Friar Associates, Incorporated . Engineers . Consultants
Soils . Foundations . Geology . Geotechnology
2656 Nicholson Street, San Leandro, CA 94577
Phone: 510-343-4424 Email: friar4515@gmail.com

June 24, 2019
Project 1942

Mr. Jackson Buttles/Ms. Alison Sonsini
654 Sausalito Boulevard
Sausalito, CA 94965

Mr. Buttles/Ms. Sonsini:

Report
Geotechnical Investigation
New Residential Development
654 Sausalito Boulevard
Sausalito, California

Introduction

As requested, we have completed a geotechnical investigation at the site for the new residential development at the subject property. The property is located on the south side of Sausalito Boulevard, a short distance southwest of the intersection of Sausalito Boulevard with Spencer Avenue in Sausalito, California. The attached Vicinity Map, Figure 1 shows the general location of the property.

Background

The property is currently occupied by a single family residential development. The existing development includes a single family residential building with other improvements. The existing building is of wood frame construction with an attached garage.

Proposed Construction

You plan to demolish the existing development and construct a new residence. Details of the new development were not available at the time of preparing this report. However, based on conversation we have had with Mr. Greg Spalasso, the project contractor, the new residential building will occupy approximately the existing building footprint. We have assumed that the new building will be of wood fame construction with an attached garage. Due to the existing site topography, the proposed building will have multiple floors. Soil retaining walls may have to be constructed to achieve grades either as part of the new building or as part of the site grading or both.

Information Provided

We were provided with a very preliminary hand-drawn site plan of the new building superimposed on the existing building by Mr. Greg Spalasso. We were also provided with a pdf copy of a site plan. Both site plans were prepared by Mason Williams Architecture and are dated October 17, 2018 and June 18, 2019. A copy of the June 18, 2019-site plan was used to prepare our Site Plan, Figure 2. Figure 2 also shows the approximate location of the two exploratory holes that we excavated as part of this geotechnical investigation.

Scope of Work

Our scope of work was to evaluate the site conditions (surface and subsurface) from a geotechnical engineering viewpoint and develop information for the design and construction of the proposed development. We should note that our scope of work did not include any environmental assessment and neither did we perform any environmental studies. Our scope of work consisted of the following:

1. Made a site reconnaissance visit to evaluate the current conditions at the property and plan the field exploration program.

2. Reviewed geologic and geotechnical information in our files pertaining to the site and the surrounding area.

3. Reviewed in-house files for projects we have completed in the vicinity of the subject property.

4. Explored the subsurface soils at the site by means of two small diameter exploratory holes to a maximum depth of 20 feet below the ground surface. The exploratory holes were logged by an engineer on staff who supervised the field exploration, classified the subsurface soils exposed and obtained samples for laboratory testing.

5. Performed laboratory testing on selected samples obtained from the field exploratory work to evaluate their index and mechanical properties.

6. Collated and analyzed the field and laboratory data to develop geotechnical recommendations for site preparation, grading and compaction, including the demolition of the existing building and removal of the foundation elements; provided parameters for the design and construction of the new building foundations, concrete slabs-on-grade, retaining walls, utility trench backfilling and

site drainage.

7. Provided minimum section for the new driveway based on the site soils and projected traffic indices.

8. Prepared this report to summarize our findings, conclusions and recommendations.

Findings

Surface conditions

The existing development occupies almost the northern portion of the property. The remaining half of the property is undeveloped and at the time of our field exploration was covered by a couple of trees and some landscaping. The ground surface in general slopes down to the south with very gentle gradients. Ground surface elevation is about 333 feet above Mean Sea Level.

Subsurface Conditions

The descriptions given below pertain only to the subsurface conditions found at the site at the time of our field exploration on October 20, 2018. Subsurface conditions, particularly, groundwater levels and the consistency of the near-surface soils will vary with the seasons.

The subsurface soils at the property were explored by means of two small exploratory holes to the maximum depth of 20 feet below the ground surface. A truck mounted drill rig with an auger attachment and a hand-operated, gasoline powered drill rig (Minuteman) were used to do the field exploration. Samples were obtained by driving down three-inch outside diameter (OD) and two-inch (OD) samplers a distance of 18 inches (unless otherwise stated) into "undisturbed" soil with a 140-pound hammer (for the truck-mounted drill rig) and a 70-pound hammer (for the Minuteman) falling freely a height of 30 inches. The soils encountered in the exploratory holes and the number of blows required to drive each sampler the last 12 inches are respectively shown and recorded on the attached boring logs.

The exploratory holes encountered fill, clay, silt, sand and weathered bedrock to the maximum depth of exploration. A small amount near-surface fill was encountered in the exploratory holes. The fill consists of brown silty clay with sand. The fill is estimated to be about one foot in thickness. The fill is underlain by greenish-brown silty, sandy clay to a depth of ten feet below the ground surface. Yellowish-brown clayey sand to severely weathered clayey sandstone was encountered from about 10 feet below the ground surface to the maximum depth of exploration. The clay is moist, stiff to very stiff and low to moderately plastic indicating a low to moderate

potential for expansion.

Groundwater was not encountered in any of the three exploratory holes. We should note that groundwater levels will vary with the seasons and time of year.

Detailed descriptions of the materials encountered in the borings are given on the appended boring logs together with the results of some of the laboratory tests performed on selected samples obtained from the exploratory holes.

Seismic Considerations

This site is located within a seismically active region but outside of any area designated within the Alquist-Priolo Earthquake Fault Zones.

Type A and Type B faults close to the site are listed in the table below.

TABLE 1 - TYPES A AND B FAULTS CLOSE TO THE SITE*

Fault	Type	Maximum Moment Magnitude	Slip Rate (mm/yr)	Distance (miles/km)
San Andreas (Peninsula)	A	7.9	24	6.8/11
San Andreas (North Coast)	A	7.9	24	6.8/11
San Gregario	A	7.3	5	8.0/13

*California Division Of Mines And Geology (California Geologic Survey)

Seismic hazards can be divided into two general categories, hazards due to ground rupture and hazards due to ground shaking. Since no active faults are known to cross this property, the risk of earthquake-induced ground rupture occurring across the project site appears to be remote.

Should a major earthquake occur with an epicentral location close to the site, ground shaking at the site will undoubtedly be severe, as it will for other property in the general area. Even under the influence of severe ground shaking, the soils that underlie the area proposed for development are unlikely to liquefy.

The following general site seismic parameters may be used for design in accordance with the 2015 IBC/2016 California Building Code:

Site Class: C
Site Coordinates: Latitude = 37.852289; Longitude = -122.482856
Spectral Response Accelerations S_{MS} and S_{M1}

$S_{MS} = F_a S_S$ and $S_{M1} = F_v S_1$; For Site Class C with $F_a = 1.0$, and $F_v = 1.3$
$S_S = 1.500$; $S_1 = 0.635$

Period (sec)	Sa (g)
0.2	1.500 (S_{MS}, Site Class C)
1.0	0.835 (S_{M1}, Site Class C)

SDs = 2/3 x S_{MS} and S_{D1} = 2/3 x S_{M1}; For Site Class C with F_a= 1.0, and F_v = 1.3

Period (sec)	Sa (g)
0.2	1.000 (S_{DS}, Site Class C)
1.0	0.550 (S_{D1}, Site Class C)

Discussion

The principal geotechnical items that will impact the proposed development are the presence of the near-surface fill. No records of how the fill was placed were made available to us, thus, the fill cannot be relied on to support the new building loads. However, since site grading will involve excavation to remove the near-surface soil and deeper in some locations, most of the fill will be removed during site grading. Atterberg Limits tests performed on selected samples of the near-surface soils show that the near-surface soils show low to moderate plasticity indicating a low to moderate potential for soil expansion. In general, expansive soils lose volume and contract when dry and expand when they gain water. The degree of expansion depends on the antecedent soil water content. The alternating shrink/swell cycles of expansive soils tend to have detrimental effects on foundation elements, particularly, slabs-on-grade. Clayey subgrade soils for slabs-on-grade areas should be properly treated prior to placement of concrete.

As with all hillside development, slope stability should be of major concern. The causes for slope instability are movement within colluvial soils over bedrock, creep and shallow landsliding within the surficial soils over bedrock. The other cause of slope instability is the uncontrolled flow of surface water (sheet flow) on the surface of the slope and subsurface water (seepage) within the slope. Therefore, the risk of future slope instability can be reduced by controlling both surface and subsurface water during and after construction by providing well designed and properly constructed surface and subsurface drainage system together with good grading practices during excavations and earthwork construction. The lack of adequate drainage to collect both surface and subsurface water to suitable collection and discharge facilities can adversely affect slope stability in general. Therefore, proper and adequate drainage (surface and

subsurface) system should be incorporated into the planned development. Runoff collected from roof drains and area drains as well as discharge from subdrains should not be released on any portions of the site slopes which could be subject to instability or erosion. Appropriate discharge locations should be provided during site grading.

The new residential building, should be supported on pier and beam foundation system. However, if site grading is done to achieve a level building pad, the new building may be supported on conventional, footing-type shallow foundations. Detail recommendations are provided in sections below.

Conclusion and Recommendations

Based on our review of documents and the field and laboratory data obtained fro the geotechnical investigation, it is our professional opinion that the planned development is feasible from a geotechnical engineering point of view, provided the recommendations provided below are adhered to.

The following recommendations, which are presented as guidelines to be used by project planners and designers, have been prepared assuming FRIAR ASSOCIATES, INCORPORATED will be commissioned to review the grading and foundation plans prior to construction, and to observe and test during site grading and foundation construction. This additional opportunity to inspect the project site will allow us to compare subsurface conditions exposed during construction with those that were observed during this investigation.

Site Preparation, Grading and Compaction

The existing building, the detached garage structure and the shed and other improvements on the property are to be demolished. Debris resulting from the demolition should be removed from the new building and pavement areas and hauled off-site. All subsurface structures and the associated foundation elements of the existing structures to be demolished should be excavated out and hauled off site. Any and all of the existing fill exposed in the new building pad area should be removed and replaced as structural fill.

Trees and shrubs that will not be part of the new construction and will be designated for removal on the project plans should be removed and their primary root system should be grubbed. The resulting depressions and cavities from these operations should be backfilled with structural fill.

Loose soil and any debris in the area for the proposed construction should be excavated to expose

firm native ground. Any subsurface structures designated for removal on the Project Plans should be demolished and their foundations and associated substructures should be dug out and hauled off site. Utility lines, sprinkler lines, sanitary sewers and storm drains designated for abandonment on the Project Plans, should be dug out and removed. The resulting cavities should be backfilled and brought to grade with structural fill.

Areas of the site that will be built on or paved should be stripped to remove surface vegetation and organic laden soil. Soils containing more than two percent by weight of organic matter should be considered organic.

Soil surfaces exposed by excavations of loose soil should be scarified to a depth of eight inches, conditioned with water (or allowed to dry, as necessary) to produce a soil water content of about two percent above the optimum value and then compacted to 90 percent of the maximum dry density based on ASTM Test Method D1557-12.

Structural fill may then be placed up to design grades in the proposed building and pavement areas. Structural fill using on-site inorganic soil, or approved import, should be placed in layers, each not exceeding eight inches thick (before compaction), conditioned with water (or allowed to dry, as necessary) to produce a soil water content of about two percent above the optimum value, and then compacted to 90 percent relative compaction based of ASTM Test D1557-12. The upper eight inches of pavement subgrades should be compacted to about 92 percent relative compaction based on ASTM Test D1557-12.

Structural fill placed on sloping ground should be keyed in accordance with the CALTRANS STANDARD SPECIFICATIONS, latest edition. The following excerpt from subsection 19-6.01 of those specifications is pertinent:

> "When embankment is to be made and compacted on hillsides....the slopes of original hillsides....shall be cut into a minimum of six feet horizontally as the work is brought up in layers. Material thus cut out shall be compacted along with the new embankment material....."

The toe key for structural fill placed on sloping ground should be at least eight feet wide with its base horizontal or gently sloping back into the hillside. Unsupported cut slopes should be constructed no steeper than 2:1 (horizontal to vertical). Fill slopes should be constructed no steeper than 2.5horizontal:1vertical.

On-site soils proposed for use as structural fill should be inorganic, free from deleterious materials, and should contain no more than 15% by weight of rocks larger than three inches (largest dimension) and no rocks larger than six inches. The suitability of existing fill soil for

reuse as a structural fill should be determined by a member of our staff at the time of grading. If import soil is required for use as structural fill, it should be inorganic, should preferably have a low expansion potential and should be free from clods or rocks larger than four inches in largest dimension. Prior to delivery to the site, proposed import should be tested in our laboratory to verify its suitability for use as structural fill and, if found to be suitable, further tested to estimate the water content and density at which it should be placed.

New Building Foundations

The proposed structure should be supported on reinforced concrete "pier and beam" foundations system with the piers deriving their vertical support from "skin friction" or adhesion between the piers and the surrounding competent soil or bedrock material. The piers should be at least 16 inches in diameter and should extend to a depth of at least 12 feet below the rough pad grade. The piers should penetrate a minimum of eight feet into competent material or the site bedrock material. The project structural engineer should design the foundation piers using the design values provided below but the actual depth of the piers should be determined in the field based on soil conditions and during foundation construction.

The piers should be spaced at least three diameters apart (center to center) but no more than 10 feet apart. The allowable load-carrying capacity (dead plus normal live loads) of each pier may be calculated assuming "skin friction" or adhesion value of 550 pounds per square foot (psf) between the shaft of the pier and the adjacent competent material. No friction should be assumed in the upper four feet of embedment of the pier below the lowest adjacent grade. "End bearing" of the piers should also be ignored in the design of the piers.

Reinforced concrete piers should be designed to resist lateral loads resulting from potential creep of the surficial layer of colluvium. A lateral soil pressure of at least 55 pounds per cubic foot acting over 2½ pier diameters may be assumed to act on the top four feet of the piers. The allowable lateral bearing pressure of the ground in front of the piers may be taken as 300 pounds per square foot per foot of depth below four feet over two pier diameters to a maximum value of 3000 psf.

Perimeter reinforced concrete foundation beams should be embedded at least 12 inches below the lowest adjacent grade. The grade beams should be designed to safely transmit all imposed loads to the supporting piers.

During foundation construction, care should be taken to minimize evaporation of water from foundation and floor subgrades. Scheduling the construction sequence to minimize the time interval between foundation excavation and concrete placement is important. Concrete should be placed only in foundation excavations that have been kept moist, are free from drying cracks and

contain no loose or soft soil or debris.

Total settlement of building foundations designed and constructed as recommended above is expected to be on the order of one inch or less. Differential settlement is expected to be about half of the total settlement.

Concrete Slabs-On-Grade

Where slabs will be required (such as porches, walkways, etc.), proposed slabs should be constructed on compacted soil subgrades prepared as described in the section under "Site Preparation, Grading and Compaction".

Interior slabs should be underlain by a section of capillary break material at least five inches thick and covered with a membrane vapor barrier and should be placed between the floor slab and the compacted soil subgrade. The capillary break should be a free-draining material, such as 3/8" pea gravel or a permeable aggregate complying with CALTRANS Standard Specifications, Section 68, Class 1, Type A or Type B. The material proposed for use as a capillary break should be tested in our laboratory to verify its effectiveness as a capillary break. The membrane vapor barrier should be a high quality membrane. A protective cushion of sand or capillary break material at least two inches thick should be placed between the membrane vapor barrier and the floor slab. In lieu of the sand, a double layer of moisture barrier may be used.

If floor dampness is not objectionable, concrete slabs may be constructed directly on a minimum of six-inch-thick compacted aggregate base material over the water-conditioned and compacted soil subgrade. The aggregate base should be compacted to a minimum of 92 percent relative compaction as determined by ASTM Test Method D1557-12.

Retaining Walls

Site topography requires the construction of retaining walls both as part of the proposed building and as part of site grading to achieve grades in the western area of the property. Retaining walls that require shallow excavations (four feet or shallower) and will be part of the house should be supported on piers that should be designed to withstand vertical as well as sliding and overturning forces. Where deep excavations are made into bedrock, house retaining walls may be supported on shallow foundations. The following may be used in the design calculations for reinforced concrete retaining walls.

1. The average bulk density of material placed on the backfill side of the wall will be 124 pounds per cubic foot (pcf).

2. The vertical plane extending down from the ground surface to the bottom of the heel of the wall will be subject to pressure that increases linearly with depth as follows.

Condition	Design Pressure
Active, drained and level backfill	45 pcf
Active, drained with 2h:1v slope backfill	55 pcf
At-rest, drained with level backfill	75 pcf
At-rest, drained with 2h:1v backfill	85 pcf

The above values are for non-seismic conditions.

3. The effects of earthquakes may be simulated by applying a horizontal line load surcharge to the stem of the wall at a rate of $18H^2$ lb/horizontal foot of wall, where H is the height of the surface of the backfill above the base of the wall. This surcharge should be applied at a height of 0.6H above the base of walls that will be part of the proposed building. The surcharge is based on a repeated ground acceleration of 0.4g at the site resulting from a seismic event on any of the faults listed above.

4. A coefficient of "friction" of 0.35 may be used to calculate the ultimate resistance to horizontal sliding of the wall base over the bedrock beneath the base.

5. An equivalent fluid pressure of 300 psf/ft may be used to calculate the ultimate passive resistance to lateral movement of the ground in front of the toe of the wall and in front of any "key" beneath the toe or stem of the wall.

6. 2500 psf may be used as the maximum allowable bearing pressure in the bedrock beneath the toe of footing supported wall (not recommended). This value is for non-seismic conditions and may be increased to 3325 psf when considering additional loads on the wall resulting from earthquakes.

A zone of drainage material of between 12 and 18 inches wide should be placed on the backfill side of walls designed for drained condition. This zone should extend up the back of the wall to about 18 inches down from the proposed ground surface above. The upper 18 inches or so of material above the drainage material should consist of native, less pervious soil.

The drainage material and the clayey soil cap should be placed in layers about six inches thick and moderately compacted by hand-operated equipment to eliminate voids and to minimize post-construction settlement. Heavy compaction should not be applied; otherwise, the design pressure on the wall may be exceeded.

The drainage material should consist of either Class 2 Permeable Material complying with Section 68 of the CALTRANS Standard Specifications, latest edition, or 3/4 to 1½ inch clean, durable coarse aggregate. If the coarse aggregate is chosen as the drainage material, it should be separated from all adjacent soil by a filter fabric approved by the project engineer or this office.

Any water that may accumulate in the drainage material should be collected and discharged by a 4-inch-diameter, perforated pipe placed "holes down" near the bottom of the drainage material. The perforated pipe should have holes no larger that 1/4-inch diameter.

Utility Trenches

The attention of contractors, particularly the underground contractor, should be drawn to the requirements of California Code of Regulations, Title 8, Construction Code Section 1540 regarding Safety Orders for "Excavations, Trenches, Earthwork". All trenches and excavations four feet and deeper should be supported. A lateral active pressure of 45 pcf equivalent fluid pressure may be used for the design of shoring for temporary excavation.

For purposes of this section of the report, bedding is defined as material placed in a trench up to one foot above a utility pipe and backfill is all material placed in the trench above the bedding.

Unless concrete bedding is required around utility pipes, free-draining sand should be used as bedding. Sand proposed for use in bedding should be tested in our laboratory to verify its suitability and to measure its compaction characteristics. Sand bedding should be compacted by mechanical means to achieve at least 90 percent compaction density based on ASTM Test Method D1557-12.

Approved, on-site, inorganic soil, or imported material may be used as utility trench backfill. Proper compaction of trench backfill will be necessary under and adjacent to structural fill, building foundations, concrete slabs and vehicle pavements. In these areas, backfill should be conditioned with water (or allowed to dry) to produce a soil-water content of about two percent above the optimum value and placed in horizontal layers not exceeding six inches in thickness (before compaction). Each layer should be compacted to 85-90 percent relative compaction based of ASTM Test D1557-12. The upper eight inches of pavement subgrades should be compacted to about 90 percent relative compaction based on ASTM Test D1557-12.

Where any trench crosses the perimeter foundation line of any building, the trench should be completely plugged and sealed with compacted clay soil for a horizontal distance of at least two feet on either side of the foundation.

Surface Drainage

Surface drainage gradients should be planned to prevent ponding and to promote drainage of surface water away from top of slopes, building foundations, slabs, edges of pavements and sidewalks, and towards suitable collection and discharge facilities.

Water seepage or the spread of extensive root systems into the soil subgrades of foundations, slabs, or pavements, could cause differential movements and consequent distress in these structural elements. This potential risk should be given due consideration in the design and construction of landscaping.

To minimize the potential for erosion of surface soils that could be caused by surface water runoff, provisions should be made to collect and control surface runoff. Paved ditches with catch basins are recommended on the backfill side of all retaining walls. Water collected in these catch basins should be conveyed by pipes to suitable discharge points downslope and away from critical areas of the project site.

Subsurface Drainage

Subsurface drains should be provided upslope of uphill exterior grade beams and below any below-grade floor. The subsurface drain should consist of a minimum 12-inch wide trench filled with Caltrans Class 2 permeable rock or crushed rock encapsulated in a filter fabric. A minimum four-inch diameter perforated pipe should be placed (with holes down) at the bottom of the trench and over about two inches of the rock. The invert for the subdrain pipe for subdrains located upslope of exterior grade beams should be at least six inches below the bottom of the adjacent perimeter grade beam. The pipes for the subdrains (both behind the grade beams and under the basement floor) should have a minimum slope of two percent to promote gravity flow. Where the subdrain pipe daylights, a non-perforated pipe should be connected to the subdrain pipe to discharge to a suitable drainage facility away from the building foundations, slabs, etc.

Follow-up Geotechnical Services

Our recommendations are based on the assumption that FRIAR ASSOCIATES, INCORPORATED will be commissioned to perform the following services.

1. Review final grading and foundation plans prior to construction.

2. Observe, test and advise during site preparation, grading and excavations.

3. Observe, test and advise during grading and placement of any structural fill.

4. Observe and advise during foundation excavations for the new building and retaining wall construction.

5. Observe, test and advise during utility trench backfilling.

Limitations

The recommendations contained in this report are based on certain plans, information and data that have been provided to us. Any change in those plans, information and data will render our recommendations invalid unless we are commissioned to review the change and to make any necessary modifications and/or additions to our recommendations.

Subsurface exploration of any site is necessarily confined to selected locations. Conditions may, and often do, vary between and around such locations. Should conditions different from those encountered in our explorations come to light during project development, additional exploration, testing and analysis may be necessary; changes in project design and construction may also be necessary.

Our recommendations have been made in accordance with the principles and practices generally employed by the geotechnical engineering profession. This is in lieu of all other warranties, express or implied.

All earthwork and associated construction should be observed by our field representative, and tested where necessary, to compare the generalized site conditions assumed in this report with those found at the site at the time of construction, and to verify that construction complies with the intent of our recommendations.

Sincerely,

FRIAR ASSOCIATES, INCORPORATED

John H. Friar
CE 52281

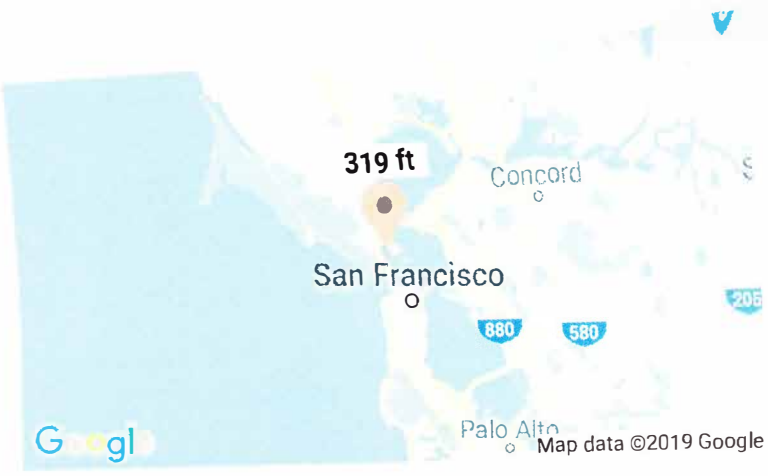
Attachment

6/24/2019

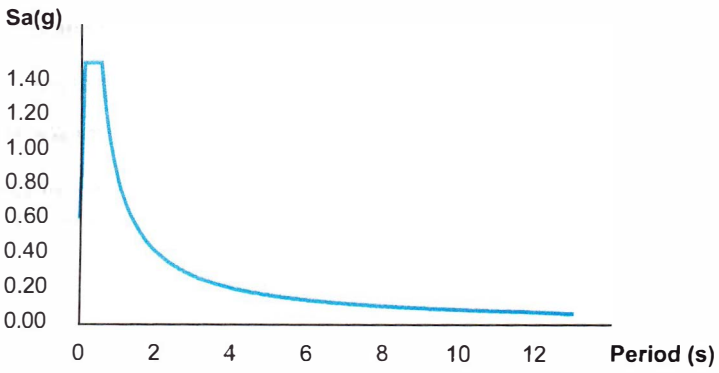
ATC Hazards by Location

Search Information

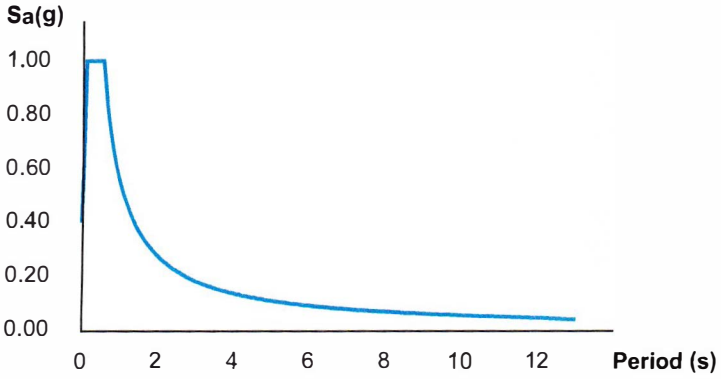
Coordinates:	37.852289, -122.482856
Elevation:	319 ft
Timestamp:	2019-06-25T00:24:15.545Z
Hazard Type:	Seismic
Reference Document:	IBC-2015
Risk Category:	III
Site Class:	C



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	1.5	MCE_R ground motion (period=0.2s)
S_1	0.635	MCE_R ground motion (period=1.0s)
S_{MS}	1.5	Site-modified spectral acceleration value
S_{M1}	0.825	Site-modified spectral acceleration value
S_{DS}	1	Numeric seismic design value at 0.2s SA
S_{D1}	0.55	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.3	Site amplification factor at 1.0s
CR_S	1.031	Coefficient of risk (0.2s)

CR_1	0.974	Coefficient of risk (1.0s)
PGA	0.6	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.6	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.153	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.088	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.885	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.909	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.635	Factored deterministic acceleration value (1.0s)
PGAd	0.6	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.

KEY TO EXPLORATORY BORING LOGS

SOIL CLASSIFICATIONS

PRIMARY DIVISIONS			GROUP1 SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More than half of material is larger than No. 200 sieve size	**GRAVELS** More than half coarse fraction is larger than No.4 sieve	Clean Gravels (less than5% fines*)	**GW**	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorlygraded gravels, 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 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, silt-sand mixtures, non-plastic fines
			SC	Clayey sand, 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 35		**ML**	Inorganic silts, clayey silts, rock flour, silty very fine sands
			CL	Inorganic clays of low plasticity, gravelly clay of low plasticity
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit is between35 and 50		**MI**	Inorganic silts, clayey silts and silty fine sand with intermediate plasticity
			CI	Inorganic clays, gravely clays, sandyclays and silty clays of intermediate plasticity
			OI	Organic clays and silty clays of intermediate plasticity
	SILTS AND CLAYS Liquid limit is greater than 50		**MH**	Inorganic silts, clayey silts, elastic silts, micaceous or diatomaceous silty or fine sandy soil
			CH	Inorganic clays of high plasticity
			OH	Organic clays and silts of high plasticity
HIGHLY ORGANIC SOILS			**Pt**	Peat, meadow mat, highly organic soils

GRAIN SIZES

U.S. STANDARD SERIES SIEVE					CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4		¾"	3"	12"	
Silts and Clays	Fine	Medium	Coarse		Fine	Coarse	Cobbles	Boulders
	SAND				**GRAVEL**			

RELATIVE DENSITY

SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/FOOT*
VERY LOOSE	0 – 4
LOOSE	4 – 10
MEDIUM DENSE	10 – 30
DENSE	30 – 50
VERY DENSE	OVER 50

CONSISTENCY

CLAYS AND PLASTIC SILTS	UNCONFINED SHEAR STRENGTH (PSF)	BLOWS/FOOT*
VERY SOFT	0 – 250	0 – 2
SOFT	250-500	2 – 4
FIRM	500-1000	4 – 8
STIFF	1000-2000	8 – 16
VERY STIFF	2 000– 4000	16 – 32
HARD	>4000	OVER 32

SYMBOLS

▽	Initial Ground Water Level
▼	Final Ground Water Level
S	Standard Penetration Sampler
M	Modified California Sampler
D	Dames & Moore Sampler

NOTES

*BLOWS per FOOT – Resistance to advance the soil sampler in number of blows of a 140-pound hammer falling 30 inches to drive a split spoon sampler.

Stratification lines on the logs represent the approximate boundary between soil types, and the transition may be gradual.

Modified California Sampler – 2 ½ O.D. (1 7/8 Inch I.D.) sampler

Standard Penetration Sampler – 2 inch O.D. (1 3/8 Inch I.D.) split spoon sampler (ASTM D1586).

Dames & Moore Sampler – 3 inch O.D. (2.5 inch I.D.) sampler

FRIAR ASSOCIATES, INC.

BORING LOG

No. B-1

PROJECT New Residential Bldg., 654 Sausalito Blvd. DATE 10/20/18 LOGGED BY cj

DRILL RIG Minuteman HOLE DIA. 4" SAMPLER D - D&M; M - Mod Cal; S - S.P.T

GROUND WATER DEPTH INITIAL NE FINAL NE HOLE ELEVATION

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	TORVANE (tsf)	LIQUID LIMIT (%)	WATER CONTENT (%)	PLASTIC LIMIT (%)	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
Brown silty SAND with some clay (damp) (loose) Topsoil/Fill	SC	1										
Reddish-brown silty SAND with some gravel	SP		D									
		2	D									
			D	60/5"				9.0		109		
		3										
		4										
		5										
			S									
with rock pieces		6	S									
			S	38				33.3				
		7										
		8										
		9										
Reddish-brown silty SAND (moist) (medium dense)	SM		S									
		10	S									
			S	41				44.1				
		11										
		12										
		13										
		14										
		15										
Yellowish-brown silty SAND (very moist) (dense)	SM		S									
		16	S									
			S	30				49.5				
		17	S									
			S									
		18	S	83								
		19										
Bottom Of Hole At 18 Feet. No Free Groundwater Encountered		20										

Project # 1942 **FRIAR ASSOCIATES, INCORPORATED** Page 1 of 1

BORING LOG

No. B-2

PROJECT New Residential Bldg., 654 Sausalito Blvd. DATE 10/20/18 LOGGED BY cj

DRILL RIG SoilTest Ranger on F350 Flatbed HOLE DIA. 4" SAMPLER D - D&M; M - Mod Cal; S - S.P.T

GROUND WATER DEPTH INITIAL NE FINAL NE HOLE ELEVATION

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	TORVANE (tsf)	LIQUID LIMIT (%)	WATER CONTENT (%)	PLASTIC LIMIT (%)	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
Reddish-brown silty CLAY (very moist) (firm)	CH	1										
			D									
some roots		2	D									
			D	65			71.3	21.1	32.4	88		
		3										
les clayey		4										
		5										
Reddish-brown silty SAND with rock pieces (moist) (very dense)	SP		D									
		6	D	55/6"				16.0		102		5155
		7										
		8										
		9										
		10										
			S									
		11	S									
dense			S	37								
		12										
		13										
		14										
		15										
			S									
		16	S									
			S	25								
		17										
		18										
		19	S									
Bottom Of hole At 20 Feet. No Free Groundwater Encountered			S									
		20	S	53								

Project # 1942 **FRIAR ASSOCIATES, INCORPORATED** Page 1 of 1

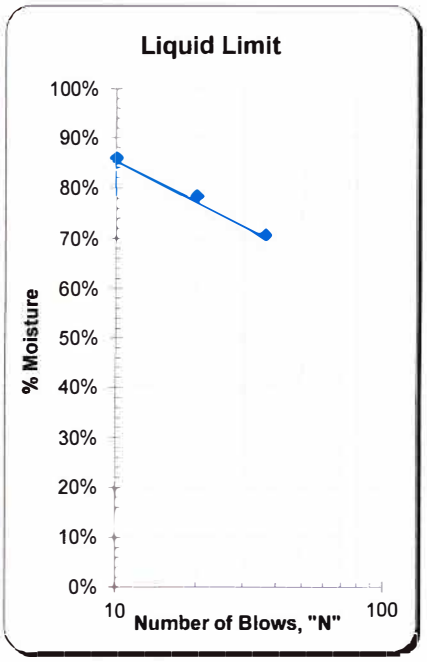
Date Received: 10/25/2018 **Project:** 1942
Sample #: 1 **Location:** NE Cor
Sample ID: 2(R-2) **Boring #:** 2
Source: On-site **Depth:** 1.00

ASTM D-2487, Unified Soils Classification System

Reddish-brown silty CLAY

Liquid Limit Determination

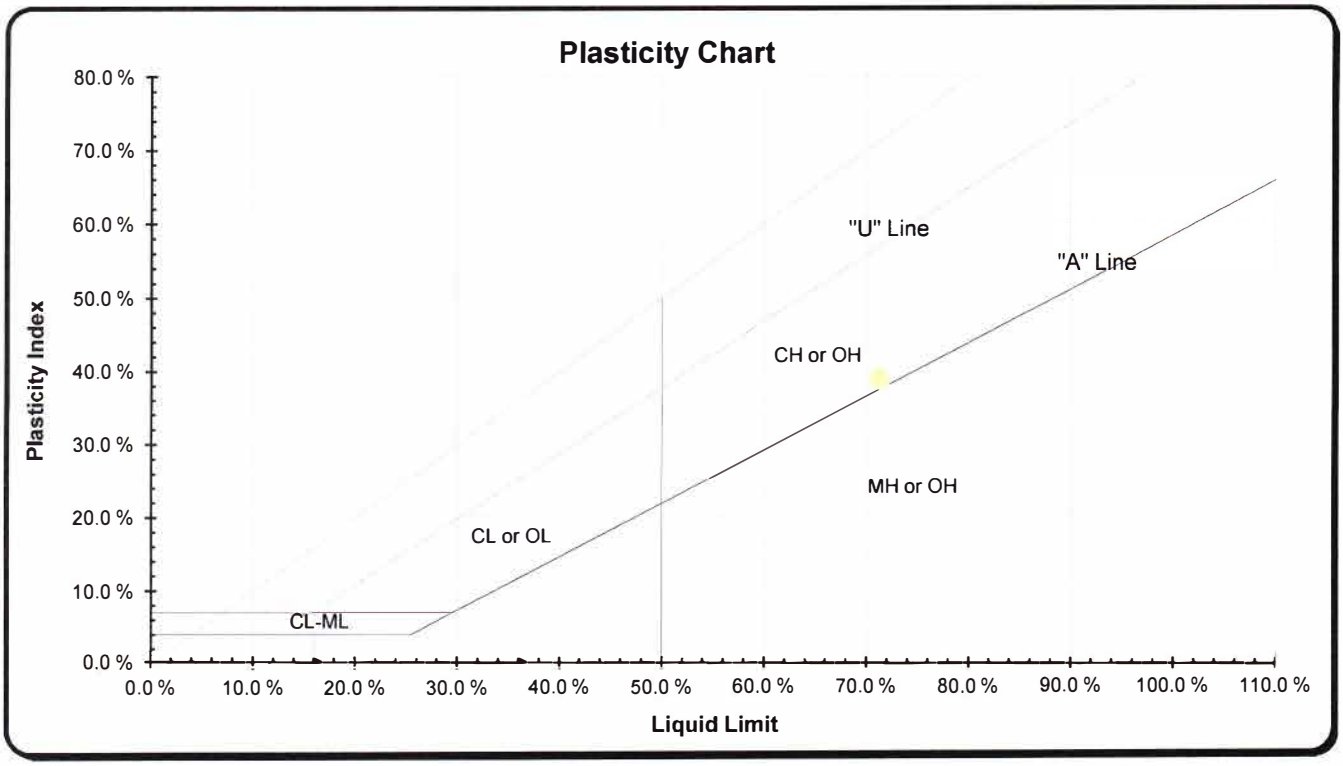
	#1	#2	#3	#4	#5	#6
Weight of Wet Soils + Pan:	48.80	46.60	46.02			
Weight of Dry Soils + Pan:	33.50	32.90	33.42			
Weight of Pan:	15.73	15.44	15.62			
Weight of Dry Soils:	17.77	17.46	17.80			
Weight of Moisture:	15.30	13.70	12.60			
% Moisture:	86.1 %	78.5 %	70.8 %			
N:	10	20	36			



Liquid Limit @ 25 Blows: 71.3 %
Plastic Limit: 32.4 %
Plasticity Index, I_P: 38.9 %

Plastic Limit Determination

	#1	#2	#3	#4	#5	#6
Weight of Wet Soils + Pan:	30.20					
Weight of Dry Soils + Pan:	26.65					
Weight of Pan:	15.70					
Weight of Dry Soils:	10.95					
Weight of Moisture:	3.55					
% Moisture:	32.4 %					



654 Sausalito Boulevard

City of Sausalito
California

Storm Water Control Plan
For a
Small Land Development Project

May 28, 2020
Job Number 18308

Overview

The purpose of this memorandum is to provide the analysis of the anticipated impacts by the proposed residence on the existing downstream drainage patterns.

Hydrology

Pre-Development Conditions

The existing project site includes approximately 0.4 acres of steep terrain draining easterly away from Sausalito Blvd on the project's westerly boundary towards an existing downhill residence at 44 Sunshine Avenue. Project surfaces include approximately 3,256 sq.ft. of impervious surface area (1,865 sq.ft. of building area and 1,391 sq.ft. of impervious patios and walkways) discharging directly onto natural slopes with no dissipation. Waters drain across the downhill property in an uncontrolled manner, following the natural contours of the site.

Post-Development Conditions

The proposed residence and yard improvements account for a total of 3,766 sq.ft. of impervious surfaces, including building roof, driveway, walkways and pool patio and deck, accounting for a net increase of 510 sq.ft. of impervious surface area. The pool patio area accounts for 524 sq.ft. impervious area, more than the total net increase. This area will drain to the adjacent planters, with area drains placed 1" minimum above adjacent grades to encourage dissipation into the planter soils. The remainder of the site will result in a reduction of runoff rates, and will be discharged in more than 5 separate locations on the site, with energy dissipators to reduce the potential for erosion. Site drainage will maintain existing natural patterns below the property.

Hydrology Findings and C.3 Compliance

Based on the information included in this study, construction of the proposed project will have no adverse impact to the downstream storm drain patterns. The minimal increase in impervious areas will be mitigated by discharging to adjacent landscaped areas. The remainder of the site results in a reduction of impervious surfaces; storm runoff will be dispersed throughout the site with energy dissipators to reduce the potential for erosion. In addition, the proposed project complies with C.3 requirements for small projects by discharging runoff to adjacent landscape at less than a 2:1 (impervious to pervious) ratio.

Signed,

Easton C. McAllister, PE

Attachments

Small Project C.3 Compliance Tables

Stormwater Control Plan (Sheet CE-5)

► STEP 1: PROJECT DATA FORM AND RUNOFF REDUCTION MEASURE SELECTION

Complete all fields.

Project Name/Number	654 Sausalito Blvd
Application Submittal Date [to be verified by municipal staff]	05/28/2020
Project Location [Street Address if available, or intersection and/or APN]	654 Sausalito Blvd Sausalito, CA 94965
Name of Owner or Developer	Jackson Buttles and Alison Sonsini
Project Type and Description [Examples: "Single Family Residence," "Parking Lot Addition," "Retail and Parking"]	Single Family Residential House
Total Project Site Area (acres)	0.2 ac
Total New Impervious Surface Area (square feet) [Sum of currently pervious areas that will be covered with new impervious surfaces]	3,766 sf
Total Replaced Impervious Surface Area [Sum of currently impervious areas that will be covered with new impervious surfaces.]	3,256 sf
Total Pre-Project Impervious Surface Area	3,256 sf
Total Post-Project Impervious Surface Area	3,766 sf
Runoff Reduction Measures Selected (Check one or more)	☒ 1. Disperse runoff to vegetated area ☐ 2. Pervious pavement ☐ 3. Cisterns or Rain Barrels ☐ 4. Bioretention Facility or Planter Box

► STEP 2: DELINEATE IMPERVIOUS AREAS AND LOCATIONS OF RUNOFF REDUCTION MEASURES

Delineate the impervious area. On a site plan or sketch, show the impervious area—for example, a roof, or portion of a roof, or a paved area—that will drain to your runoff reduction measure. Typically these delineations follow roof ridge lines or grade breaks. Alternatively, show the type and extent of pervious paving. An example sketch is attached.

Indicate the location and kind of runoff reduction measure you've selected. At least one option, designed to manage runoff from some amount of impervious area—or to avoid creating runoff—is required.

For each option selected, there is a brief checklist to confirm your design and your submittal meet minimum requirements.

► STEP 3: COMPLETE AND SUBMIT YOUR PLAN

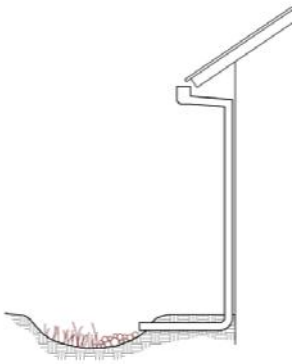
Consult with municipal staff about when and how to submit your Stormwater Control Plan for Small Projects.

Option 1: Disperse runoff from roofs or pavement to vegetated areas.

This is the simplest option. Downspouts can be directed to vegetated areas adjacent to buildings, or extended via pipes to reach vegetated areas further away. Paved areas can be designed with curb cuts, or without curbs, to direct flow into surrounding vegetation.

On the site plan, show:

- ☒ Each impervious area from which runoff will be directed, and its square footage.
- ☒ The vegetated areas that will receive runoff, and the approximate square footage of each.
- ☒ If necessary, explain in notes on the plan how runoff will be routed from impervious surfaces to vegetated areas.



Connecting a roof leader to a vegetated area. The head from the eave height makes it possible to route roof drainage some distance away from the building.

Confirm the following standard specifications are met:

- ☒ Tributary impervious square footage in no instance exceeds twice the square footage of the receiving pervious area.
- ☒ Roof areas collect runoff and route it to the receiving pervious area via gutters and downspouts.
- ☒ Paved areas are sloped so drainage is routed to the receiving pervious area.
- ☒ Runoff is dispersed across the vegetated area (for example, with a splash block) to avoid erosion and promote infiltration.
- ☒ Vegetated area has amended soils, vegetation, and irrigation as required to maintain soil stability and permeability.
- ☐ Any drain inlets within the vegetated area are at least 3 inches above surrounding grade.

► **STEP 1: PROJECT DATA FORM AND RUNOFF REDUCTION MEASURE SELECTION**

Complete all fields.

Project Name/Number	654 Sausalito Blvd
Application Submittal Date [to be verified by municipal staff]	05/28/2020
Project Location [Street Address if available, or intersection and/or APN]	654 Sausalito Blvd Sausalito, CA 94965
Name of Owner or Developer	Jackson Buttles and Alison Sonsini
Project Type and Description [Examples: "Single Family Residence," "Parking Lot Addition," "Retail and Parking"]	Single Family Residential House
Total Project Site Area (acres)	0.2 ac
Total New Impervious Surface Area (square feet) [Sum of currently pervious areas that will be covered with new impervious surfaces]	3,766 sf
Total Replaced Impervious Surface Area [Sum of currently impervious areas that will be covered with new impervious surfaces.]	3,256 sf
Total Pre-Project Impervious Surface Area	3,256 sf
Total Post-Project Impervious Surface Area	3,766 sf
Runoff Reduction Measures Selected (Check one or more)	☒ 1. Disperse runoff to vegetated area ☐ 2. Pervious pavement ☐ 3. Cisterns or Rain Barrels ☐ 4. Bioretention Facility or Planter Box

► **STEP 2: DELINEATE IMPERVIOUS AREAS AND LOCATIONS OF RUNOFF REDUCTION MEASURES**

Delineate the impervious area. On a site plan or sketch, show the impervious area—for example, a roof, or portion of a roof, or a paved area—that will drain to your runoff reduction measure. Typically these delineations follow roof ridge lines or grade breaks. Alternatively, show the type and extent of pervious paving. An example sketch is attached.

Indicate the location and kind of runoff reduction measure you've selected. At least one option, designed to manage runoff from some amount of impervious area—or to avoid creating runoff—is required.

For each option selected, there is a brief checklist to confirm your design and your submittal meet minimum requirements.

► **STEP 3: COMPLETE AND SUBMIT YOUR PLAN**

Consult with municipal staff about when and how to submit your Stormwater Control Plan for Small Projects.

Option 1: Disperse runoff from roofs or pavement to vegetated areas.

This is the simplest option. Downspouts can be directed to vegetated areas adjacent to buildings, or extended via pipes to reach vegetated areas farther away. Paved areas can be designed with curb cuts, or without curbs, to direct flow into surrounding vegetation.

On the site plan, show:

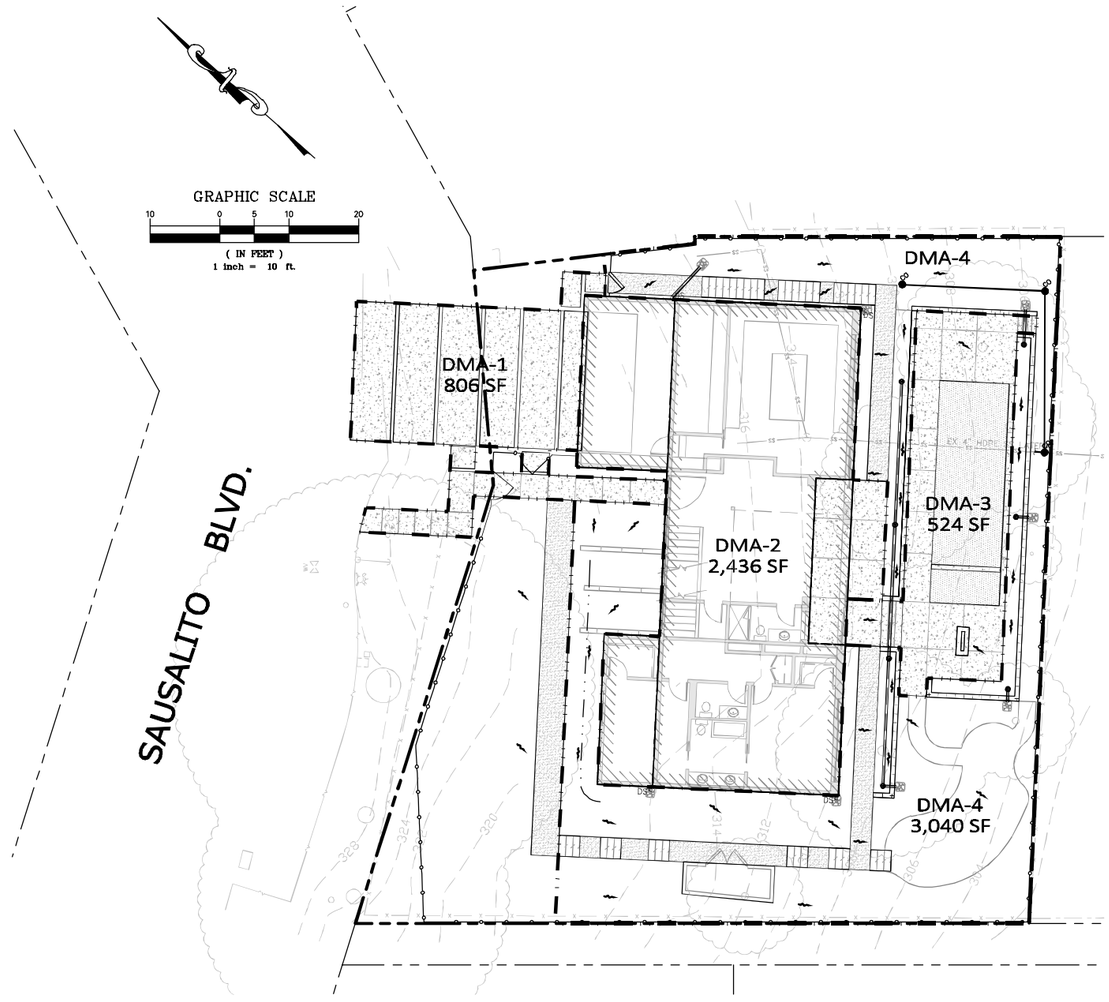
- ☒ Each impervious area from which runoff will be directed, and its square footage.
- ☒ The vegetated areas that will receive runoff, and the approximate square footage of each.
- ☒ If necessary, explain in notes on the plan how runoff will be routed from impervious surfaces to vegetated areas.

Confirm the following standard specifications are met:

- ☒ Tributary impervious square footage in no instance exceeds twice the square footage of the receiving pervious area.
- ☒ Roof areas collect runoff and route it to the receiving pervious area via gutters and downspouts.
- ☒ Paved areas are sloped so drainage is routed to the receiving pervious area.
- ☒ Runoff is dispersed across the vegetated area (for example, with a splash block) to avoid erosion and promote infiltration.
- ☒ Vegetated area has amended soils, vegetation, and irrigation as required to maintain soil stability and permeability.
- ☐ Any drain inlets within the vegetated area are at least 3 inches above surrounding grade.

Downspout to rock/flagstone vegetated area. The bend from the outer height makes it possible to route roof drainage some distance away from the building.

December 1, 2012



PRELIMINARY STORM WATER CONTROL PLAN

654 SAUSALITO BLVD

SAUSALITO MARIN COUNTY CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER EASTON C. McALLISTER No. 61148 EXP. 12/31/20 CIVIL STATE OF CALIFORNIA

EASTON C McALLISTER - R.C.E. 61148
RENEWAL DATE: 12/31/20

#	REVISIONS	DATE

DEBOLT CIVIL ENGINEERING
45+ YEARS
811 SAN RAMON VALLEY BLVD #201
DANVILLE, CALIFORNIA 94526
(925) 837-3780 | DEBOLTCIVIL.COM

Date: 05/28/20
Scale: 1" = 10'
By: EM
Job No.: 18308

Arbor Green Services
TREE & PLANT HEALTH CARE

ARBORIST REPORT

for

PORTOLA HOMES

SITE: 654 SAUSALITO BLVD.
SAUSALITO, CA 94965

Thomas Erickson / ISA Certified Arborist #WE 6697-A

ASSIGNMENT:

To provide an Arborist Report for the property at 654 Sausalito Blvd, Sausalito (CA). There is to be a demolition of the existing building and removal of trees and the planting of new trees. I reviewed the ***House Location Plan*** (Diablo Civil Engineering, 811 San Ramon Valley Blvd., Danville, CA 94526), and visited the site and took a tree inventory.
The tree locations, measurements, pictures, health evaluation were all part of my site evaluation.I am to follow the International Society of Arboriculture (ISA) guidelines and the City of Sausalito requirements in preparing this report.

TREE INVENTORY:

The trees surveyed are in the backyard on a slope. They primarily consist of coast live oaks, and a bay laurel tree, and various shrubs. I used the "House Location Plan" to identify the type of tree and their location. The measurements and health care of the tree are noted.
(Please see Table 1 - Tree inventory and Map 1- Tree Locations)

Number of Trees/ Genus / Species / Common Name
7 -Quercus agrifolia (coast live oak)
1- Lauraus nobillis (bay laurel)

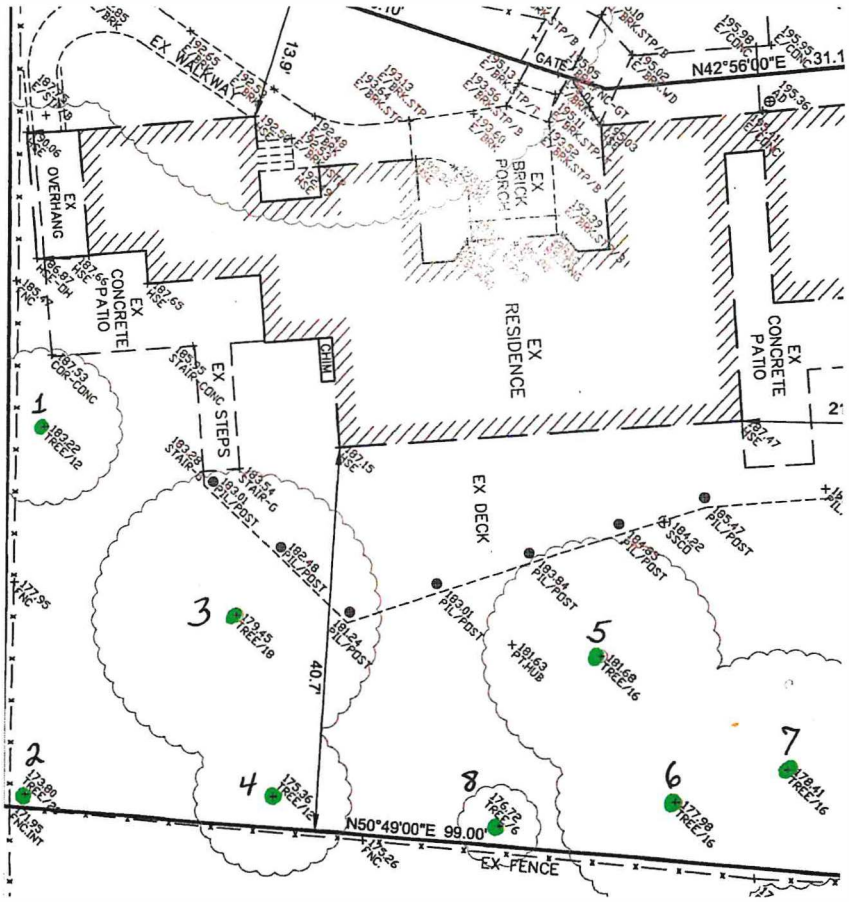
Trees #1-#7 : Quercus agrifolia (coast live oak) ***/ Tree #8 :*** Laurus nobles (bay laurel)

TABLE 1: TREE INVENTORY

Tree No. #	Species	DBH	Height	Dripline	Condition
#1	Q.agrifolia	12 in	12ft	5 ft	P
#2	Q.agrifolia	24 in	30 ft	15 ft	P
#3	Q.agrifolia	18 in	25 ft	17 ft	P
#4	Q.agrifolia	12 in	20 ft	10 ft	P
#5	Q.agrifolia	16 in	25 ft	10 ft	P
#6	Q.agrifolia	16 in	25 ft	5 ft	P
#7	Q.agrifolia	16 in	20 ft	5 ft	P
#8	L.nobles	6 in	15 ft	4 ft	P

DBH: diameter at breast height or trunk diameter @ 4.5' above grade
Dripline: measured from trunk to outer tip of branches / P= poor condition

TREE LOCATION at 654 Sausalito Blvd., Sausalito, CA



Trees #1-7 (Q.agrifolia)

Tree #8 (L.nobollis)

Map 1

TREE CONDITIONS:

The condition of the trees surveyed were based on ***structural integrity*** and the the current health of the trees. The structural integrity is a factor in determining the condition of the tree. It is important when checking the structural integrity of the tree to start with the root stability and condition, trunk soundness, decay, and cavities; then check branch conditions, soundness and attachment. Potential hazard in the trees may be indicated by raised soil on one side of the trunk, broken or dead roots, a leaning trunk, conks, decaying fungi, codominant stems, included bark and split branch attachments.

Plant health is based on analyzing the common characteristics of tree of the species or cultivar, it's mature size and color, shoot growth and tree structure. Some of the symptoms of a tree in poor condition are leaf discoloration, abnormal leaf size, decay, dieback, insect frass, disfigured stem or roots, broken roots, and fungal conks. Symptoms may have one cause or a combination of causes.

A tree's well-being can be seriously affected by diseases caused by biotic agents, noninfectious disorders by abiotic agents, and by direct injury.

Disease-causing biotic agents may include fungi, viruses, bacteria, insects, phytoplasma-like organisms, nematodes, and even seed plants. Insects increase the possibility of disease when their extended feeding results in defoliation and stem girdling . The insects can also vector in pathogens causing disease in the tree. Mistletoes are perennial evergreen parasites that grow on trunks and branches of trees and shrubs. Leafy mistletoes can kill branches but mainly weaken plants; dwarf mistletoes on conifers are more deadly.

Abiotic agents or noninfectious disorders include unusual or prolonged adverse climatic conditions, poor soil, and stresses placed on plants, sometimes by human actions. Air temperatures can be too hot and dry for many plants in the summer; drought conditions may occur; too much water can cause saturated soil; high soil alkalinity can result in mineral toxicities; insufficient soil volume can inhibit growth; and competition with other plants can lead to reduced growth. Girdling (strangulating) roots can seriously restrict growth and stability and can lead to tree failure.

Plants affected by construction projects or improper planting procedures may decline over several years, even 10 years or longer; become unsightly or finally die. ***Soil compaction*** usually results in reduced vigor and could become fatal. ***Poor water percolation*** through tight soils or subsoils result in plant decline and/or surface rooting and ultimate failure. ***Reduced availability of nutrients*** may result in off-color, smaller leaves and/or shortened twig growth. Finally, such stresses initiated by biotic agents often predispose the plants to attacks by secondary biotic agents (such as ***pests and diseases***).

(Information from **Council of Trees & Landscape Appraisers' Guide for Plant Appraisal, 9th Edition,** p. 30-31)

TREE EVALUATIONS

The trees were evaluated for their structural integrity, plant health, and the type of species. The coast live oak (Quercus agrifolia) trees at 654 Sausalito Blvd. (Susalito, CA). were observed to have several symptoms including: anthracnose, aphid damage, branch dieback, root and crown rot (phytophthora sup.), some twig blight, and nutritional deficiency. The previous owner maintenance history was not available.

The trees were catalogued and appraised for their condition. Each tree will be appraised for its' value using the Council of Tree & Landscape Appraisers, Guide for Plant Appraisal, 9th Edition.

TREE EVALUATIONS (Continued)

Tree #1 (12" Quercus agrifolia)

bacterial infection/decay

stress crack in trunks of Tree #1 & Tree #2

Tree #2 (24 in. Quercus agrifolia)

decay/ cavity with abnormal growth / burr

Tree #3 (18 in. Quercus agrifolia)

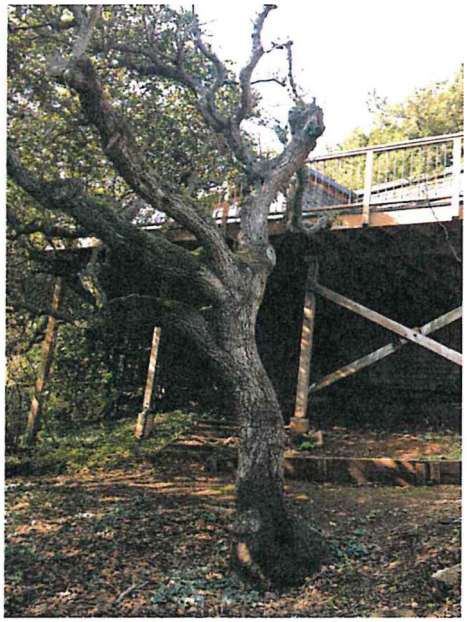
excessive lean (30-40 degree +)

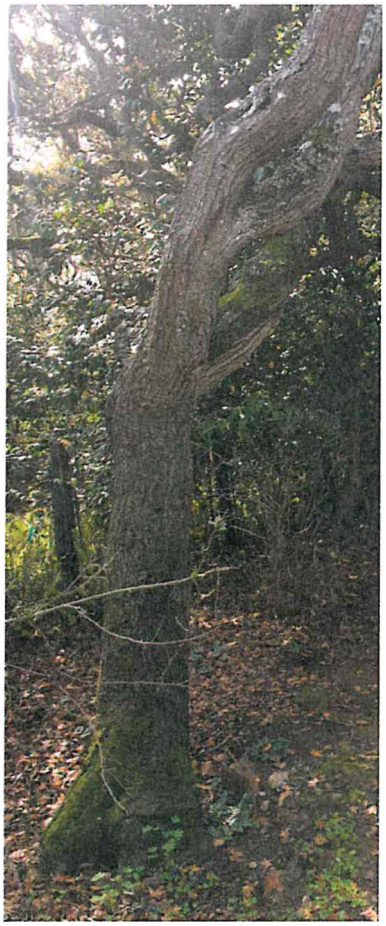
horizontal cracks curve to trunk

Tree #4 (Quercus agrifolia)

Tree #5 (16 in. Quercus agrifolia)

branch dieback
root and crown root rot
(phytophthora sup.)
decay
poor growth
excessive lean





Tree #6 (16 in. Quercus agrifolia)

Anthracnose / twig blight / aphid damage / cavity at root crown / decay

Tree #7 (16 in. Quercus agrifolia)

excessive lean (30-40 degrees or more)
weak union of stems
previous removed major stem
decay
candidate for tree failure
Anthracnose
twig blight

Tree #8 (6 in. Laurus nobillis)
host for plant pathogen
(Phytophthoria ramorum)

CONCLUSION

The trees at 654 Sausalito Blvd. were examined, catalogued and appraised for their economic value. They are in poor condition and recommended for removal. The trees' visible symptoms have been photographed and notated on pages 4 & 5. Replanting of a native variety and/or approved trees by the City of Sausalito is recommended. A Certified Arborist or Landscape Professional should supervise the installation. There may be some effects on neighboring vegetation but only on the owners property. Any loss of soil can be replenished with new high quality soil and mulch. Overall a new well-cared for landscape can be installed, developed and maintained after years of neglect.

The trees appraised values are shown on the following page. The ***9th Edition of the Guide for Plant Appraisal*** written by the ***Council of Tree and Landscape Appraisers,*** and the ***Species Classification and Group Assignment Guide*** written by the ***Western Chapter of the International Society of Arboriculture,*** were used to calculate the values.

(PLEASE SEE APPENDIX #1)

Sincerely,

Thomas Erickson
ISA CERTIFIED ARBORIST WE# 6697-A

Arbor Green Services
TREE & PLANT HEALTH CARE

PO Box 1364 / San Ramon, CA 94583 / 925.784.3252 / arborgreenservices@gmail.com

Arborist Report: 654 Sausalito Blvd. (Sausalito, CA) January 2019

APPENDIX 1: TREE APPRAISAL for TREE #1 - #7 (Quercus agrifolia)

The following coast live oaks were appraised using the ***Trunk Formula Method.*** This method is used for larger trees that cannot be readily replaced by equal sized specimens. All figures below were calculated using the worksheet formatted from the ***9th Edition of the Guide for Plant Appraisal*** written by the ***Council of Tree & Landscape Appraisers,*** and the ***Species Classification and Group Assignment Guide*** written by the ***Western Chapter of the International Society of Arboriculture.*** There is a worksheet included.

Formula for the trees above. Numbers rounded up

Tree No. #	DBH/ Species	Basic Value	Species Rating	Condition Rating	Location Rating	Appraised Value *
#1	DBH/12" Q.agrifolia	$9534	81%	65%	70%	$3514
#2	DBH/ 24" Q.agrifolia	$31,024	81%	65%	70%	$13,000
#3	DBH/12" Q.agrifolia	$9,200	81%	20%	20%	$300
#4	DBH/12" Q.agrifolia	$9200	81%	40%	20%	$600
#5	DBH / 16" Q.agrifolia	$16,470	81%	10%	10%	$135
#6	DBH / 16" Q.agrifolia	$16,470	81%	30%	30%	$1200
#7	DBH / 16" Q.agrifolia	$16,470	81%	10%	10%	$135

Appraisal Date: December 18, 2019
Site: 654 Sausalito Blvd., Sausalito, CA
Appraiser: Thomas Erickson (WCISA) ISA# WE6697-A
Example below for Quercus agrifolia (Coast Live Oak) #1
Species Rating: 81%
Trunk Diameter: 12 / Current Site Conditions = 65% / Location = 70% / Condition = 65%
Regional Plant Appraisal Information:
Species Rating 81% (90%-10%=81%) / Replacement Tree Trunk Area = 2.09 / Replacement Tree Cost = $172.73 + Tree Installation $172.73 = Installed Tree Cost = $345.46 / Tree Unit Cost = $82.82
Calculations by Appraiser Using Field and Regional Information:
DBH (squared) 12"x12"= 144" x 0.785 = 113.04 -(Rep. Tree Trunk Area) 2.09 = 110.95
Basic Tree Cost = 110.95 x $82.82 (Tree Unit Cost) + $345 (Installed Tree Cost) = $9534
Appraised Value = Basic Tree Cost $9534 x 81% (SR) x 65% (CR) x70% (LR) = $3514

Mason Wodhams Architectural Corp.
23 Railroad Ave. #352
Danville, CA 94526
(805) 234-3812

June 21, 2019

City of Sausalito
420 Litho Street
Sausalito, Ca 94965
(415) 289-4100

RE: Neighbor Outreach

To whom it may concern,

We are proposing a development project on an existing single family lot of record. The scope of project shall include the demolition of an existing single-family home and removal of trees as outlined in the site plan. Building will be replaced with the construction of a new single-family residence with 410 s.f on the lower floor, 1,749 s.f. on the main floor, and 1,507 s.f. on the upper floor for a total of 3,666 s.f. of livable area. There will also be a 434 s.f. attached garage and a new pool in the back of the lot.

As a part of the design process, we reached out and spoke to the neighbors regarding any potential concerns or impacts. The owners visited the neighbors within two houses in all directions with an invitation to a project review at the property Tuesday May 21. For those that were not home an invitation as well as the projects team's information, to answer any questions in case they could not attend. The meeting was well attended, including all neighbors to the immediate sides, as well as front and back. Most neighbors were supportive of the project and had no issues. Nancy Glenn at 44 Sunshine Ave(directly behind the project) had some concerns with the landscaping in the rear yard. She did not want to be looking up at large retaining walls from her yard/house, which were minimal as it was, but have been revised even more to minimize the offsite appearance. The walls are all less than three feet, and the owners and landscape architects, passed along their info, in case she had input on plant selection. The one other was from Peter and Georgiana Wardle at 652 Sausalito Blvd. They had concerns that going up the additional story as well as the added landscaping would block a side view from one of their bedrooms. We made adjustments to push the new project as far away from there house as possible, so while the existing house is less than 2' from the property line, the proposed residence is 19.5' away. This distance helped to minimize the view impacts from their home. The proposed house is also lower than the neighboring house and most of the windows in questions, so again will minimize the view and light impacts. Lastly, the front portion of the proposed residence will be a covered porch on the upper floor, with open walls on the side, so the neighbors would be able to see through that portion of the project. We are meeting with the neighbors again to work through any remaining concerns.

We feel the efforts we have made have addressed the concerns that have been brought to our attention. Please let us know if you have any questions or need any additional information.

Sincerely,

Mason Wodhams
Architect, LEED GA
23 Railroad Ave. #352
Danville, CA 94526

CITY OF SAUSALITO

420 Litho Street ● Sausalito, CA 94965
Telephone: (415) 289-4100
www. sausalito.gov

August 26, 2020

Mason Wodhams Architecture
23 Railroad Ave #352
Danville, CA 94526

SUBJECT: Notice of Complete Application – 654 Sausalito Blvd (DR EA TRP 2019-00184)

Dear Mr. Wodhams:

The Community Development Department received the cost recovery agreement and revised application materials for your request to demolish the existing residence at 654 Sausalito Blvd (APN 065-163-26) and construct a new single-family residence in its place. Staff has reviewed your submittal and deemed the application complete. Per Sausalito Municipal Code (SMC) Sec 10.54.B.4.a, this project requires a public hearing before the Planning Commission. At this time, the City is scheduling the public hearing for your project at the September 16, 2020 Planning Commission meeting. Pursuant to Section 3 of Governor Newsom's Executive Order N-29-20 this meeting will be conducted telephonically through Zoom and broadcast live at www.sausalito.gov. City Hall will not open for the meeting, Commission members and the public will be participating telephonically and will not be physically present in the Council Chambers. The agenda will contain details regarding how to virtually participate in the meeting and provide public comment prior to and during the meeting (https://www.sausalito.gov/city-government/boards-and-commissions/planning-commission/meetings-and-agendas).

To ensure that your project will be able to be presented at the September 16, 2020 Planning Commission meeting, I will need you to do the following:

1. Install new story poles or repair/replace the existing story poles and provide written certification to me electronically **no later than Friday, August 28, 2020**, in conformance with the City's Story Pole Certification sheet, which can be found at this link: https://www.sausalito.gov/home/showdocument?id=27878. Please note the issue date for the Story Pole Plan sheet that the installation follows, and ensure that I have a digital copy of this sheet, either separately or as part of an updated set of plans (see Comment 2 below).
2. I have received and reviewed the revisions you submitted on August 25, 2020. As the revision package did not include all sheets in the plan set, please provide me with a complete set of plans that note the revision date for the revised sheets. Also include the Story Pole Plan sheet in the revised set, confirming that the Certification sheet references this specific sheet as included in the plan set. I will need the complete set of plans provided electronically (let me know when you are ready and I will provide you with a Dropbox link) **no later than Monday, September 7, 2020**.

Please follow the City of Sausalito's website (www.sausalito.gov) to see the latest news on COVID-19 and the City's operations pertaining to it. You may reach me by email at bevanson@rgs.ca.gov, if you have any questions.

Sincerely,

Bradley Evanson
Contract Senior Planning Advisor

September 2, 2020
Job No. 18308

DEBOLT CIVIL ENGINEERING
45+ YEARS
811 SAN RAMON VALLEY BLVD #201
DANVILLE, CALIFORNIA 94526
(925) 837-3780 | DEBOLTCIVIL.COM

Alison Sonsini Buttles

RE: **654 Sausalito Boulevard**
Sausalito, CA

Dear Alison,

Our survey crew checked the story poles at the above referenced project and has found them to have been set in the appropriate location and height as shown on the story pole plan.

Should you have any questions or need additional information, please give me a call.

DE BOLT CIVIL ENGINEERING

James E. Diggins