapor barrier installed over a minimum four inch thick open graded gravel capillary break with two inches of clean sand placed over the vapor barrier as recommended in Section VIII-C herein. ***Concrete slabs shall have weakened plane joints a maximum of fifteen feet on center, each way. All concrete shall be properly cured with an approved curing compound or wetted burlap for a minimum of 14 days.***

Soil Surveys Group, Inc. shall inspect and approve the foundation footing excavations and the subgrade beneath concrete floor slabs for suitable soil bearing and proper penetration into competent soil. We also recommend that Soil Surveys Group, Inc. review and approve the grading, drainage and foundation plans prior to building construction.

A. Concrete Sidewalks and Outside Flatwork:
We recommend that any new on-site concrete sidewalks and outside flatwork be at least five inches thick and be placed over a compacted subgrade. All concrete flatwork should be divided into as nearly square panels as possible. Frequent joints should be installed to provide articulation to the concrete panels. Landscaping and planters adjacent to concrete flatwork should be designed in such a manner that positive drainage away from the new project buildings is achieved. It is assumed that the outside concrete flatwork will be subjected only to pedestrian traffic.

V. LOOSE SOIL MITIGATION:

To mitigate the effects of the loose near surface soil conditions, the following measures are recommended:

1. Any existing loose soil within the proposed building addition envelopes and extending a minimum of five feet in all directions outside of the proposed building addition foundations shall be recompacted **as necessary** to 90 percent relative compaction at the direction of Soil Surveys Group, Inc. prior to placing any additional building pad fill or finishing the building pad subgrade. Soil Surveys Group, Inc. shall determine the depth of recompaction, if any, within the building perimeter.

2. If the new building addition will bear on both cut and fill, the cut portion of the building addition pad shall be subexcavated and recompacted a minimum of two feet deep for a distance of five feet outside the building, so that the entire building overlies engineered fill, prior to excavating for the foundation footings.

3. Spread footings shall be constructed a minimum of 12 inches for one story portions and 18 inches for two story portions of the proposed building additions as measured from the lowest adjacent grade and continuous non-retaining footings shall be reinforced with two steel reinforcement bars placed

near the bottom of the footing. Retaining wall footings shall bear into the medium dense to dense decomposed granitic material.

4. All concrete floor slabs-on-grade shall be a minimum of five inches thick and shall be reinforced with a minimum of #3 steel reinforcement bars at 16 inches on center or #4 steel reinforcement bars at 30 inches on center, each way.

5. Roof and site rain water should be directed away from the proposed building addition foundations. Rainfall runoff must not be allowed to collect or flow in a downslope direction against any new or existing building foundation.

6. Soil Surveys Group, Inc. shall be retained to inspect and test the recompaction of all loose soil and engineered fill within the building addition pad perimeters and shall inspect and approve foundation and any retaining wall footing excavations for soil bearing conditions. Soil Surveys Group, Inc. shall also inspect and approve the subgrade below concrete floor and garage slabs-on-grade prior to placement of reinforcing steel and shall inspect and approve the installation of all roof and site drainage facilities.

VI. SURFACE AND SUBSURFACE DRAINAGE AND EROSION CONSIDERATIONS:

The near surface soil at the project site has the potential to erode, especially if protective vegetation is removed. Therefore all new cut and fill slopes, as well as disturbed soil areas, must be seeded with grass or landscape plants for erosion control and to prevent sloughing soil from blocking drainage patterns at the project site. Such erosion control measures shall be taken during and at completion of grading and during building construction operations.

Concentrated storm water runoff from the project site should not be allowed to discharge uncontrolled onto sloping ground. Suitable energy dissipation systems shall be designed where rainfall runoff is concentrated, or the drainage water should be collected and piped to flat ground or discharged onto a rocked energy dissipater down slope of the building foundations. Rock energy dissipaters consisting of four inch to six inch diameter rock or rubble rip rap should be installed at collection pipe discharge points to reduce soil erosion. Rain gutter downspouts shall discharge onto concrete splash blocks, or shall discharge into collector pipes. The building sites, any new paved areas and ground adjacent to the residence additions shall be graded so that rainfall runoff does not become trapped or flow against any building foundations.

The boring logs do not indicate the need for a subsurface drain system. However, the Geotechnical engineer may recommend a system of subsurface drains should wet subsurface soil conditions be encountered during site preparation or excavations for any new building foundations.

VII. RETAINING WALL DESIGN CRITERIA:

The following design criteria are recommended for the project retaining walls, provided the foundation is excavated into either properly compacted backfill or dense decomposed granitic soil conditions:

Friction Angle	φ	*= 40 °*
Cohesion	*c*	*= 533 p.s.f.*
Soil Weight,	*w*	*= 138.3 p.c.f.*
Equivalent fluid pressure, active		*= 30 pounds per square foot per foot of depth for* ***Level Grade***
Equivalent fluid pressure, active		*= 43 p.c.f. with* ***2:1 slope behind wall***

Equivalent fluid pressure, at rest,	*= 49 p.c.f., restrained condition*
Equivalent fluid pressure, passive	*= 636 p.c.f.*
Sliding friction f	*= 0.35*
Allowable Footing Toe Pressure	*= 2700 p.s.f. plus ⅓ additional for seismic force (if added)*

Retaining walls that are part of or within ten feet of a building should include the seismic force of the soil against the wall. The estimated seismically generated ground accelerations to be used for this area are:

PAGA = 0.37g
RHGA =0.25g = k_h
w = 138.3 p.c.f.

The resultant seismic force is calculated by the formula: 3/8 w $H^2 k_h$ per linear foot of retaining wall, or for this case **12.9 H^2**, ***where H is the height of the retaining wall. These forces, where needed, should be applied at a height of 0.6H above the base of the retaining wall and must be combined with the force produced by active soil pressure.***

These retaining wall design criteria are based on a fully drained condition. Therefore, we recommend that a four-inch diameter perforated NDS or PVC pipe be installed behind or along the top of the footing, holes placed down, behind all walls that retain earth. The pipe shall be covered with a 12-inch wide envelope of ¾-inch drain rock or Class 2 Permeable Material (per Caltrans Standard Specifications Section 68-1.025) which shall extend to a minimum of one foot above the top of pipe and extend to within one foot of the level of retained soil. Filter fabric shall be installed over the top of the drain rock. No gravel shall be placed below the pipe. The remainder of the trench can be backfilled with clean native sand. As an alternative to installing drain rock or permeable material, a composite filter material, eg. Miradrain, can be installed with a perforated pipe at the bottom of the material. Clean-out risers must be installed on the perforated pipe at the up-stream ends, every 100-feet, and at 90° angle points. The capped end of the cleanout riser shall be located at the ground surface outside of or behind the retaining walls.

VIII. RECOMMENDED SPECIFICATIONS:

A. GRADING:

The building pads, extending a minimum of five feet in each direction past new foundation footings shall be cleared and grubbed of all surface vegetation, demolition debris, and organic topsoil before recompacting the original ground, placing engineered fill or finishing the subgrade for the new additions. On site surface or subsurface grass, roots, deleterious material, or brush (if any) within any new building addition pad areas shall be removed. Soil Surveys Group, Inc. should determine the subexcavation depth after clearing and grubbing are completed. Any subexcavated soil shall then be backfilled in eight inch loose lifts and recompacted to 90 percent relative compaction, prior to placing engineered fill or finishing subgrade of the new building addition pads.

Any new cut and fill slopes shall be 2:1 or flatter unless retained. The native soil is suitable to be used as engineered fill provided any organics or debris are first removed from the soil to be used as fill. Any native soil used for fill, or any imported fill soil for the new building addition pads shall be compacted to at least 90 percent relative compaction, and any cut portions of a new building additions pads, if located within both cut and fill, shall be subexcavated a ***minimum*** of two feet, backfilled in eight inch loose lifts and recompacted to a minimum of 90 percent relative compaction. All fills placed on slope grades of 5:1 or greater shall be provided with a keyway excavated a minimum of two feet below grade, a minimum of 10 feet wide and at a 2% slope into the slope. The bottom of the keyway should be moisture conditioned, compacted (if necessary) and approved by Soil Surveys Group, Inc. prior to backfilling in eight inch loose lifts and compacting the backfill to 90 percent relative compaction. ***Grading, filling, compaction operations and foundation excavations shall be inspected and tested by Soil Surveys Group, Inc.***

B. COMPACTION:

Laboratory soils compaction test method shall be *A.S.T.M. D 1557-09.* Subgrade *in existing soil* beneath the new building addition pads shall be compacted to 90 percent relative compaction unless waived by the Geotechnical engineer. Subgrade soil below any new pavement shall be compacted to 95 percent relative compaction, and aggregate base beneath new pavement shall be compacted to 95 percent relative compaction. Any imported sandy soil fill placed for the new building addition pads shall be compacted to a minimum of 95 percent relative compaction.

C. CONCRETE FLOOR SLABS-ON-GRADE:

Subgrade in recompacted soil under any new concrete floor slabs-on-grade shall be brought to at least 2% over optimum moisture prior to placing native or imported sandy soil fill, prior to placing the capillary break rock and moisture proof barrier or prior to pouring concrete. We recommend that a capillary break consisting of:

- a mat of clean, open graded rock, four inches thick, shall be placed over the finished soil subgrade
- a minimum 15 mil. water-proof membrane (such as Stego, Moistop or equal) shall be placed over the open graded rock
- two inches of clean, moistened sand shall be placed between the water-proof membrane and the bottom of the concrete floor slab. The moistened sand will help protect the membrane and will assist in equalizing the concrete curing rate to minimize shrinkage cracking.

Class 2 Aggregate Base or sand should not be used as the capillary break material. Capillary break material shall comply with and be installed according to the following:

1. MATERIAL:
   The mineral aggregate for use under the floor slabs shall consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination of the above. The aggregate shall be free of adobe, vegetable matter, loam, volcanic tuff and other deleterious materials. It shall be of such quality that the absorption of water in a saturated, surface dry condition does not exceed 3% of the oven dry weight of the sample.

2. GRADING:
   The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by laboratory sieves (U.S. Sieves) will conform to the following grading:

Sieve Size	Percentage Passing Sieve
⅜" to ½"	100
No. 4	0-10
No. 200	0-2

3. PLACING:
    Subgrade, upon which aggregate base, gravel or crushed rock is to be placed, shall be prepared by removing grass and roots. Where loose topsoil is present, it shall be removed and cleaned of debris and recompacted to 90 percent of maximum density.

4. THICKNESS AND STRENGTH:
    Concrete slabs should be at least five inches thick. Concrete shall be five sack minimum (5.5 sack if pumped) and shall achieve a 28 day compressive strength of at least 2500 p.s.i., or as specified by the project engineer.

5. REINFORCEMENT:
    Concrete slabs-on-grade shall be reinforced with a minimum of #3 steel reinforcement bars placed 16 inches on center, each way, or #4 steel reinforcement bars placed 30 inches on center, each way, and shall be bent to extend a minimum of eight inches into the perimeter footings.

D. UTILITY TRENCH BACKFILL:

All new on-site utility trenches shall be backfilled with a clean sand having a sand equivalent of 30 or higher. A two feet thick plug of compacted, **clayey soil backfill** or lean concrete shall be required around the pipe or conduit at places where utility trenches intersect the building perimeter. All trench backfill of imported clean sand shall be compacted to 95 percent relative compaction at all locations. Clean native sand shall be approved by Soil Surveys Group, Inc. prior to using for trench backfill.

IX. REGIONAL AND LOCAL GEOLOGY:

A. Site Setting

The project site lies within an approximately 0.76 acre parcel located north of the Coast Ridge Drive and Mal Paso Road intersection and 0.12 kilometers east of Highway 1, in the Carmel Highlands. The general topography of the parcel is flat near the location of the residence and slopes downward on the south side down to Coast Ridge Drive. The parcel is vegetated with some small native shrubs and trees. There are no obvious signs of major erosion, slippage or mass movement on the subject property.

B. Regional Geology

The property is located within the central part of the coast range geomorphic province. The province consists of northwest trending mountain ranges and valleys that parallel the northwest structural orientation of the San Andreas fault system, which includes the Monterey Bay-Tularcitos, San Gregorio-Palo Colorado, Rinconada (also known as the King City-Reliz Fault), and Carmel- San Francisquito faults as well as other lesser faults. The northwest trending coastal mountain ranges result from tectonic uplift believed to have been occurring for the last 2-3 million years. The San Andreas fault separates the North American and Pacific Tectonic Plates and has a lateral strike-slip or transform motion. The San Andreas fault forms the easterly boundary of a series of granitic and metamorphic rocks that comprise the Salinian Block. The Salinian Block is bounded to the southwest by the San Gregorio-Palo Colorado fault. Primarily overlying the Salinas Block basement complex are Tertiary aged marine sedimentary rocks and Pliocene to Pleistocene aged terrestrial blocks. Alluvial fans are common along the southwesterly edge of the Salinas Valley where the valley contacts the Santa Lucia Mountain Range. The section of the Monterey Bay area, where the site is situated, lies within the Salinian Block.

C. Local Geology

The geologic formations in the general vicinity of the project site have been mapped as Tertiary aged (period from 65 million to 2.6 million years before present) sandstone and shales as well as Quaternary aged (period from 2.6 million years before present to present) valley sediments called the Paso Robles Formation overlain by Quaternary aged terrace, valley and flood plain deposits which in this area, some in relation to the nearby Carmel River. Also present to the north/northeast of the site are areas related to the Salinian Block basement complex (ie. granites and metamorphosed rocks). Dibblee (2007) shows the subject property to lie within an area of granitic rocks (gdp) and marine terrace sand (Qm), see Figure III (Geologic Map).

D. Subsurface

Two borings were drilled on June 9, 2017, using portable drilling equipment. The borings achieved depths of 15.0 feet and 7.5 feet below the nearest adjacent ground surface. Loose surficial decomposed granitic sandy soils were encountered in the upper two to six feet overlying medium dense to very dense, silty, clayey, decomposed granitic sands with gravels. These soil materials are consistent with materials found in the Salinian Block basement complex.

E. Landsliding

Landslides are caused by a change in the stability of a slope. Natural changes in stability can be caused by groundwater, loss of vegetation, erosion and earthquakes. Other causes are human and construction related. Our review of available information and our reconnaissance revealed no evidence of landsliding at or immediately adjacent to the site. The on-site soil material was found to consist of loose to medium dense decomposed granitic sandy soils in the upper two to six feet (depending on proximity to slope) overlying slightly expansive silty, clayey, decomposed granitic sands with gravels that range in density from medium dense to very dense. There was no evidence of the presence of water in the boring logs nor on the slopes at the time of our site visits.

F. Faulting

The site is located within a tectonically active area that is dominated by the San Andreas fault system. There have been several historic earthquakes that have caused damage to man-made structures and loss of human life in the central coast area. The most notable are: the 1906, 8.3 magnitude, San Francisco earthquake and the 1989, 6.9 magnitude, Loma Prieta earthquake. The 2014 Working Group on California Earthquake Probabilities suggests a greater than 99 percent chance of a magnitude 6.7 or greater earthquake during the next 30 years. This group suggested that the most likely source of a seismic event of this magnitude will be the Hayward-Rodgers Creek Fault (in the San Francisco Bay area) with a 14 percent chance of occurrence in the next 30 years. The probability that the project residence will experience a large magnitude earthquake in its useful lifetime is very high. The new additions shall be designed to withstand severe shaking and lateral accelerations generated by a severe earthquake centered nearby on any of the area faults.

Several faults have been mapped in the general project vicinity. Figure 4 shows a map of the fault activity around the project site. The following table provides distances to nearby faults:

Fault Name	Approximate Distance to Site	Orientation from Site	Data Source
Unnamed Fault (Inferred)	0.51 km	Southwest	Greene (1972)
Malpaso Fault (Certain)	0.56 km	East	Kingsley Associates (1981)
Unnamed Fault (Inferred)	2.6 km	North	Clark et. al. (1977)

Fault Name	Approximate Distance to Site	Orientation from Site	Data Source
Unnamed Fault (Inferred)	3.41 km	South	Dibblee et. al. (1973b)
Monterey Bay - Tularcitos	12.25 km	Northeast	Uniform Building Code, 1997
Rinconada	26.5 km	Northeast	Uniform Building Code, 1997
San Andreas (Creeping Section)	39.5 km	Northeast	Uniform Building Code, 1997
Zayante Vergeles	46.5 km	Northeast	Uniform Building Code, 1997

An active fault with is a fault that has experienced movement within the last 11,000 years (the Holocene epoch). A potentially active fault has experienced movement sometime between 11,000 and 3,000,000 years ago (the Pleistocene epoch) with no evidence of movement in the last 11,000 years. An inactive fault is a fault that has experienced no movement in the last 3 million years. The major fault zones in the area are the San Andreas and the Monterey Bay-Tularcitos fault zones which includes the Rinconda (also known as the King City-Reliz Fault), and the San Gregorio Faults. These fault zones are considered active fault systems with some of the lesser faults in the systems considered potentially active.

X. SEISMIC HAZARDS:

A. Ground Shaking

Ground shaking due to a seismic event is the primary hazard that will effect the proposed structure within its design lifespan. Severity of ground shaking depends on a number of factors including earthquake magnitude, distance to the epicenter, site geologic conditions, groundwater conditions and topography. The 1997 Uniform Building Code (UBC) lists Monterey County as being within the most active seismic zone - Seismic Zone 4. The new additions shall be designed to withstand severe shaking and lateral accelerations generated by a severe earthquake centered nearby on any one of the area faults. The new addition and any future additions must be designed in strict compliance with the 2016 California Building Code, or current edition to help withstand such seismically generated ground accelerations for a reasonably expected duration without suffering major damage.

The following are the project site coordinates and the seismic design criteria/coefficients per the requirements of the 2016 California Building Code (CBC):

Site Class	Latitude	Longitude	S_S	S_1	F_a	F_v
D	36.4841°	-121.9362°	1.769	0.703	1.00	1.50

Frame and semi-rigid structures with proper strengthening connections and hold-down fasteners (where needed) are recommended for the new project residence and any future building additions. With proper design parameters, seismic damage to the building can be mitigated for major earthquakes centered near the project area.

B. Surface Fault Rupture
Surface fault rupture occurs along fault lines during earthquakes or by fault creep. The magnitude of surface rupture depends primarily on the magnitude of the earthquake and can cause serious damage to structures that are located on or near the rupture. As no faults have been mapped within the property and no evidence of faulting was found on the aerial photographs or in our site reconnaissance, the potential for surface fault rupture is considered to be low.

C. Soil Liquefaction
Liquefaction is caused by the rapid loss of soil strength during a seismic event occurring primarily in saturated, loose sandy soil. The liquefaction potential at this site is considered to be low due to lack of groundwater in the upper 15 feet and the medium dense to very dense decomposed granitic sand soil material encountered in the soil borings.

D. Seismically Induced Settlement
Seismically induced settlement is normally associated with poorly consolidated, predominately sandy soils that densify during a strong seismic event. Due to the density of the decomposed granitic soils, and the lack of groundwater in the shallow subsurface, the probability of seismically induced settlement is considered to be low.

E. Tsunamis and Seiches
Tsunamis are defined as a gravitational sea wave produced by a large-scale, short duration disturbance on the ocean floor usually by a shallow submarine earthquake or by submarine slumps, subsidence or volcanic eruption, or a large scale landslide into the ocean. A seiche is defined as a wave oscillation of the surface of water in an enclosed or semi-enclosed lake, bay or harbor initiated by an earthquake or changes in the atmospheric pressure. Due to the inland location and elevation of the project site and the lack of any semi-enclosed lake, bay and no dam in the subject vicinity, the potential for either tsunamis and seiches is considered to be low.

XI. UNFORESEEN OR UNUSUAL CONDITIONS:

If any unforseen or unsuitable soils conditions are found during grading or construction the Geotechnical engineer shall be notified immediately so that remedial action can be taken. Such unsuitable conditions could be:

1. Wet, soft or unsuitable pockets of clayey soil within the proposed building addition sites.
2. Soil with a high organic content at the finished subgrade of the building addition pads.
3. Any other unforeseen conditions that would require remedial action by the Geotechnical engineer, project engineer, architect or contractor.

XII. CONCLUSIONS AND RECOMMENDATIONS:

From our field observations, analysis of the test data, and knowledge of the general area soils, the following are concluded:

1. The project soil conditions are suitable for the proposed new building additions provided any loose near surface soil is recompacted prior to excavating for the new building addition foundations or finishing the subgrade of the building addition pads as recommended in Sections V and VIII herein.

2. Design criteria for a spread footing foundation system are provided in Sections IV and V. Design criteria for any proposed or future retaining walls are provided in Section VII. Design criteria for concrete slabs-on-grade are provided in Sections IV, V and VIII herein.

3. Surface storm water runoff should be carefully controlled around the proposed building addition pads and foundations to provide positive drainage away from any building foundations as discussed in Section VI herein.

4. The Geotechnical engineer should review the building and site grading plans for compliance with the recommendations herein and may provide additional specific recommendations for surface or subsurface drainage. The Geotechnical engineer shall inspect and approve all new foundation footing excavations.

5. Grading, compaction specifications, and specifications for new concrete floor slabs-on-grade are provided in Section VIII herein.

6. Seismic considerations are discussed, and geoseismic design coefficients are provided in Section IX herein per the 2016 CBC. The potential for damaging earthquake related liquefaction is considered to be low at the project site.

XIII. LIMITATIONS:

This report necessarily assumes that the subsurface conditions are as found in the borings. It should be recognized that the soil conditions described in this report are based on two borings and our knowledge of the general area soils. It must be understood that subsurface soil conditions can vary between borings and from site to site. If any unusual soil conditions are found during grading, installation of underground utilities or building construction, the Geotechnical engineer should be notified immediately so that remedial action can be taken (see Section X).

This report is issued with the understanding that it is the responsibility of the Owners or their representative to ensure that the applicable provisions of the recommendations contained herein are incorporated into the plans and specifications and that the necessary steps are taken to see that contractors and subcontractors carry out such provisions in the field. The use of this report, its contents or any part thereof, by a party or its agents, other than William and Raquel Traina, their engineer, architect, contractor or designated agents, is hereby disallowed unless specific permission is given to do so by Soil Surveys Group, Inc. This investigation and report were prepared with the understanding that proposed new additions to the existing residence are to be constructed as shown on the Figure II map enclosed herein. The use of this report, boring logs and laboratory test data shall be restricted to the original use for which they were prepared and publication by any method, in whole or in part, is prohibited without the written consent of Soil Surveys Group, Inc. Title to the designs remains with Soil Surveys Group, Inc. without prejudice. Visual contact with this report and drawings constitutes prima facie evidence of the acceptance of these restrictions.

Soil Surveys Group, Inc. will not take responsibility for or assume any liability for the recommendations made in this report unless Soil Surveys Group, Inc. performs the field inspections and testing mentioned herein.

The findings and recommendations of this report are considered valid at the present date. However, changes in the property conditions can occur with the passage of time on this or adjacent properties, whether due to natural processes or the works of man. Therefore, the findings of this report shall be considered valid for a period of not more than three years without being reviewed and updated by Soil Surveys Group, Inc.

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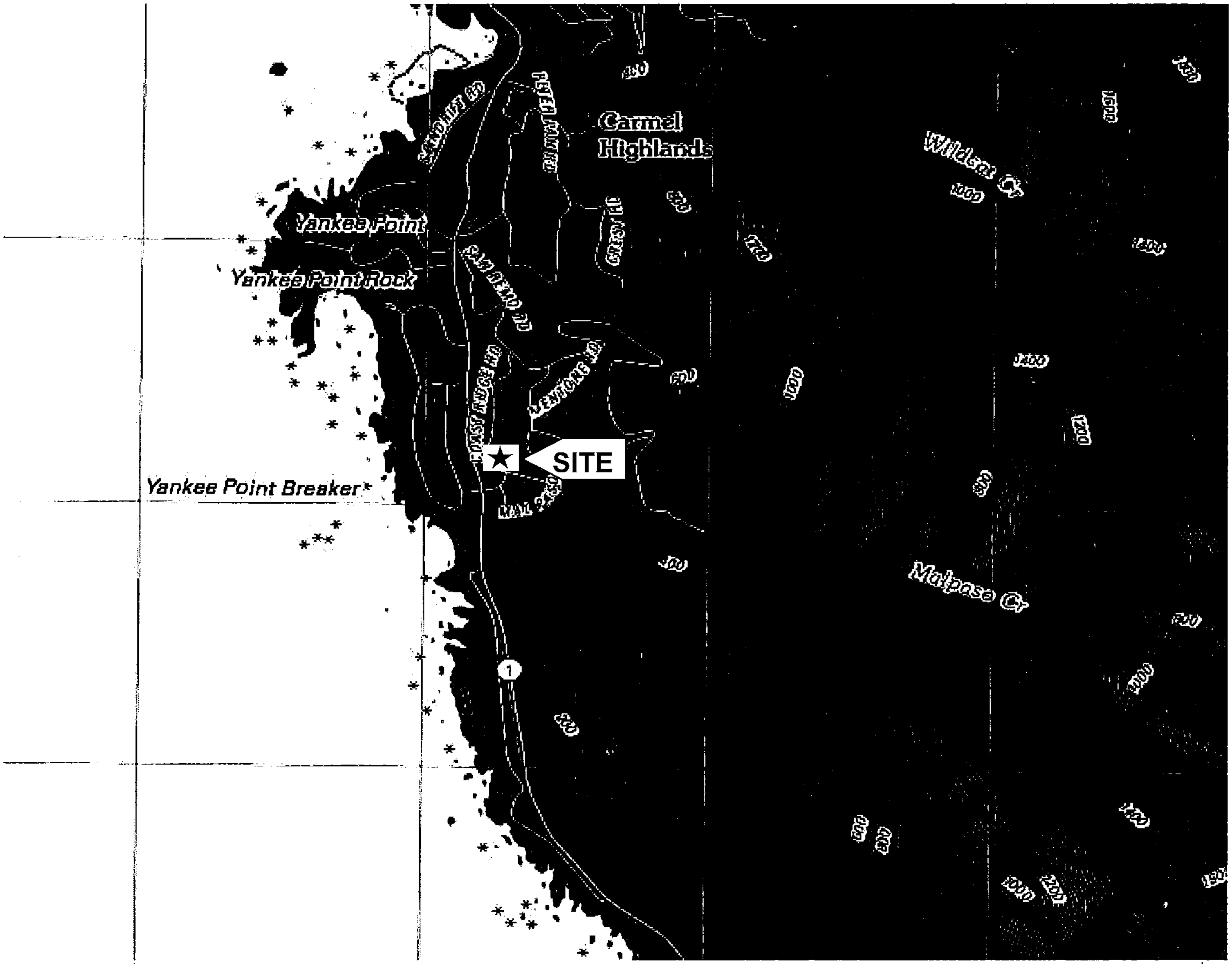
AERIAL PHOTOGRAPHS REVIEWED

Photo No.	Flight Date	Scale	Type	Source
V Can#2A-203, 489-369, -370	1-8-42	1:30,000	B/W	US Army Air Force
GS-VDDI 1-4, 2-188J	11-22-72 & 4/18/73	1:80,000	B/W	USGS
WAC-Monterey-90, 11-162, 11-163, 11-164	6-27-90	1:15,480	Color	WAC Corp.
AMBAG 510-07, -08	7-01-03	1:7,200	Color	AMBAG



N

BASE: U.S. Geological Survey, Soberanes Point 7.5' Quadrangle, Carmel Highlands, California

FIGURE I: VICINITY MAP

SCALE
1" = 2000'

By: **Soil Surveys Group, Inc.**
103 Church Street
Salinas, CA 93901
831-757-2172

Job #6884

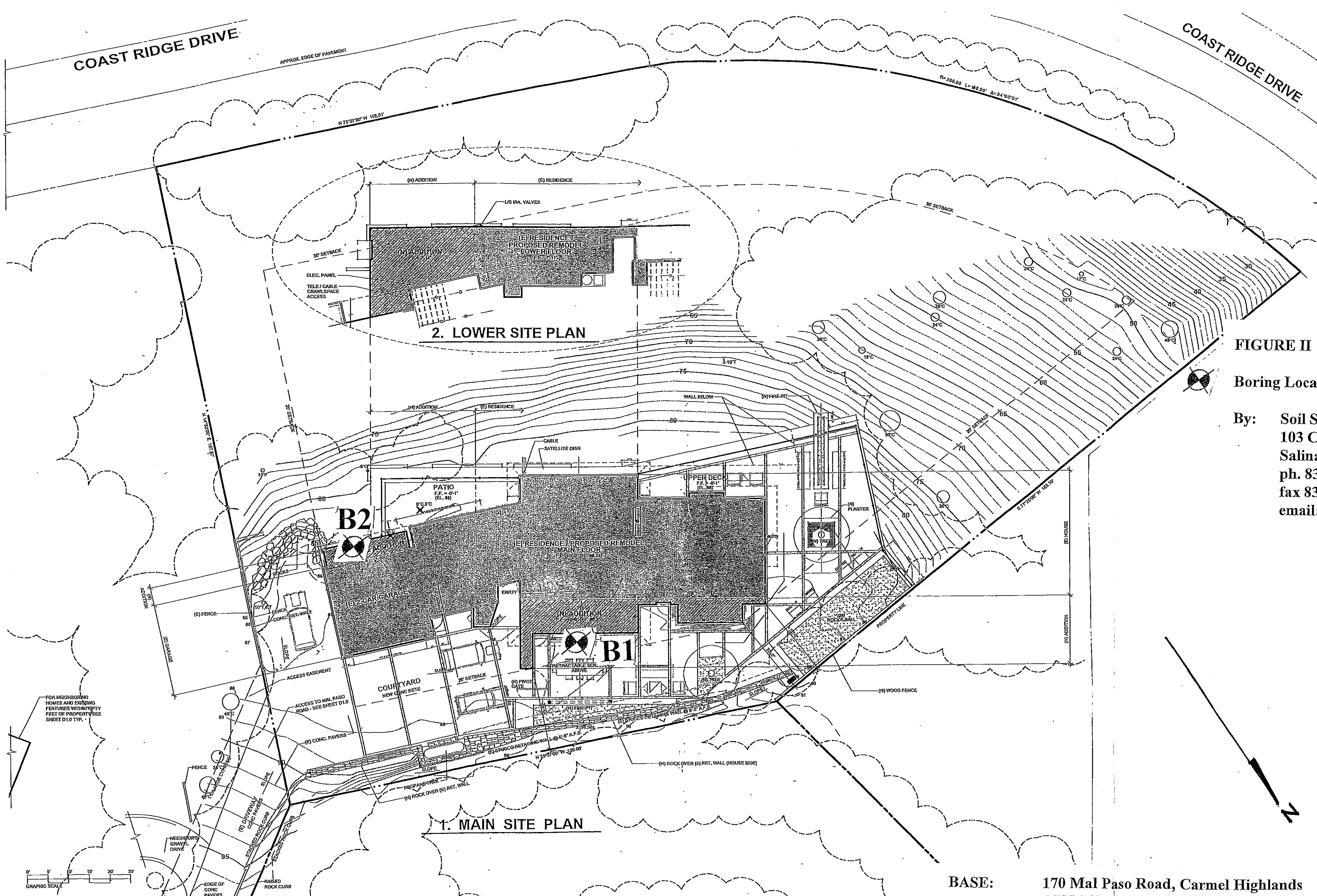
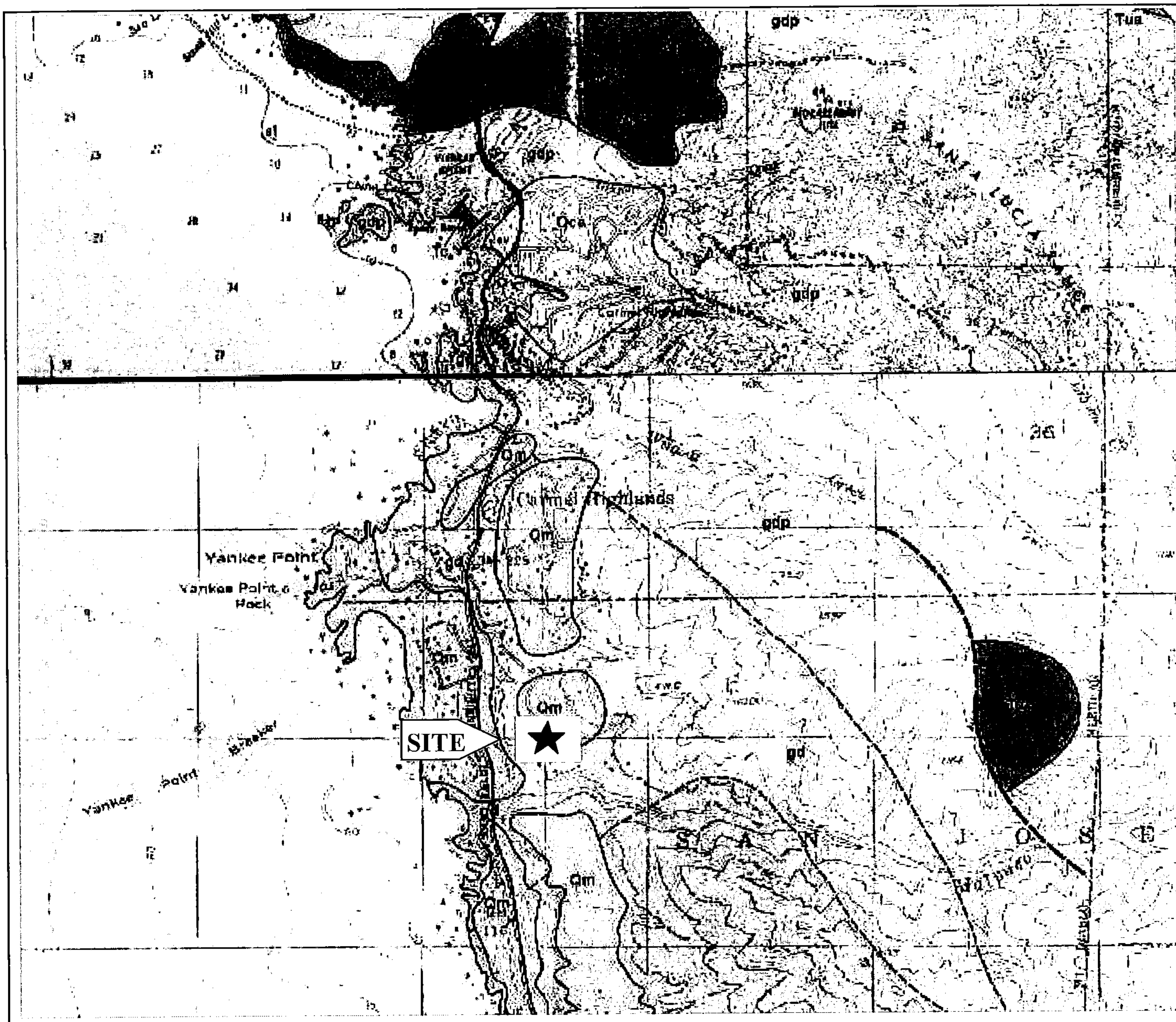


FIGURE II

Boring Locations (approx.)

By: Soil Surveys Group, Inc.
103 Church Street
Salinas, CA 93901
ph. 831-757-2172
fax 831-755-7330
email: info@soilsurveys.net

BASE: 170 Mal Paso Road, Carmel Highlands
APN 243-292-002
Site Plan by Conrad Asturi Studios Inc., May 2017 - Job #6884



LEGEND

gdp/gd	*Grantic Rocks*
Qoa	*Older Stabilized Dune Sand*
Qm	*Marine Terrace Sand*
Tc	*Carmelo Formation - grainitic conglomerate sandstone and siltstone*

Fault, dashed where approximate, dotted where concealed, barbs on upthrown side

76 *Strike and Dip of Bedding*

N

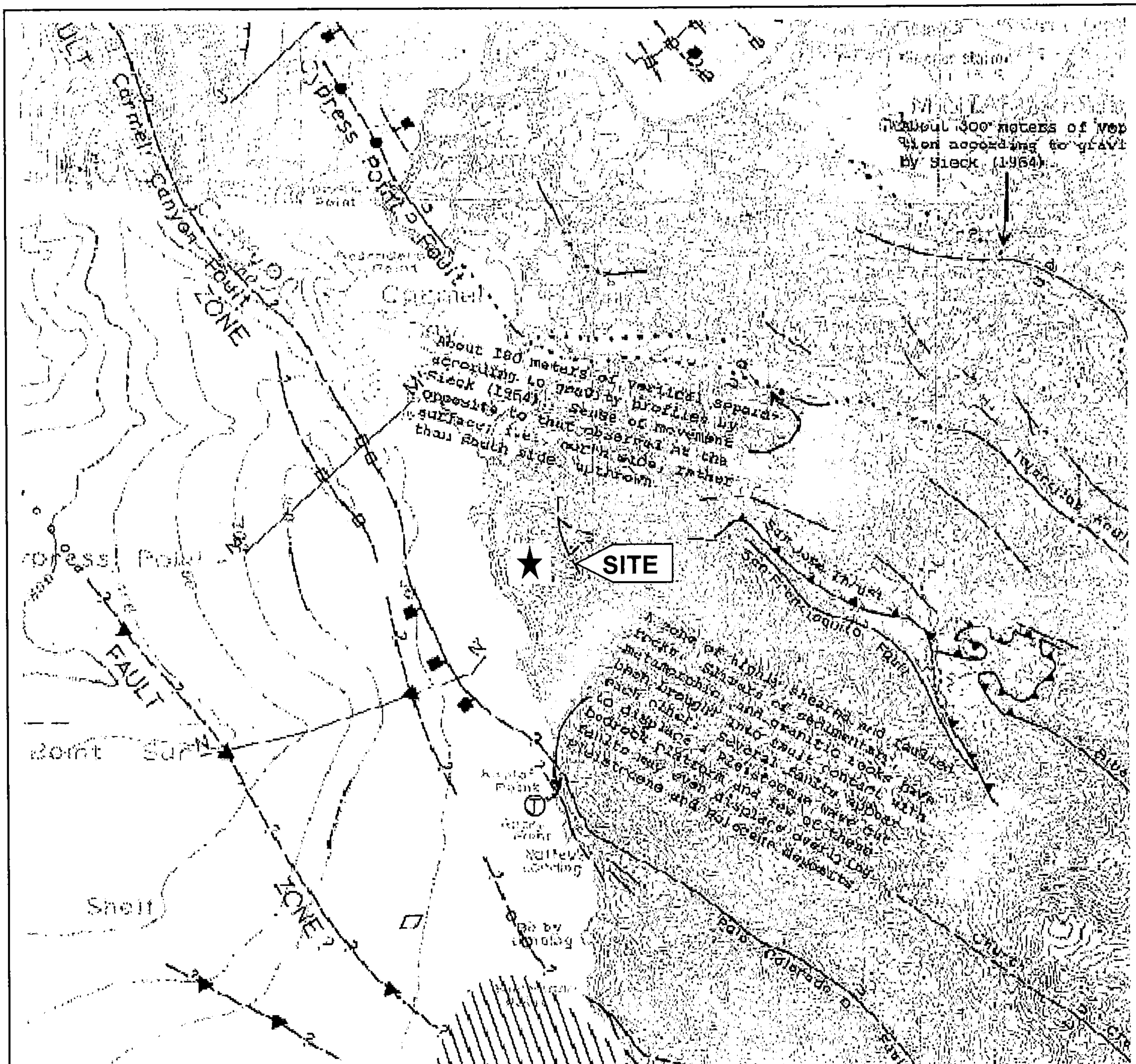
BASE: DIBBLEE JR., THOMAS W., GEOLOGIC MAP OF THE MONTEREY,SEASIDE, SOBERANES POINT AND MOUNT CARMEL QUADRANGLES, 2007

FIGURE III: GEOLOGICAL MAP

SCALE
1" = 2000'

By: **Soil Surveys Group, Inc.**
103 Church Street
Salinas, CA 93901
831-757-2172

Job #6884



LEGEND

Fault, dashed where approximate, dotted where concealed

barbs on upthrown side

N

BASE: H.G. GREENE, W.H.K. LEE, D.S. MCCULLOCH, AND E.E. BRABB, FAULT MAP OF THE MONTEREY BAY REGION, CALIFORNIA, 1973

FIGURE IV: FAULT ACTIVITY MAP

SCALE
1" = 200,000 Miles

By: **Soil Surveys Group, Inc.**
103 Church Street
Salinas, CA 93901
831-757-2172

Job #6884

APPENDIX A
BORING LOGS

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS — MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS — MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS — LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS — LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

DEFINITION OF TERMS

U.S. STANDARD SERIES SIEVE: 200, 40, 10, 4 — CLEAR SQUARE SIEVE OPENINGS: 3/4", 3", 12"

SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

GRAIN SIZES

SANDS AND GRAVELS	BLOWS/FOOT[†]
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH[‡]	BLOWS/FOOT[†]
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

[†] Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).
[‡] Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

SOIL SURVEYS INC.
GEOTECHNICAL ENGINEERING
SOILS ENGINEERING
FOUNDATION ENGINEERING
CIVIL ENGINEERING
GEOLOGICAL ANALYSIS

KEY TO EXPLORATORY BORING LOGS
Unified Soil Classification System (ASTM D-2487)

PROJECT NO.	DATE	Figure

EXPLORATION DRILL LOG

HOLE NO. B-1

PROJECT 170 Mal Paso Road, Carmel Highlands - Traina Residence Job #6884 DATE 6.9.17 LOGGED BY JG

DRILL RIG Central Coast Big Beaver w/ 140 lb. Hammer HOLE DIA. 3" SAMPLER Terzaghi Split Spoon (SPT) & 2.5" Cal

GROUNDWATER DEPTH: INITIAL --- FINAL --- HOLE ELEV. 125'

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Grass/ 3" of dark brown, silty SAND with organics;	SM								
moist		1							
Light reddish yellow, slightly clayey, silty, fine to	SC/GC		2.5"Cal						
coarse grained, decomposed granitic SAND with		2	XXX	36 (22)	115.8	12.6	30	26	>4.5
scattered, subangular, decomposed granitic gravels;			XXX	78(47)/9"	126.2	6.3			>4.5
moist, loose to medium dense		3	XXX	Bulk	---	4.8			---
		4							
(Harder drilling)	SM	5							
(Added water, slow drilling)		6							
Dark reddish-tan, whitish tan, dark gray, slightly	SM		SPT	50/0"	No	recovery			
clayey, silty, fine to coarse grained, decomposed		7							
granitic SAND with decomposed granitic gravels;									
moist, very dense		8							
		9							
Dark reddish yellowish tan, yellowish white, dark	SM		SPT	50/0"	No	recovery			
gray, silty, fine to coarse grained, decomposed		10							
granitic SAND with decomposed granitic gravels									
and thin veins of clay; moist, very dense		11							
		12							
Reddish-yellow tan, dark gray, whitish tan, silty,	SM		SPT	50/1"	No	recovery			
fine to coarse grained, decomposed granitic SAND		13							
with subangular, decomposed granitic gravels; moist									
very dense		14							
Auger refusal at 15.0'		15							
Dark reddish yellow tan, dark gray, whitish tan,	SM		SPT	50/0"	No	recovery			
heavily weathered, decomposed granite; moist,		16							
very dense. Bottom of boring at 15.0'									
		17							
		18							
		19							
		20							

DEPTH 15.0' SOIL SURVEYS GROUP, INC.

EXPLORATION DRILL LOG

HOLE NO. B-2

PROJECT 170 Mal Paso Road, Carmel Highlands - Traina Residence Job #6884 DATE 6.9.17 LOGGED BY JG

DRILL RIG Central Coast Big Beaver w/ 70 lb. Hammer HOLE DIA. 3" SAMPLER Terzaghi Split Spoon (SPT) & 2.5" Cal

GROUNDWATER DEPTH: INITIAL --- FINAL --- HOLE ELEV. 125'

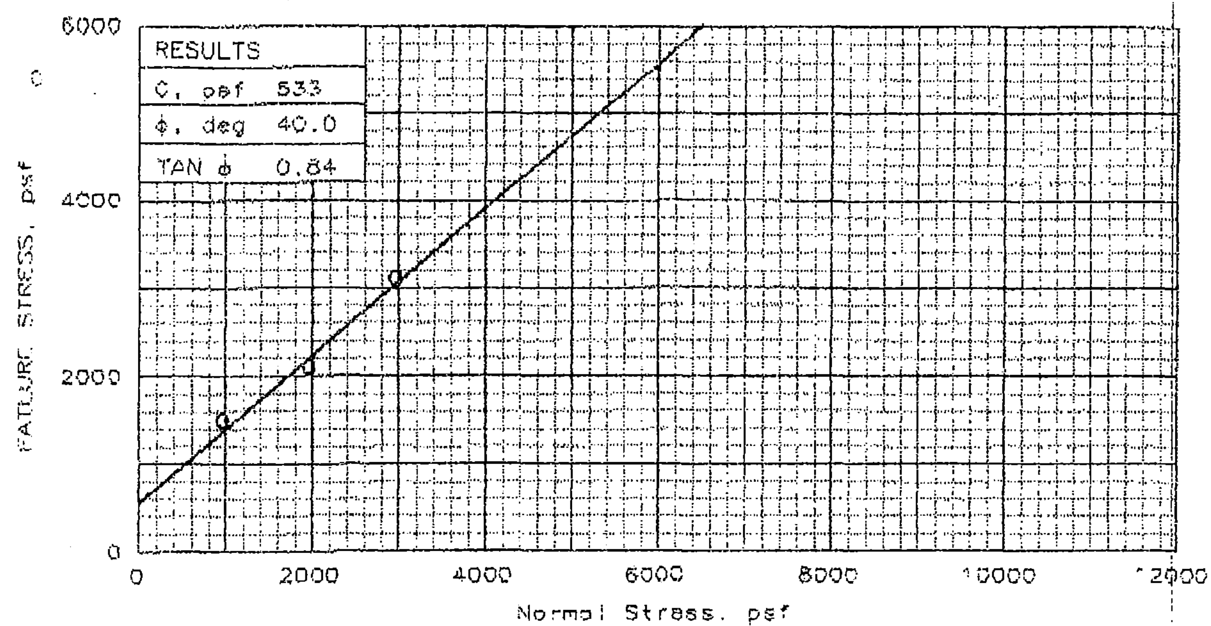
DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Light tan, light reddish-tan, light reddish-yellow tan,	SM								
clayey, silty, fine to coarse grained, decomposed		1							
granitic SAND with scattered, decomposed granitic			SPT						
gravels; moist	SM/SC	2							
			XXX	9 (5)	101.6	8.1			---
		3							
Dark yellowish-brown, light reddish-tan, silty, fine	SM		2.5"Cal						
to coarse grained, decomposed granitic SAND with		4	XXX	11 (3)	89.4	8.9	26	n/p	1.5
subangular, decomposed granitic gravels; moist,			XXX	14 (4)	125.0	10.6	shear	test	3.0
loose	SM	5	SPT						
		6	XXX	17 (9)	105.2	10.6			0.75
Dark reddish-yellow tan, whitish tan, dark gray,	SM/SC		SPT						
clayey, silty, fine to coarse grained, decomposed		7							
granitic sand with iron staining, subangular	SM/SC		XXX	62 (31)	104.4	5.7			---
decomposed granitic gravels, and thin veins of clay;		8							
moist, dense. Bottom of boring at 7.5'									
		9							
		10							
		11							
		12							
		13							
		14							
		15							
		16							
		17							
		18							
		19							
		20							

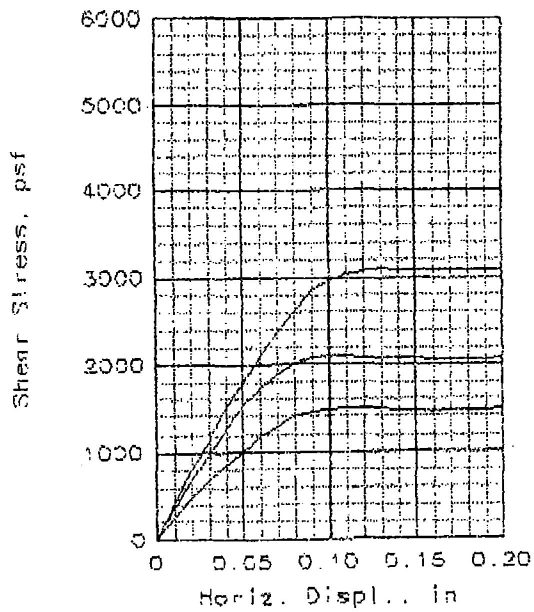
DEPTH 7.5'

SOIL SURVEYS GROUP, INC.

APPENDIX B

DIRECT SHEAR TEST FROM NEARBY SITE





Specimen No.:		1	2	3
INITIAL	WATER CONTENT, %	10.6	10.6	10.6
	DRY DENSITY, pcf	125.0	125.3	124.7
	SATURATION, %	82.4	83.2	81.7
	VOID RATIO	0.349	0.346	0.352
	DIAMETER, in	2.42	2.42	2.42
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	11.1	11.0	11.5
	DRY DENSITY, pcf	126.2	126.7	126.2
	SATURATION, %	89.7	89.9	92.3
	VOID RATIO	0.335	0.331	0.336
	DIAMETER, in	2.42	2.42	2.42
	HEIGHT, in	0.99	0.99	0.99
NORMAL STRESS, psf		1000	2000	3000
FAILURE STRESS, psf		1489	2100	3099
DISPLACEMENT, in		0.12	0.11	0.13
RESIDUAL STRESS, psf				
DISPLACEMENT, in				
Strain rate, in/min		0.0200	0.0200	0.0200

SAMPLE TYPE: MC
DESCRIPTION: Very dense,dk. brn f-c grained SANDSTONE(SM)*

SPECIFIC GRAVITY= 2.7
REMARKS: *Micaceous

Fig. No.:

CLIENT: Soil Surveys,Inc.

PROJECT:

SAMPLE LOCATION: Sample No. 1 4-4.5'

PROJ. NO.: 5139 DATE: 3-5-08

DIRECT SHEAR TEST REPORT

Soil Mechanics Lab

SOIL SURVEYS GROUP INC.

103 CHURCH ST • SALINAS, CALIFORNIA 93901 • TELEPHONE (831) 757-2172

November 1, 2017
Job #6884

William and Raquel Traina
c/o Conrad Asturi Studios, Inc.
Attn: Edan Asturi
1121 Oakdale, Road, Suite 5
Modesto, CA 95355

Re: Response to Monterey County Email Correspondence Dated July 20, 2017 Concerning the Moderate Landslide Hazard for the Proposed New Additions to the Existing Single Family Residence to be Located at 170 Mal Paso Road, APN 243-292-002, in the Carmel Highlands, California

Dear Mr. and Mrs. Traina:

This letter is in response to Monterey County RMA, Environmental Services email correspondence dated July 20, 2017 for the proposed new additions to the existing single family residence to be constructed at 170 Mal Paso Road, APN 243-292-002, in the Carmel Highlands, California. We respond to the landslide hazards as follows:

Item 1: Are existing landslides, active or inactive, present on, or adjacent to the project site?
No, there were no landslides observed within the property during our initial investigation nor during a recent site visit by our staff geologist. There are no slides mapped within the project vicinity as shown on Dibblee, 2007.

Item 2: Are there geologic formations or other earth materials located on or adjacent to the site that are known to be susceptible to landslides?
No, the geologic formations near and within the vicinity of the project site are typically granitic basement rocks or marine terrace deposits. These materials are not typically prone to landsliding.

Item 3: Do slope areas show surface manifestations of the presence of subsurface water, or can potential pathways or sources of concentrated water infiltration be identified on or upslope of the site?
No, there were no surface manifestations that would indicate any subsurface water or sources of concentrated water visible at the time of our site inspections. No water was encountered in our borings to the maximum depth explored of 15 feet.

Item 4: Are susceptible landforms and vulnerable locations present?
No, there are no susceptible landforms or vulnerable locations in the slopes around the residence. Trees can be found along the slope and scattered vegetation showed no evidence of creep or erosion during our investigations. Granitic outcrops can also be found towards the base of the slope below the existing residence.

Item 5: Could anticipated changes in the surface and subsurface hydrology increase the potential for future landsliding in some areas?
Yes, the potential can be increased due to construction efforts. However, if care is taken and all drainage and erosion control measures discussed in our report are implemented, the potential for landsliding can be lowered.

If you have any questions regarding this letter, please contact us. It has been a pleasure working with you on this project.

Very truly yours,

SOIL SURVEYS GROUP, INC.

REGISTERED PROFESSIONAL ENGINEER
BELINDA A. TALUBAN
No. 44217
Exp. 6/30/19
CIVIL
STATE OF CALIFORNIA

Belinda A. Taluban, P.E.
R.C.E. 44217

Michelle Garcia, C.E.G.
Engineering Geologist 2668

CERTIFIED ENGINEERING GEOLOGIST
MICHELLE GARCIA
No. 2668
exp 3/31/19
STATE OF CALIFORNIA

BAT/MMG/ke

cc. County of Monterey, Resource Management Agency

170 Mal Paso Road
Tree Resource Assessment
Carmel, CA

Prepared for:

Mr. and Mrs. Traina

Prepared by:

Frank Ono
Urban Forester
Member Society of American Foresters #48004
ISA Certified Arborist #536
1213 Miles Avenue
Pacific Grove, CA 93950

August 3, 2017

Owner:

Willie and Raquel Traina
1225 Sycamore Avenue
Patterson, CA 95363

Architect:

Conrad Asturi Studios, Inc.
P.O. Box 1556
Carmel by the Sea, CA 93921

Forester and Arborist

Frank Ono, Member SAF #48004, ISA Certified Arborist #536
F.O. Consulting
1213 Miles Ave
Pacific Grove, CA 93950

SUMMARY

Development is proposed for this site requiring excavation near trees on site. The project proposes to construct and renovate a single-family dwelling situated on a 32,227 square foot lot. There are a number of planted trees on the property as well as a few existing native trees; trees are considered to be in fair or better condition both structurally and in health. Excavation and hardscape removal will be performed requiring removal of several ornamental trees, but at this time it appears the project does or does not require removal or relocation of native protected trees. A tree assessment/arborist report has been prepared that identifies and addresses the affects that the project will have to the existing tree resources on site as well as a list of recommendations regarding trees on the project.

INTRODUCTION

This tree assessment/arborist report is prepared for Willie and Raquel Traina, the owners of the property located at 170 Mal Paso Road, Carmel CA by Frank Ono, Urban Forester and Certified Arborist (member Society of American Foresters #48004 and International Society of Arboriculture Certified Arborist #536) due to the proposed construction. The Carmel Area Land Use Plan and Monterey County Zoning Ordinance Title 20 identify native Coast live oak and Monterey cypress trees as species requiring protection and special consideration for management.

ASSIGNMENT/SCOPE OF PROJECT

To ensure protection of the tree resources on site, the property owner, Willie and Raquel Traina, have requested an assessment of the trees in proximity to proposed development areas. The findings of the report are to be documented in an arborist report to work in conjunction with other conditions for approval of the building permit application. To accomplish this assignment, the following tasks have been completed;

- Evaluate health, structure and preservation suitability for each tree within or adjacent (15 feet or less) to proposed development of trees greater than or equal to six diameter inches at 24 inches above grade.
- Review proposed building site plans as provided by Conrad Asturi Studios, Inc.
- Make recommendations for alternative methods and preconstruction treatments to facilitate tree retention.
- Create preservation specifications, as it relates to a Tree Location/Preservation Map.
- Determine the quantity of trees affected by construction that meet "Landmark" criteria as defined by the County of Monterey, Title 20 Monterey County Zoning Ordinance; as well as mitigation requirements for those to be affected.
- Document findings in the form of a report as required by the County of Monterey Planning Department.

LIMITATIONS

This assignment is limited to the review of plans submitted to me printed June 29, 2017 by Conrad Asturi Studios, Inc. to assess affects from potential construction to trees within or adjacent to construction activities. The assessment has been made of these plans specifically and no other plans were reviewed. Only minor grading and erosion details are discussed in this report as it relates to tree health. It is not the intent of this report to be a monetary valuation of the trees or provide risk assessment for any tree on this parcel, as any tree can fail at any time. No clinical diagnosis was performed on any pest or pathogen that may or may not be present. In addition to an inspection of the property, F.O. Consulting relied on information provided in the preparation of this report (such as, surveys, property boundaries, and property ownership) and must reasonably rely on the accuracy of the information provided. F.O. Consulting shall not be responsible for another's means, methods, techniques, schedules, sequence or' procedures, or for contractor safety or any other related programs; or for another's failure to complete the work in accordance with the plans and specifications.

PURPOSE AND GOAL

This tree assessment/arborist report is prepared for this parcel due to proposed construction activities located at 170 Mal Paso Road, Carmel CA. The purpose of the assessment is to determine what, if any, of the trees will be affected by the proposed project. Oak trees, Monterey cypress trees, and Monterey pine trees are considered protected trees as defined by the County of Monterey, Title 20 Monterey County Zoning Ordinance unless otherwise proven to be an introduced or planted species.

The goal of this report is to protect and maintain the Carmel Area forested resources through the adherence of development standards, which allow the protection, and maintenance of its forest resources. Furthermore it is the intended goal of this report to aid in planning to offset any potential effects of proposed development on the property while encouraging forest stability and sustainability, perpetuating the forested character of the property and the immediate vicinity.

SITE DESCRIPTION

1) Assessor's Parcel Number: 243-292-002-000.

2) Location: 170 Mal Paso Road, Carmel CA.

3) Parcel size: 0.74 Acres.

4) Existing Land Use: The parcel is zoned for residential use LDR 1D (CZ).

5) Slope: The parcel is sloped with a flattened bench for the house; slopes range from mild to steep sloped over 25%.

6) Soils: The parcel is located on soils classified by the Monterey County Soils report as Sheridan Coarse sandy loam soils 15 to 30 percent slopes. This is a moderately steep soil on rounded hills. These soils have rapid runoff and the erosion hazard is moderate.

7) Vegetation: The vegetation associated with this soil type generally is the open grass or grass and oak type or it consists of madrone, scattered Coulter and ponderosa pine, and brush. The vegetation on site is composed primarily of a few native Oaks, planted Monterey cypresses, and planted landscape ornamentals.

8) Forest Condition and Health: The stand of trees and health are evaluated with the use of the residual trees combined with surrounding adjacent trees as a complete stand. The site is developed and surrounded by other residences that have urbanized the landscape. There are stands of pines and planted Monterey cypress in the area. There is significant mortality of Monterey pines on nearby properties. With respect to the Monterey cypress existing cypresses appear to be healthy with no obvious signs of disease or significant insect activity.

BACKGROUND

Assessment focuses on incorporation of the preliminary location of site improvements coupled with consideration for the general goals of site improvement desired of the landowner. Proposed improvements assessed included preserving protected trees to the greatest extent feasible, maintaining the view shed and general aesthetic quality of the area while complying with Monterey County Codes. The study of individual trees determined treatments necessary to complete the project and meet the goals of the landowner. Trees within and immediately adjacent proposed development area were located, measured, inspected, flagged and recorded. The assessment of each tree concluded with an opinion of whether the tree should be removed, or preserved, based on the extent and effect of construction activity to the short and long-term health of the tree. All meetings and field review were focused on the area immediately surrounding the proposed development.

OBSERVATIONS/DISCUSSION

The following list includes observations made while on site, and summarizes details discussed during this stage of the planning process:

- The site is developed with an existing structure and hardscaped parking area. My understanding is that there are two small diameter trees are proposed to be removed. Other existing trees are to remain.
- A row of mature Monterey cypress were planted, most likely as a privacy screen, along the driveway way are on the neighboring property to the east. These trees will need to be fenced off to prevent that area from becoming a construction staging area.
- One 6” (#91) diameter oak is located near the proposed patio and is indicated to be retained. This tree will need to be protected if retained.
- The two Cypress trees (#92 and #93) which are indicated to be removed on the building plans are actually planted ornamental landscape shrubs, not Monterey cypress; they are Hollywood junipers (*Juniperus chinensis torulosa*) and are mistakenly identified as cypress.
- The project also proposes to build near several Monterey cypress trees (#’s 94-#97) below the main deck where excavation may encroach into the trees critical root zone. Upon close inspection it appears construction is at a distance that encroachment, if at all, would be minimal and due to the soil type not many roots will be encountered. The trees are expected to satisfactorily survive construction provided work near the tree is monitored and the tree protected.

CONCLUSION/PROJECT ASSESSMENT

This proposal to renovate and build an addition to a single-family residence and expand the garage is planned to maintain the existing urban forested environment. No protected tree removal for this site is proposed or expected due to construction. All trees are expected to survive if properly protected and monitored. The remainder of the property contains tree cover, which will remain undisturbed. No watercourses are near the planned construction.

<u>Short Term Affects</u>

Site disturbance will occur during building construction. Short term site affects are confined to the construction envelope and immediate surroundings some trees may be trimmed and root systems reduced. The pruning of tree crowns above 30% and reduction of root area may have a short term effects on those trees treated, including a reduction of growth and potential limb dieback.

<u>Long Term Affects</u>

No significant long term affects to the forest ecosystem are anticipated as this is already a developed residential site. The project as proposed is not likely to significantly reduce the availability of wildlife habitat over the long term. Whenever construction activities take place near trees, there is the potential for those trees to experience decline in the long term as well. The greatest attempt has been made to identify for removal those trees likely to experience decline.

RECOMMENDATIONS

<u>Tree Pruning</u>

It is to be understood that the pruning of retained trees may be expected for this site, especially near building construction areas. Pruning will include trees with deadwood, minor structural defects or disease that must be compensated, and possibly for vehicle or pedestrian clearance. Trees should be monitored on occasion for health and vigor after pruning. Should the health and vigor of any tree decline it will be treated as appropriately recommended by a certified arborist or qualified forester. Remedial pruning should occur prior to construction. Following construction, any above ground tree pruning/trimming should be delayed until one year after completion of construction. Following construction, a qualified arborist should monitor trees adjacent to the improvements area and if any decline in health that is attributable to the construction is noted, additional trees should be planted on the site.

Tree Protection

Prior to the commencement of construction activities:

- Trees located adjacent to construction areas shall be protected from damage by construction equipment by the use of temporary fencing and through wrapping of trunks with protective materials.
- Fencing shall consist of chain link, snowdrift, plastic mesh, hay bales, or field fence. Existing fencing may also be used.
- Fencing must not be to be attached to the tree. It shall be free standing or self-supporting so as not to damage trees. Fencing shall be rigidly supported and shall stand a minimum of height of four feet above grade.
- Soil compaction, parking of vehicles or heavy equipment, stockpiling of construction materials, and/or dumping of materials should not be allowed adjacent to trees on the property especially within fenced areas.
- Fenced areas and the trunk protection materials must remain in place during the entire construction period.

During grading and excavation activities:

- All trenching, grading or any other digging or soil removal that is expected to encounter tree roots will be monitored by a qualified arborist or forester to ensure against drilling or cutting into or through major roots.
- The project arborist should be on site during excavation activities to direct any minor field adjustments that may be needed.
- Trenching for the retaining wall and driveway located adjacent to any tree should be done by hand where practical and any roots greater than 3-inches diameter should be bridged or pruned appropriately.
- Any roots that must be cut should be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root pruning equipment.
- Any roots damaged during grading or excavation should be exposed to sound tissue and cut cleanly with a saw.

If at any time potentially significant roots are discovered:

- The arborist/forester will be authorized to halt excavation until appropriate mitigation measures are formulated and implemented.

- If significant roots are identified that must be removed that will destabilize or negatively affects the target trees negatively, the property owner will be notified immediately and a determination for removal will be assessed and made as required by law for treatment of the area that will not risk death decline or instability of the tree consistent with the implementation of appropriate construction design approaches to minimize affects, such as hand digging, bridging or tunneling under roots, etc..

Best Management Practices to Observe (BMP)

The following best management practices must be adhered to:

A) Tree service Contractors will verify animal or bird nesting prior to tree work. If nesting activity of migratory birds are found, work must stop and a wildlife biologist consulted before commencing work (the typical bird nesting season ranges from February 22 to August 1).
B) Do not deposit any fill around trees, which may compact soils and alter water and air relationships. Avoid depositing fill, parking equipment, or staging construction materials near existing trees. Covering and compacting soil around trees can alter water and air relationships with the roots. Fill placed within the drip line may encourage the development of oak root fungus (*Armillaria mellea*). As necessary, trees may be protected by boards, fencing or other materials to delineate protection zones.
C) Pruning shall be conducted so as not to unnecessarily injure the tree. General-Principals of pruning include placing cuts immediately beyond the branch collar, making clean cuts by scoring the underside of the branch first, and for live oak, avoiding the period from February through May.
D) Native live trees are not adapted to summer watering and may develop crown or root rot as a result. Do not regularly irrigate within the drip line of oaks.
E) Root cutting should occur outside of the springtime. Late June and July would likely be the best. Pruning of the live crown should not occur February through May.
F) Tree material greater than 3 inches in diameter remaining on site more than one month that is not cut and split into firewood must be covered with thick clear plastic that is dug in securely around the pile to discourage infestation and dispersion of bark beetles.
G) A mulch layer up to approximately 4 inches deep should be applied to the ground under selected trees following construction. Only 1 to 2 inches of mulch should be applied within 1 to 2 feet of the trunk, and under no circumstances should any soil or mulch be placed against the root crown (base) of trees. The best source of mulch would be from chipped material generated on site.
H) If trees along near the development are visibly declining in vigor, a Professional Forester or Certified Arborist should be contacted to inspect the site to recommend a course of action.

Report Prepared By:

August 3, 2017

Frank Ono, SAF Forester #48004 and ISA Certified Arborist #536 Date

PHOTOGRAPHS

Cypress trees, located on adjacent property; will need to have their base protected from ingress and egress of construction equipment and to prevent them from being staging areas.

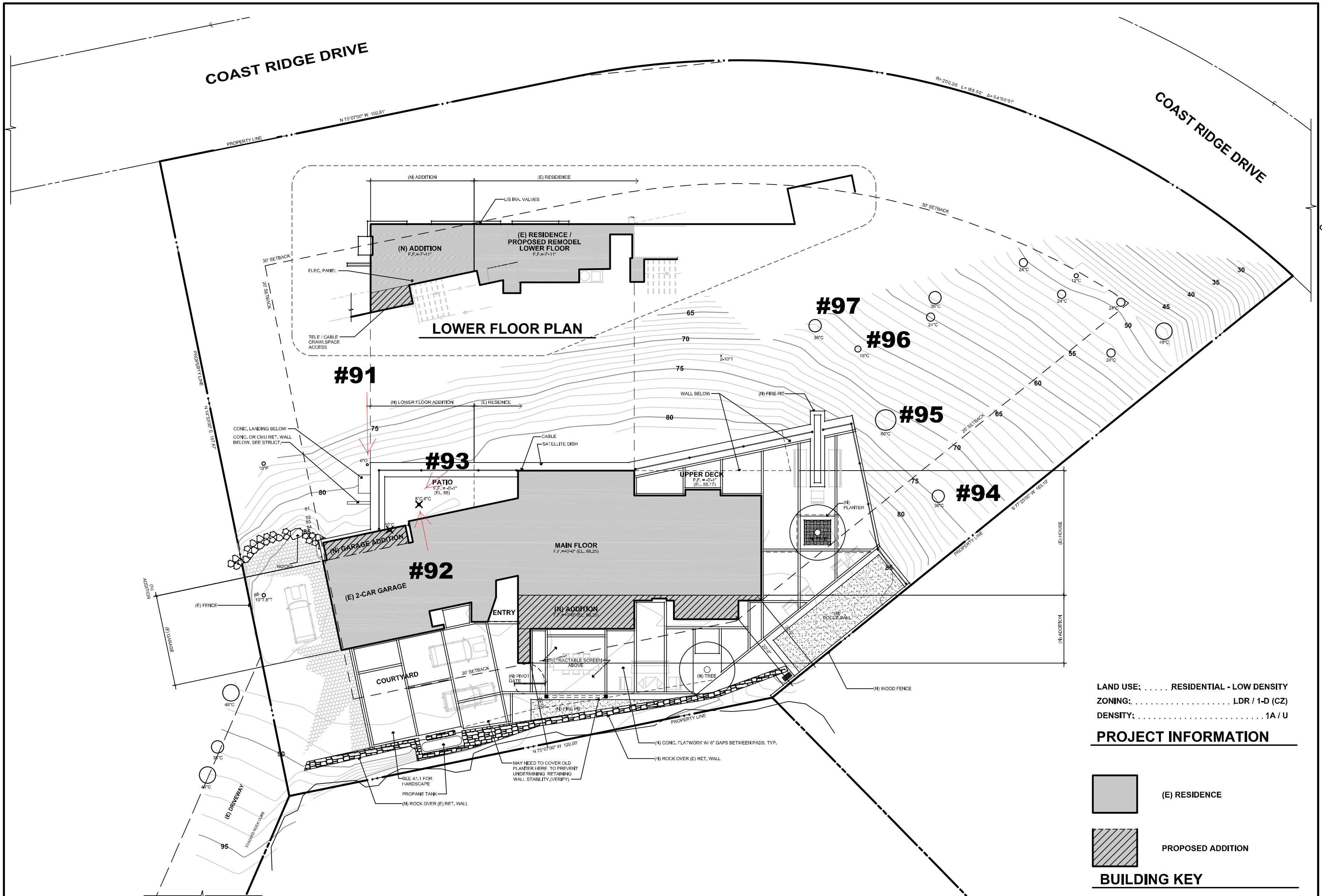
Retaining and privacy walls will be removed and reconfigured, there are no obvious trees adjacent these walls.

Cypress trees are located below the main deck. These trees are far enough from the new construction they should not be impacted. The will need their root zones and bases protected from excavation for the fire pit and foundation work.

Baes of trees (#94-#97) located outside of main deck, these trees will need protection from construction

Hollywood juniper (#93) that will be removed


Oak tree (#91) to be protected and Hollywood juniper (#92) to be removed



NEW / PROPOSED SITE PLAN
SCALE: 1"=10'-0"

CONRAD ASTURI STUDIOS INC.
1121 OAKDALE RD. STE 5
MODESTO, CA, 95355
phone: 209.521.7200
web: CONRADASTURI.COM

LINCOLN SW OCEAN
CARMEL-BY-THE-SEA, CA, 93921
phone: 831-622-9724

PROJECT:
TRAINA RENOVATION
170 MAL PASO RD.
CARMEL HIGHLANDS, CA 93923
APN: 243-292-002

TRAINA RENOVATION
DESIGN DEVELOPMENT

TIMELINE

DATE	ISSUED FOR:
-	1ST SUBMITTAL
-	PLAN CHECK
-	BID / FINAL
-	CONSTRUCTION

REVISIONS

PROJECT NO: 1609
DRAWN BY: STAFF
CHECKED BY: EA

DESCRIPTION:
EXISTING / DEMOLITION SITE PLAN
SCALE: 1"=10'-0"

SHEET:
A1.0

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