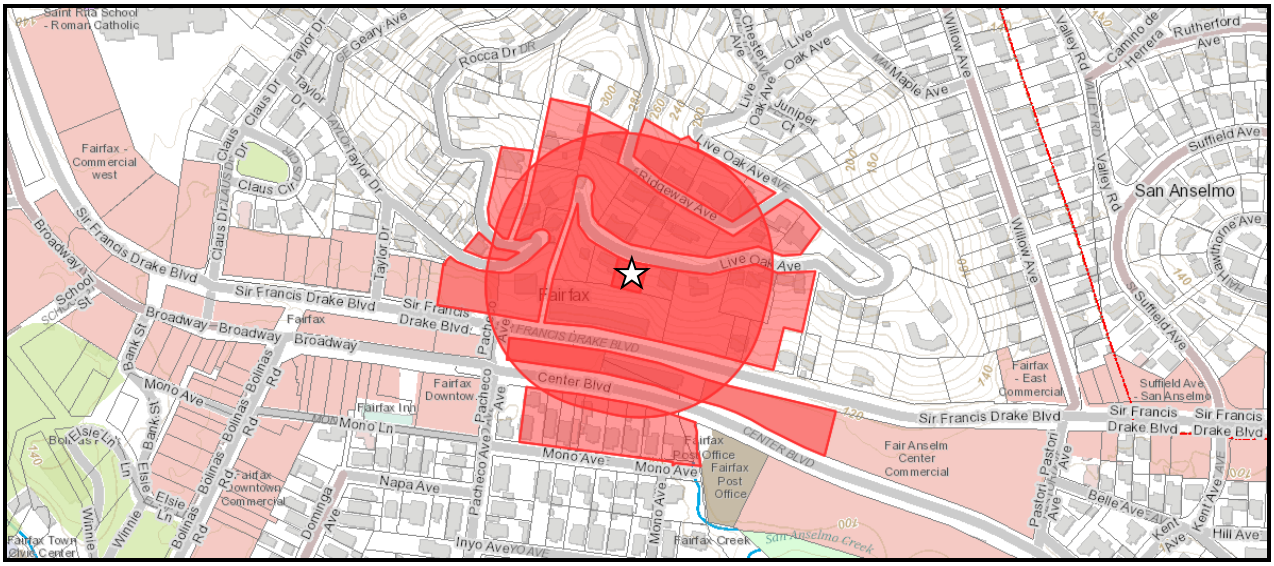
TOWN OF FAIRFAX
STAFF REPORT
Department of Planning and Building Services

TO: Planning Commission
DATE: August 25, 2022
FROM: Linda Neal, Principal Planner
LOCATION: 125 Live Oak Avenue; APN # 001-236-03
ZONING: Residential RD 5.5-7 Zone
PROJECT: Construction of a single-family residence, Accessory Dwelling Unit and parking
ACTION: Hill Area Residential Development Permit, Design Review Permit, Excavation Permit, Tree Removal Permit and Encroachment Permit, Parking Variance and Minimum and Combined Side-yard Setback Variances; Application # 22-17
APPLICANT: Bacilias Macias, Architect
OWNER: Paul and Maria Cadieux
CEQA STATUS: Categorically exempt, §15303(a)



125 LIVE OAK AVENUE

PROJECT DESCRIPTION

The project encompasses construction of a three story, residential structure that will include an accessory dwelling unit on the first floor and the main residence on the upper two floors. The proposed ADU is 798 square-feet in size and the floor plan includes two bedrooms, one- and one-half bathrooms, a kitchenette/living area great room and a laundry/storage closet. The ADU will be processed with a building permit, ministerially, in compliance with State and local ADU regulations and is not being considered or acted upon with this application. The main residence provides approximately 1,914

square-feet of living space (999 square-feet on the lower floor and 915 square feet on the upper floor) with an attached 423 square-foot, two-car, garage. The residence will include three bedrooms, two bathrooms, a laundry/utility room, and a linen closet on the first floor and a living room, dining room, kitchen, breakfast nook, and a two-car garage on the second floor.

Construction will require the excavation/fill of approximately 140 cubic yards of material and the fill of twenty-six cubic yards of material to construct the driveway bridge, house, drainage system and bioretention planters (Total excavation/fill = 166 cubic yards).

The proposed residence compliance status with the development regulations will comply with the regulations of the RD 5.5-7 Zone District below:

	Front Setback	Rear Setback	Combined Front/rear Setback	Side Setbacks	Combined Side Setbacks	FAR	Lot Coverage	Height
Required/ Permitted	**6 ft.**	**10 ft.**	**35 ft.**	**5 ft. & 5 ft.**	**20 ft.**	**.40**	**.35**	**35 ft., 3 stories**
Proposed	**8 ft.**	**27 ft.**	**35 ft.**	**3 ft. 2 in., 11 ft.**	**14 ft. 2 in.**	**.39, .55 with ADU**	**.28**	**35 ft., 3 stories**

EXISTING CONDITIONS/BACKGROUND

The 4,900-square-foot site slopes down from Live Oak Avenue at an average rate of 109%. The site was developed with a 1,689-square-foot, 3-bedroom, 2-bathroom residence in 1962. The development provided only one on-site parking space and two spaces within the driveway bridge located within the public roadway easement.

On February 16, 2012, the Town issued a demolition permit to allow limited exploratory demolition to enable the owner to determine the extent of reconstruction necessary in order to remodel the structure and abate violations that had been created through construction done without permits by the previous owner. No subsequent permit was ever filed to perform additional work on the structure.

In August 2012, a previous owner submitted an incomplete Hill Area Residential Development Permit application which he withdrew in October 2012.

In May 2014, the Building Official performed a resale inspection of the property documenting that extensive work had been done to the house that exceeded the exploratory demolition permit issued in 2012. The entire interior of the house had been gutted and excavation had occurred beneath the building. The resale report advised prospective buyers that in order to re-establish a single-family residence on the site a Hill Area Residential Development Permit and possibly other discretionary permits would have to be approved by the Town of Fairfax.

In May 2015, a new owner applied for a Hill Area Residential Development Permit to finish the work started by the previous owner which constituted a 50% remodel. Issues that delayed the application being deemed complete for 2-years included the Ross Valley Fire Department requirement for a fire truck pull-out, the need for an accurate and complete boundary survey and topographic for the site, the need for the plans to include repair of existing drainage facilities and the need for the Town to have adequate information to determine that the unpermitted excavation underneath the house had not destabilized the structure, the site or the adjacent public road.

The application was finally deemed complete on April 7, 2017, and the Planning Commission approved the project on July 20, 2017.

Shortly after the project was approved the lending company took back ownership of the site. The building stood in disrepair until February 17, 2021, when, after the Town took the lending company to court, the structure was finally demolished in early 2021.

There is an existing concrete drainage swale that runs the full width of the property at the rear of the site and also extends across the rear of 119 Live Oak Avenue to the east and across the rear yards of 139 and 133 Live Oak Avenue to the west. The applicants have not been able to provide, nor has staff been able to find, any easement that addresses this concrete drainage swale being on these private properties. The swale appears to have been constructed for the benefit of the apartment complex downhill from all these sites at 1780 Sir Francis Drake Boulevard. The swale is in disrepair but used to direct runoff from the uphill sites around the east and the west sides of the apartment complex before directing it to the Sir Francis Drake Boulevard roadway.

DISCUSSION - Required Discretionary Permits

Hill Area Residential Development and Excavation Permits (Town Code Chapter 17.072)

The project is located within a landslide hazard on the Fairfax General Plan Safety Element Figure S-3, Areas Susceptible to Landslides Map (Town Code § 17l072.020(A), it has a 109% slope and construction will require the excavation/fill of 166 cubic yards of material. Therefore, in accordance with Town Code §17.072.020(A)(4), the project will require the approval of a Hill Area Residential Development (HRD) Permit.

Town Code § 12.20.080(A) requires the Planning Commission to approve an Excavation Permit for any projects resulting in the movement of over one hundred cubic yards of material. The project results in the excavation and fill of 140 cubic yards of material so the project requires an Excavation Permit from the Planning Commission.

The purpose of the HRD permit is to encourage maximum retention of natural topographic features such as drainage ways, streams, slopes, ridgelines, rock outcroppings, vistas and natural plant formations and trees, to minimize grading of hillside areas, provide safe ingress and egress for vehicular and pedestrian traffic,

minimize water run-off and soil erosion during and after construction, prevent loss of life, minimize the potential of injuries, property damage and economic dislocations from geologic hazards, and to ensure that infill development on hillsides sites is of a size and scale appropriate to the property and consistent with other properties in the vicinity under the same zone classification [Town Code sections 17.072.010(B)(1) through (6)].

The criteria set forth in the code for reviewing excavation permits shares many aspects of the purpose of the HRD ordinance as follows: eliminating projects that would unlawfully remove the lateral or subjacent support of the adjacent land, result in dangerous topographic conditions, cause seepage or slides, inappropriately divert the flow of drainage waters, create a nuisance, or otherwise endanger the health, safety or property of any other person, despite all precautions which the applicant might be ready, willing and able to take.

The structure has been designed to mimic the design of the original house on the site which is similar to the architectural design of the structures to the east and west with the living levels stacked upon each other. Despite the steep slope and ten-to-twelve-foot distance between the edge of the improved Live Oak Avenue roadbed and the front property line, the structure has been designed to comply with the 35-foot height limit only reaching the maximum height at the southeast corner. Most of the structure will be below the maximum 35-foot height limit, maintaining heights of thirty-three feet or less above natural grade [Town Code § 17.084.060(A)(2)].

The project includes widening Live Oak Avenue along the property frontage to provide the required 20-foot x 40-foof fire truck staging area in the public roadway, as well as providing a required 8-foot by 21-foot, guest parking space parallel to the front of the house clear of the emergency staging area (see Attachment B).

Construction of the proposed house, drainage system and parking will require the excavation/fill of 166 cubic yards of material (140 cubic yards of excavation and 26 cubic yards of fill resulting in the off haul of 114 cubic yards of material). Excavation within the footprint of the house has been minimized with most of it being necessary to create the first floor ADU which is not being considered as part of this project being subject to ministerial review only. See pages A3.0 and A4.0 of the architectural plan set for visual representations of how the architectural design keeps the height of the house on this very steep lot at/or under the 35-foot height limit without setting the house too far into the hillside to keep the excavation and site disturbance to a minimum.

The soils report by Salem-Howes Associates Inc. dated January 28, 2022, indicates that the site will need an integrated drainage system to catch both surface run-off and subsurface drainage. The drainage system plan includes two planted earthen drainage swales running from the front of the site, downhill to the rear of the house on both the east and the west sides of the structure, directing run-off from the structure roof and ground surface to two bioretention planters located at the southeast and southwest rear corner of the house. Subgrade perforated pipes will collect subsurface drainage adjacent to the structure and beneath the driveway bridge and will carry the water down

hill where it will also be released into the bioretention planters which will serve to slow the water down and allow it to disperse evenly across the hillside below. The project includes reconstruction of the dilapidated concrete v-ditch that is believed to have been built to collect upslope drainage above the apartment building at 1780 Sir Francis Drake Boulevard (built in 1963) to direct it across the hillside and down either side of the apartment buildings where it is released into the Sir Francis Drake Boulevard roadway gutter (see engineering plan sheet C1.0 for v-ditch location and Attachment C - page 12 of the 1/28/22 SalemHowes report for a more detailed description of what the drainage system must address).

The Salem-Howes Associates January 28, 2022, report also addresses the challenges the site presents when designing any retaining walls that will become the walls for living spaces while making sure water infiltration into the living space does not occur. The geotechnical report recommends the following (see attachment C for Salem Howes 1/28/22 and 5/27/22 reports):

> Retaining walls which are adjacent to living areas should have additional water proofing such as three-dimensional drainage panels and moisture barriers and the invert of the drainage pipe should be a minimum of four inches below the adjacent interior finished floor or crawl space elevation. Drainage panels should extend to twelve inches below the surface and be flashed to prevent the entry of soil material. The heal of the retaining wall footing should be sloped towards the hill to prevent ponding of water at the cold joint, the drainage pipe should be placed on the lowest point of the footing. The backslope of the retaining walls should be ditched to drain to avoid infiltration of the surface run-off into the back-drainage system.

The Town Engineer has reviewed the following preliminary architectural and engineering plans and engineering reports and inspected the site:

Architectural Plan set received by the Town on 6/3/22 by Bacilia Macias
Site survey by Wiley Pierce, Licensed Land Surveyor, recorded on 9/9/16
7Topographic survey by Charles Weakley dated 11/22/21
Vegetative Management Plan approved by the Ross Valley Fire Department on 1/28/22 (VMP letter from RVFD dated 1/1/22).
Engineering plan set, revision date 5/11/22 by Patrick Mac Donald, Registered Professional Engineer
Geotechnical Report by Salem Howes Associates Inc. dated 1/28/22 (Attachment C)
Geotechnical Report Update/Response to Town Engineer comments dated 5/27/22 and written in different font on same Town Engineer's letter after comment # 3 on page 3 and after the second paragraph of comment # 5, after comments 8 and 9 on page # 4 (See Attachment D).

The approved Vegetative Management Plan for the project predated the final drainage plan and did not include the planted drainage swales or the bioretention planters. Staff has included a condition in the attached Resolution 2022-21, requiring that a modified

VMP including the planted drainage improvements be reviewed and approved by the Ross Valley Fire Department prior to issuance of the building permit. If the plan can not be approved as proposed, a modification of the drainage plan that meets RVFD, Town Engineer and Planning Director's approval shall be required prior to issuance of the building permit.

The Town Engineer has deemed this application complete for planning purposes as long as certain conditions are met (Attachment E – Town Engineer's letter recommending the project proceed to public hearing). Due to the complexities of the required drainage system, staff has included the following specific project engineering conditions in Attachment A. Resolution No. 2022-21:

1. A detailed Construction Management and Staging Plan shall be submitted along with the building permit application (for review and approval by the Building Official/Public Works Manager).

2. The building permit drainage plan and required drainage calculations be reviewed and approved by the Town Engineer prior to issuance of the building permit.

3. If deemed necessary by the Town Engineers, and the Town Attorney, the applicants shall prepare a drainage system maintenance agreement including a recordable exhibit of the proposed drainage system in its entirety including a maintenance schedule to be approved by the Town Engineer. The maintenance agreement will have to be signed by the owner, notarized and recorded at the Marin County Recorder's office prior to issuance of the building permit.

Based on the entire submitted body of work and the above listed technical reports, plans and other information, the findings can be made to grant both the requested HRD Permit and the Excavation Permit. The suggested findings and conditions for approving the project can be viewed in the attached Resolution No. 2022-21.

Design Review Permit (Town Code Chapter 17.020)
Town Code § 17.020.030(A) requires that a design review permit be obtained for new residences so the project requires the approval of a Design Review Permit by the Planning Commission.

When considering a project application for action on a Design Review Permit the Commission is directed by the code to consider the design review criteria contained in Town Code 17.020.040 which include but are not limited to the following:

1. The proposed development shall create a well composed design, harmoniously related to other facilities in the immediate area and to the total setting as seen from hills and other key vantage points in the community.

2. The proposed development shall be of a quality and character appropriate to, and serving to protect the value of, private and public investments in the immediate area.

3. The proposed development shall conform with all requirements for landscaping, screening, usable open space, and the design of parking and off-street loading areas set forth in this title.

4. There shall exist sufficient variety in the design of the structures and grounds to avoid monotony in external appearance.

5. The size and design of the structure shall be considered for the purpose of determining that the structure is in proportion to its building site and that it has a balance and unity among its external features so as to present a harmonious appearance.

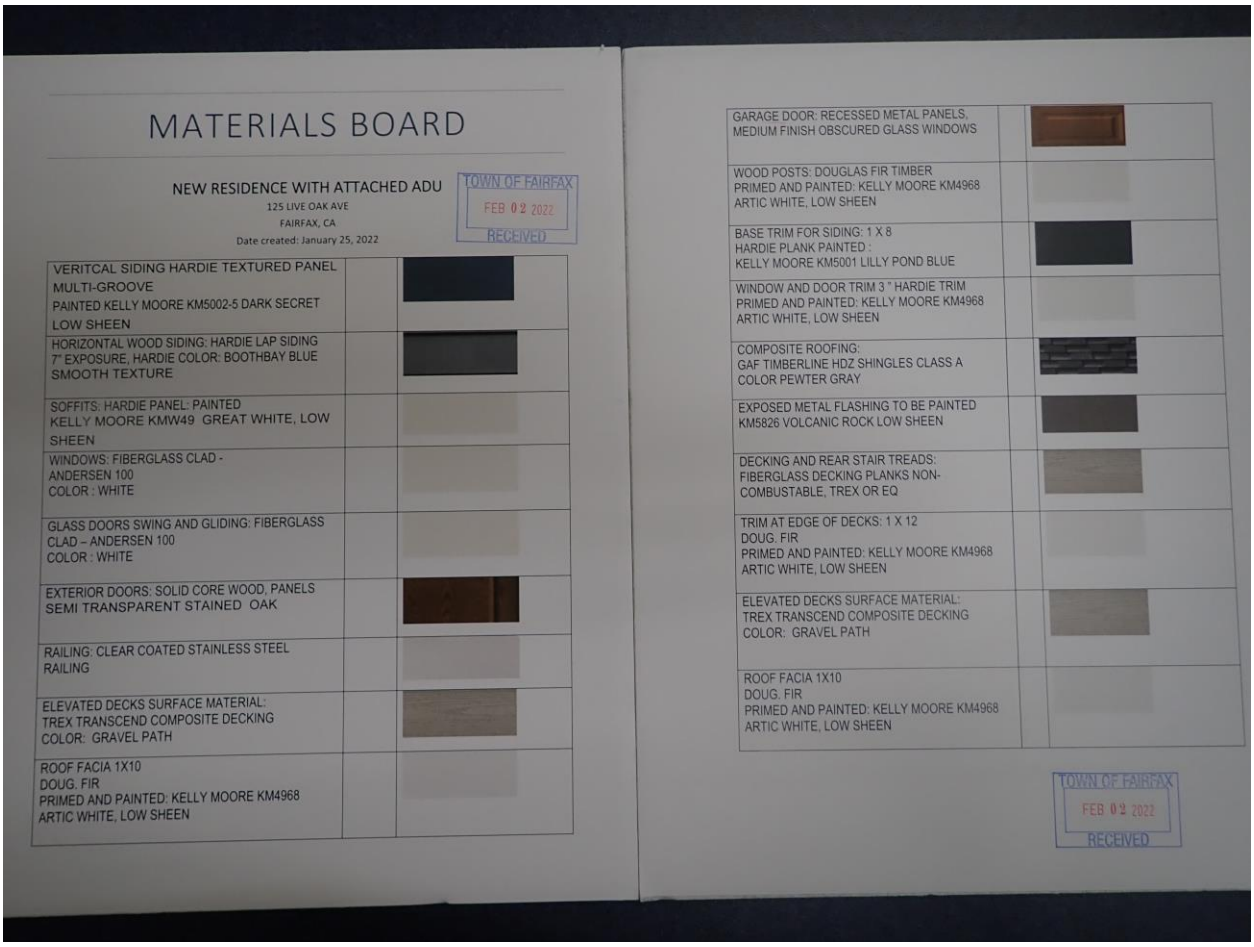
6. The extent to which the structure conforms to the general character of other structures in vicinity insofar as the character can be ascertained and is found to be architecturally desirable.

7. The extent to which natural features, including trees, shrubs, creeks and rocks, and the natural grade of the site are to be retained.

8. The accessibility of off-street parking areas and the relation of parking areas with respect to traffic on adjacent streets.

The proposed residential structure façade is set seventeen feet from the Live Oak Avenue roadway with the entry porch at street level, the bedroom level below that and the ADU as the first story, below the two upper levels that make up the single-family residence. The entry level of the structure includes a two-car garage. The design mimics the design of the original house on the site and is similar to the architectural design of the structures to the east and west with the living levels stacked upon each other. The façade of the house when viewed from the public roadway is one story and the rear south facing side of the structure has been articulated by projecting the first floor beyond the lower two floors and the upper deck, middle floor deck and lower floor ADU deck step back from each other. The upper floor deck also run the width of the building while the ADU deck runs along only the western portion of the first story stopping approximately seven feet short of the southern side of the structure. The varied deck lengths and orientations also add to the articulation of the structure when viewed from across the valley from residences on Hillside Drive (see page A3.3 of the project architectural plans for photographs of the residential structures on either side of the project site). Also note that the design keeps the unimproved underfloor area to a minimum height of approximately four- and one-half feet or less which also helps to minimize the visual mass of the structure.

The horizontal siding proposed for the upper floor is Hardie Textured Panel Multi-Groove siding painted Kelly Moore KM5002-5 Dark Secret Low Sheen, the vertical siding of the lower floors is Hardie Lap Siding 7” Exposure, Hardie Color – Boothbay Blue Smooth Texture, the wood posts, window trim and deck trim will be painted Kelly Moore KM 4968 Artic White, Low Sheen, the roof will be of composite shingles in a pewter gray color, the garage door will be metal, have glass panels along the top and be painted an unspecified brown color (see materials and color board below).



Two sconce lights are proposed on all three levels of the southern side of the house that will direct light down to light the deck areas without resulting in light spillage beyond the development (see page A3.0 of the architectural plans – Light fixture L2). Two of the same light fixtures will be located along the stairways that run down the hillside on the east and west sides of the structure, and one will be located on either side of the garage door on the third level of the house facing Live Oak Avenue. The front entry way will be lit with a recessed ceiling fixture (L1 on page A3.0 of the architectural Plans). Two LED pathway lights will be installed at the top of the western stairway which provides access to the ADU for safety (L3 on page A3.0). All proposed light fixtures are dark sky compliant. The Commission’s standard lighting condition as follows has been included in Resolution No. 2022-21:

All the exterior lighting fixtures must be dark sky compliant (fully shielded and emit no light above the horizontal plane with no sag or drop lenses, side light panels or upplight panels) as well as compliance with color temperature to minimize blue rich lighting. The lighting plan shall be submitted with the building permit application and be approved by the Planning Department prior to issuance of the project building permit. The lighting shall not emit direct offsite illumination and shall be the minimum necessary for safety.

The project will be similar in size and scale to other structures in the vicinity (see table below for comparison).

125 Live Oak Ave. – COMPARABLE HOUSE NEIGHBORHOOD HOUSE SIZES							
APN #	ADDRESS	LOT SIZE	HOUSE SIZE	# BEDROOMS	# BATHS	GARAGE	FAR
001-231-14	60 Live Oak	6785	1648	3	2	648	.26
001-231-15	70 Live Oak	12,390	1263	3	1	264	.10
001-231-07	224 Ridgeway	6345	1805	3	2	250	.28
001-231-18	130 Live Oak	6004	2029 duplex	5	3	0	.34
001-236-02	133 Live Oak	5166	1207	6	2.5	0	.23
001-236-04	119 Live Oak	5180	1899	2	1	0	.37
001-236-14	87 Live Oak	6100	1574	3	2	0	.26
001-236-15	85 Live Oak		1828 duplex	3	2	0	.22
001-236-19	71 Live Oak	6360	1398	3	2.5	288	.22
001-236-20	67 Live Oak	7280	1083	2	1	0	
001-236-25	47 Live Oak	7487	1812 duplex	4	2	960	.30
001-236-26	41 Live Oak	5981	1740	3	2	0	.29
001-236-27	25 Live Oak	7140	1001	2	1	345	.14
PROJECT SITE							
001-236-03	125 Live oak	4924	1914	3	2 1/2	424	.39

Note: Town Code Chapter 17.048 [Urgency Ordinance 861 – Accessory Dwelling Units and Junior Accessory Dwelling Unit]), Section 17.048.(D)(1), indicates that only a building permit is required for ADU's within a proposed single-family residence as long as it has independent exterior access and has side and rear setbacks sufficient for fire safety. The Ross Valley Fire Department has reviewed the project and found the access acceptable. The Planning Commission has no discretion over the approval of this unit and the unit may result in an FAR that exceeds the permitted .40 FAR as long as it is the ADU causing the FAR to be exceeded.

The site will have the highest floor area to parcel size ratio at .39 but it is also one of the smallest parcels within the Ridgeway Park Subdivision neighborhood which was created

by the recording of “Map of P.H. Jordan Co. Subdivision of Ridgway Park on March 29, 1907, and is one of the oldest subdivisions in the Town of Fairfax. The FAR for the residence alone is .39 but including the ADU the FAR is .55 which is allowed because the unit is being proposed within a proposed single-family residence. Per State Law and in accordance with Town Code 17.048(F)(7)(b)(3), no parking is required for the ADU because it is part of a proposed existing primary residence.

After reviewing the project plans and entire body of submitted information the Planning Staff had has determined that the proposed development complies with the Design Review Criteria set forth in Town Code § 17.020.040.

The suggested finding for the Design Review Permit can be found in the attached Resolution No. 2022-21.

Encroachment Permit (Town Code Chapter 12.32)
Town Code § 12.32.010(A) allows private property owners to erect private structures such as parking structures upon portions of the public right-of-way not being used by the public with the approval of the Planning Commission if the private property owner has no suitable place on their own property.

The project proposes creating the required third guest parking space parallel to front of the house and the developed public road mostly on the project site but with a portion of the space located in the Live Oak Avenue right-of-way. Therefore, the project requires the approval of an Encroachment Permit by the Planning Commission.

The portion of the guest parking space that will be located on the proposed parking deck is necessary and reasonable due to the steep slope of the site and the distance of the front property line from the edge of the developed public roadway.

The findings suggested by staff for the granting of the Encroachment Permit can be found in the attached Resolution No. 2022-21.

Minimum and Combined Side-yard Setback Variance [Town Code 17.084.070(B)(2)]
Town Code § 17.084.070(B)(2) requires that structures in the RD 5.5-7 Zone maintain minimum side-yard setbacks of five feet and a combined side-yard setback of twenty feet.

The footprint of the structure maintains a combined side yard setback of 21-feet in compliance with the minimum combined side-yard setback requirement. However, the above grade, side access stairs and deck structures on the east and west side of the site extend two feet into the required minimum five-foot side-yard setback on the west side and four feet into the required combined side-yard setback of twenty-feet on the east side of the site. The stairs/side decks proposed on the east and west side of the structure will maintain a three-foot two-inch setback from the west side property line and an eleven-foot setback from the east side property line.

Town Code § 17.44.070 allows certain improvements to encroach into required setbacks, including decks and roof eaves, as long as they maintain a minimum setback from the adjacent property line of three feet. Stairways are not included in the list of improvements allowed to project into the setbacks.

Therefore, the side access stairways on either side of the structure and the two eastern feet of the east side deck require a side setback variance, maintaining together a combined side yard setback of fourteen feet while the code required a combined side setback of sloped lots of twenty feet. The structure itself complies with the code maintaining a combined side setback of twenty-one feet.

Staff finds that the requested exceptions are minimal and are similar to the side yard setbacks maintained by other existing structures within the neighborhood.

Note: The code is silent on whether porches can encroach two feet into required setbacks. However, since decks and roof eaves can encroach two feet into required setbacks, staff has made the determination that the front porch, which is a small entry deck with a roof over it adjacent to the driveway deck, meets the intent of the ordinance and does not result in the structure requiring a front/rear setback variance. The 8 foot distance from the front property line measured to two feet into the porch roof and deck when added to the 28 foot rear setback, which is the distance from the rear property line measured two feet into the rear deck, results in a combined front/rear setback of 35 feet, meeting the 35 foot combined front/rear setback requirement.

Parking Variance [Town Code § 17.028.070(B)]
Town Code § 17.052.030(A)(1)(d) and § 17.052.030(A)(2) requires that new single-family residences be provided with at least three parking spaces. Two, nine by nineteen foot, on-site, parking spaces, at least one of them covered, and a third guest parking space. The guest parking space can be located within the public road easement as long as it is off the vehicle travel path of the developed road.

Town Code § 17.028.020, (Variance) Granting Authority: Considerations, gives the Planning Commission the authority to grant variances for projects which do not meet off-street parking and loading requirements. In reviewing these applications, the Commission is to "give due regard to the nature and condition of all adjacent uses and structures, to the physical environs of the proposed use and to all pertinent aspects of the public health, safety and general welfare" [Town Code § 17.028.020(B)].

The project proposes two parking spaces within the garage and an 8-foot by 21-foot compact space parallel to the Live Oak Avenue and the front of the building on the expanded parking/driveway deck.

It is difficult on steeply sloped properties, especially when the front property line is located some distance from the edge of the developed road, to provide the code

required parking. Other residences in the surrounding neighborhood on down-sloping properties do not maintain the minimum amount of required parking.

This development has managed to provide the three required parking spaces with the guest space being a compact 8-foot by 21-foot compact space. Town Code § 17.028.070(B), variance, gives the Commission the authority to grant a variance to allow the one guest parking space to be compact in size instead of the standard nine by nineteen-foot size as long as the following findings can be made:

(1) Neither present nor anticipated future traffic volumes generated by the use of the site or the uses of sites in the vicinity reasonably require strict or literal interpretation and enforcement of the specified regulation.
(2) Granting the variance will not result in the parking or loading of vehicles on public streets in a manner as to interfere with the free flow of traffic on the streets.
(3) The granting of the variance will not create a safety hazard or any other condition inconsistent with the objectives of this Title (Zoning Ordinance Town Code Title 17).

The findings can be made to grant the requested parking variance and can be viewed in the attached Resolution No. 2022-21.

Tree Removal Permit
Town Code § 8.36.040(B) requires that development projects obtain a recommendation from the Fairfax Tree Committee on any requested tree removals. The recommendation is brought forward to the decision-making body when they consider the project for action.

The Tree Committee reviewed the applicants request to remove two acacia clusters located at the rear of the property at their May 23, 2022, meeting at which time they recommended that the Planning Commission approve the request. The removal of the two clusters was also approved by the Ross Valley Fire Department in the Vegetative Management Plan on January 28, 2022 (see approved VMP attached to the project plans).

Staff recommends that the Planning Commission, in accordance with the Tree Committee's recommendation, approve the requested tree removal permit to remove the two bay clusters at the rear of the site.

The Town Engineer was originally concerned that the 22-inch oak tree located mostly on the neighboring property to the west, but with a portion of the trunk and drip line on the project site, might be negatively impacted by the construction. The project arborist has assessed the proximity of the tree to the proposed work and determined that the construction can occur without negatively impacting the oak tree (Attachment F – Steve Svienty Tree Care Inc).

OTHER AGENCY/DEPARTMENT COMMENTS/CONDITIONS

Ross Valley Fire Department (RVFD)
The fire truck staging area shall be installed and made serviceable prior to the delivery of combustible materials to the site.

The above is the only site-specific condition placed upon the project by the Ross Valley Fire Department. All the Department's standard conditions, along with the above specific condition can be viewed in the attached Resolution No. 2022-21.

Marin Municipal Water District (MMWD) and Ross Valley Sanitary District (RVSD)
Neither MMWD or RVSD had any specific conditions for the project and their standard conditions can be reviewed in attached Resolution No. 2022-21.

Fairfax Police, Public Works, and Building Departments
We received no comments or recommended project conditions from the Police, Public Works, or Building Department.

Miscellaneous Items
Town Code § 12.12.030 limits driveway entrances into any residential premises, to twenty feet in width. In accordance with Town Code § 12.12.090, the project will require the approval of a driveway width variance because the proposed driveway bridge/fire staging area will be thirty-eight feet wide (See page A1.0 of the architectural plan set). If the Commission approves the project, it will be scheduled for the next available Town Council agenda for their consideration and action on the driveway width variance.

Down-sloping sites with over fifteen percent slope are exempt from the covered parking requirements per 17.052.020(C). However, the Town routinely approves garages on such slopes as long as they do not block the general public view of the bay, Mount Baldy, or Mount Tamalpais. This site does not have such views.

RECOMMENDATION

1. Open the public hearing and take public testimony.
2. Move to approve Application # 22-17 by adopting Resolution No. 2022-21 setting forth the findings and the conditions for the project approval.

ATTACHMENTS

Attachment A – Resolution No. 2022-21
Attachment B – Drawing of relationship between proposed guest parking stall, RVFD required fire truck staging area, public road, and proposed house footprint.
Attachment C - Project Engineer SalemHowes report of 1/28/22
Attachment D - 5/27/22 SalemHowes letter and 7/6/22 Town Engineer's 4/15/22 with Project Engineer's comments inserted.
Attachment E - 7/6/22 Town Engineer letter deeming project complete for planning review

Attachment F- Tree Committee Letter of Action recommending the Commission approve the requested tree removals
Attachment G – Approved VMP letter from RVFD

RESOLUTION NO. 2022-21

A Resolution of The Fairfax Planning Commission Approving Application No. 22-7 for a Hill Area Residential Development (HRD) Permit, Design Review Permit, Excavation Permit, Encroachment Permit, Tree Removal Permit and Parking and Minimum and Combined Side Yard Setback Variances for the Construction of a Single-family Residence, Attached Two Car Garage, and Parking/Driveway Deck at 125 Live Oak Avenue

WHEREAS, the Town of Fairfax received an application from Paul and Maria Cadieux to construct a 1,914 square-foot, three story, three-bedroom, two-bathroom, single-family residence with an attached two car garage and parking deck at street level and an Accessory Dwelling Unit of the first floor on April February 4, 2022; and

WHEREAS, the application was deemed complete on July 28, 2022; and

WHEREAS, the Commission held a duly noticed public hearing on the proposed project on August 25, 2022; and

WHEREAS, after holding the public hearing, the Planning Commission determined that the project complies with the Hill Area Residential Development Overlay Ordinance and the Design Review Ordinance and that findings can be made to grant the requested HRD, Design Review, Excavation, Encroachment and Tree Removal permits and Parking and Minimum and Combined Side Yard setback Variances at 125 Live Oak Avenue; and

WHEREAS, the Commission has made the following findings:

The project is consistent with the 2010-2030 Fairfax General Plan as follows:

Policy LU-1.2.3: New and renewed development shall be designed and located to minimize the visual mass. The Town will require exterior materials and colors that blend the exterior appearance of structures with the surrounding natural landscape, allowing for architectural diversity.

Policy LU-4.1.4: New and renewed development shall be designed to minimize run-off in a manner that does not cause undue hardship on neighboring properties.

Policy LU-7.1.5: New and renewed residential development shall preserve and enhance the existing character of the Town's neighborhoods in diversity, architectural character, size, and mass.

Policy LU-7.2.2: to the extent feasible natural features including the existing grade, mature trees and vegetation shall be preserved for new and renewed development.

Hill Area Residential Development Permit (Town Code § 17.072.110)

1. The proposed development is consistent with the General Plan (see above) and consistent with the purpose and intent of the Zoning Ordinance, Title 17, of the Fairfax Town Code.

ATTACHMENT A

2. The site planning preserves identified natural features as much as possible while also bringing the property into conformance with the Town parking regulations, providing three parking spaces while the previously existing structure provided only two spaces.

3. Based on the soils report findings, the site can be developed without geologic, hydrologic, or seismic hazards.

4. Vehicular access and parking are adequate.

5. The proposed development harmonizes with the surrounding residential development, meets the design review criteria, and does not result in the deterioration of significant view corridors.

Excavation Permit (Town Code § 12.20.080)
Based on the Town Engineer's review and recommendation that the project can be constructed safely, the Planning Commission finds that:

1. The health safety and welfare of the public will not be adversely affected.

2. Adjacent properties are adequately protected by project investigation and design from geologic hazards as a result of the work.

3. Adjacent properties are adequately protected by project design from drainage and erosion problems as a result of the work.

4. The amount of the excavation or fill proposed is not more than that required to allow the property owners substantial use of their property.

5. The visual and scenic enjoyment of the area by others will not be adversely affected by the project more than is necessary.

6. Natural landscaping will not be removed by the project more than is necessary; and

7. The time of year during which construction will take place is such that work will not result in excessive siltation from storm runoff nor prolonged exposure of unstable excavated slopes (Town code § 17.072.090(c)(4) prohibits grading of hillside properties from October 1st through April 1st of each year).

Encroachment Permit ((Town Code Title 12, Chapter 12.32)**)**
The portion of the parking deck/driveway bridge that projects into the Live Oak Avenue right-of-way will not use or obstruct any developed section of the road and the area is not currently being used by the public. Therefore, the requested Encroachment Permit is approved by the Commission.

Design Review Permit (Town Code § 17.020.040)
The project depicted in the plans submitted to the Town on June 2, 2022, complies with the Design Review Criteria set forth in Town Code § 17.020.040.

Combined Side-Yard Setback and Parking Variances [Town Code § 17.028.070 and 17.052.040(B)]

1. The steep, 109% slope of the site and the narrow, 71-foot width are the site features that

warrant granting the requested Minimum and Combined Side Yard Setback Variances to construct the project. The proposed development will provide much needed parking on the site and only the access/egress stairs and a small portion of a deck will encroach into the minimum side setbacks while the structure itself will comply with the 20-foot combined side-yard setback maintaining a combined side-yard setback of 21-feet.

2. There are other properties in the vicinity that maintain only the minimum five-foot side yard setbacks, the setbacks that were in existence when this area of Live Oak Avenue was originally developed. Therefore, the granting of this variance will not be a grant of special privilege.

3. The strict application of the setback regulations would result in unreasonable hardship for the applicants because they would be unable to bring the property into compliance with the Town parking regulations while also meeting emergency egress regulations.

4. The proposed structure will maintain the same or greater side yard setbacks than structure that previously existed on the site. Therefore, the granting of the variance will not be detrimental to the public welfare or injurious to other property in the vicinity in which the property is situated.

Parking Variance

(1) Neither present nor anticipated future traffic volumes generated by the use of the site or the uses of sites in the vicinity reasonably require strict or literal interpretation and enforcement of the parking space size regulation as long as the proposed guest space meets the minimum size for a compact parking stall parallel to the structure of eight feet by 21-feet. .
(2) Granting the variance will not result in the parking or loading of vehicles on public streets in a manner as to interfere with the free flow of traffic on Live Oak Avenue.
(3) The granting of the variance will not create a safety hazard or any other condition inconsistent with the objectives of this Title (Zoning Ordinance Town Code Title 17).

Tree Removal Permit [Town Code § 8.36.040(A)]

The two Bays approved for removal were required to be removed by the Ross Valley Fire Department as part of the vegetative management plan and the Fairfax Tree Committee has recommended the Commission approve the requested Tree Removal Permit after they considered all the items required in the Town Code 8.36.060(B) (1 through 7) of the Tree Ordinance. Therefore, by adopting this resolution the Commission is approving the requested Tree Removal Permit.

WHEREAS, the Commission has approved the project subject to the applicant's compliance with the following conditions:

The project is approved based on the following plans and reports:

Architectural Plan set received by the Town on 6/3/22 by Bacilia Macias
Site survey by Wiley Pierce, Licensed Land Surveyor, recorded on 9/9/16
7Topographic survey by Charles Weakley dated 11/22/21
Vegetative Management Plan approved by the Ross Valley Fire Department on 1/28/22
Engineering plan set, revision date 5/11/22 by Patrick Mac Donald, Registered Professional Engineer
Geotechnical Report by Salem Howes Associates Inc. dated 1/28/22

Geotechnical Report Update/Response to Town Engineer comments dated 5/27/22 and written in different font on same Town Engineer's letter after comment # 3 on page 3 and after the second paragraph of comment # 5, after comments 8 and 9 on page # 4
The VMP approved by the RVFD on 1/28/22

The project is subject to the following conditions of approval:

1. Prior to issuance of any of the building permit for the project the applicant or his assigns shall:

a) Submit a detailed Construction Management and Staging Plan to the Public Works Department for their approval. The amended plan shall include but is not limited to the following:

I. Construction delivery routes approved by the Department of Public Works.
II. Construction schedule (deliveries, worker hours, etc.)
III. Notification to area residents
IV. Emergency access routes
V. Construction worker staging area

2. The applicant shall prepare, and file with the Public Works Director, a video of the roadway conditions on the public construction delivery routes (routes to be pre-approved by Public Works Director).

3. Submit a cash deposit, bond, or letter of credit to the Town in an amount that will cover the cost of grading, weatherization, and repair of possible damage to public roadways. The applicant shall submit contractor's estimates for any grading, site weatherization and improvement plan for approval by the Town Engineer. Upon approval of the contract costs, the applicant shall submit a cash deposit, bond or letter of credit equaling 100% of the estimated construction costs.

4. The foundation and retaining elements shall be designed by a structural engineer certified as such in the state of California. Plans and calculations of the foundation and retaining elements shall be stamped and signed by the structural engineer and submitted to the satisfaction of the Town Structural Engineer.

5. The grading, foundation, retaining, and drainage elements shall also be stamped and signed by the project geotechnical engineer as conforming to the recommendations made by the project Geotechnical Engineer. The location of the energy dissipater shall be determined, shown on the construction plans, and approved by the Town Engineer prior to issuance of the project building permit.

6. Prior to submittal of the building permit plans, the applicant shall secure written approval from the Ross Valley Fire Authority, Marin Municipal Water District and the Ross Valley Sanitary District noting the development conformance with their recommendations.

7. Submit three copies of the recorded record of survey with the building permit plans.

8. All retaining walls that are visible from the street and are constructed of concrete shall be heavily textured or colorized in a manner approved by the planning staff prior to issuance of the building permit. This condition is intended to mitigate the visual impact of the proposed walls.

9. Prior to the removal of any trees not approved by the Planning Commission through this action, the applicant shall secure a tree cutting permit, if required, from the Fairfax Tree Committee prior to removal of any on-site trees subject to a permit under Town Code Chapter 8.36. To further minimize impacts on trees and significant vegetation, the applicant shall submit plans for any utility installation (including sewer, water, and drainage) which incorporates the services of an ISA certified arborist to prune and treat trees having roots two inches or more in diameter that are disturbed during the construction, excavation, or trenching operations. Tree root protection measures may include meandering the line, check dams, rip rap, hand trenching, soil evaluation and diversion dams.

10. The approved tree permit must be kept on the job site and the applicant must verify that the tree company performing the approved tree work has a current Fairfax Business License.

11. Prior to the start of construction, the surveyor shall mark the side property lines and submit a signed and stamped letter to the Building Department indicating that side property line locations are marked per the boundary survey.

12. During the construction process the following shall be required:

a) The geotechnical engineer and the project arborist shall be on-site during the grading process, and both shall submit written certification to the Town Staff that the grading and tree protection measures have been completed as recommended prior to installation of foundation and/or retaining forms and drainage improvements, piers, and supply lines.

b) Prior to the concrete form inspection by the building official, the geotechnical and structural engineers shall field check the forms of the foundations and retaining elements and provide written certification to the Town staff that the work to this point has been completed in conformance with their recommendations and the approved building plans.

c) The Building Official shall field check the concrete forms prior to the foundation pour.

d) All construction-related vehicles including equipment delivery, cement trucks and construction materials shall always be situated off the travel lane of the adjacent public right(s)-of-way. This condition may be waived by the Building Official on a case-by-case basis with prior notification from the project sponsor.

e) Any proposed temporary closures of a public right-of-way shall require prior approval by the Fairfax Police Department and any necessary traffic control, signage or public notification shall be the responsibility of the applicant or his/her assigns. Any violation of this provision will result in a stop work order being placed on the property and issuance of a citation.

13. Prior to issuance of an occupancy permit the following shall be completed:

a) The geotechnical engineer shall field check the completed project and submit written certification to the Town Staff that the foundation, retaining, grading and drainage elements have been installed in conformance with the approved building plans and the recommendations of the soils report. Additionally, the project engineer shall review the construction schedule and plans at each phase of the project construction to determine the best order for each phase to occur including the hillside retention/drainage phases.

b) The Planning Department and Town Engineer shall field check the completed project to verify that all staff, agency, and planning commission conditions and required engineering improvements have been complied with prior to issuance of the certificate of occupancy.

14. Excavation shall not occur between October 1st and April 1st of any year. The Town Engineer has the authority to waive this condition depending upon the weather.

15. The roadways shall be kept free of dust, gravel, and other construction materials by sweeping them, daily, if necessary.

16. Any changes, modifications, additions, or alterations made to the approved set of plans will require a modification of Application # 22-17. Modifications that do not significantly change the project, the project design or the approved discretionary permits ***may*** be approved by the Planning Director. Any construction based on job plans that have been altered without the benefit of an approved modification of Application 22-17 by the Planning Commission or the Planning Director will result in the job being immediately stopped and red tagged.

17. Any damages to the public portions Live Oak Avenue, Maple Avenue, Willow Avenue, or other public roadway used to access the site resulting from construction activities shall be the responsibility of the property owner.

18. The applicant and its heirs, successors, and assigns shall, at its sole cost and expense, defend with counsel selected by the Town, indemnify, protect, release, and hold harmless the Town of Fairfax and any agency or instrumentality thereof, including its agents, officers, commissions, and employees (the "Indemnitees") from any and all claims, actions, or proceedings arising out of or in any way relating to the processing and/or approval of the project as described herein, the purpose of which is to attack, set aside, void, or annul the approval of the project, and/or any environmental determination that accompanies it, by the Planning Commission, Town Council or Planning Director or any other department or agency of the Town. This indemnification shall include, but not be limited to, suits, damages, judgments, costs, expenses, liens, levies, attorney fees or expert witness fees that may be asserted or incurred by any person or entity, including the applicant, third parties and the Indemnitees, arising out of or in connection with the approval of this project, whether or not there is concurrent, passive, or active negligence on the part of the Indemnitees. Nothing herein shall prohibit the Town from participating in the defense of any claim, action, or proceeding. The parties shall use best efforts, acting in good faith, to select mutually agreeable defense counsel. If the parties cannot reach agreement, the Town

may select its own legal counsel and the applicant agrees to pay directly, or timely reimburse on a monthly basis, the Town for all such court costs, attorney fees, and time referenced herein, provided, however, that the applicant's duty in this regard shall be subject to the Town's promptly notifying the applicant of any said claim, action, or proceeding.

19. The applicant shall comply with all applicable local, county, state and federal laws and regulations. Local ordinances which must be complied with include, but are not limited to: the Noise Ordinance, Chapter 8.20, Polystyrene Foam, Degradable and Recyclable Food Packaging, Chapter 8.16, Garbage and Rubbish Disposal, Chapter 8.08, Urban Runoff Pollution Prevention, Chapter 8.32 and the Americans with Disabilities Act and Best Management Practices for Stormwater Pollution Prevention.

20. Conditions placed upon the project by outside agencies, Town departments or by the Town Engineer may be eliminated or amended with that agency, department, or the Town Engineer's written notification to the Planning Department prior to issuance of the building permit.

21. The building permit plans shall be reviewed and approved by the Town Engineer, at the expense of the applicant, prior to issuance of the building permit.

Town Engineer's Conditions

22. The project shall be inspected by the Town Engineer prior to issuance of the occupancy permit for the residential structure for compliance with the engineering plans.

23. The applicant shall obtain an encroachment permit from the Public Works Department prior to performing any construction related work within the public road easement.

24. A detailed Construction Management and Staging Plan shall be submitted along with the building permit application (for review and approval by the Building Official/Public Works Manager).

25. The building permit drainage plan and required drainage calculations shall be reviewed and approved by the Town Engineer prior to issuance of the building permit.

26. If deemed necessary by the Town Engineers, and the Town Attorney, the applicants shall prepare a drainage system maintenance agreement including a recordable exhibit of the proposed drainage system in its entirety including a maintenance schedule to be approved by the Town Engineer. The maintenance agreement will have to be signed by the owner, notarized and recorded at the Marin County Recorder's office prior to issuance of the building permit.

Ross Valley Fire Department

27. A modified VMP including the planted drainage improvements be reviewed and approved by the Ross Valley Fire Department prior to issuance of the building permit. If the plan cannot be approved as proposed, a modification of the drainage plan that meets RVFD, Town Engineer and Planning Director's approval shall be required prior to issuance of the building permit.

28. The fire truck staging area shall be installed and made serviceable prior to the delivery of combustible materials to the site.

29. All vegetation and construction materials are to be maintained away from the residence during construction.

30. Hydrant flow and location are to be identified before construction begins.

31. The project requires installation of a fire sprinkler system in the structure that complies with the National Fire Protection Association regulation 13-D and local standards. The system will require a permit from the Fire Department and the submittal of plans and specifications for a system submitted by an individual or firm licensed to design and/or design-build sprinkler systems.

32. The property is located within the Wildland Urban Interface Area for Fairfax and the new construction must comply with Chapter 7A of the California Building Code or equivalent.

33. All smoke detectors in the residence shall be provided with AC power and be interconnected for simultaneous alarm. Detectors shall be located in each sleeping room, outside of each sleeping room in a central location in the corridor and over the center of all stairways with a minimum of 1 detector on each story of the occupied portion of the residence.

34. Carbon monoxide alarms shall be provided in existing dwellings when a permit is required for alterations, repairs, or addition and the cost of the permit exceeds $1,000.00. Carbon monoxide alarms shall be located outside of each sleeping area in the immediate vicinity of the bedrooms and on every level of the dwelling, including basements.

35. Address numbers at least four inches tall must be in place adjacent to the front door. If not clearly visible from the street, additional numbers must be placed in location that is visible from the street. The numbers must be internally illuminated or illuminated by an adjacent light controlled by a photocell that can be switched off only by a breaker so it will remain illuminated all night.

36. Alternative materials or methods may be proposed for any of the above conditions in accordance with Section 104.9 of the Fire Code.

37. All approved alternatives requests, and their supporting documentation, shall be included in the plan sets submitted for final approval by the Fire Department.

Marin Municipal Water District (MMWD)

38. A copy of the building permit must be provided to the district along with the required applications and fees.

39. The foundation must be completed within 120 days of the date of application.

40. All indoor and outdoor requirements or District Code Title 13, Water Conservation must be complied with.

41. Any landscaping plans must be reviewed and approved by the district.

42. Backflow prevention requirements must be met.

43. Ordinance 420., requiring installation of grey water recycling system when practicable, must be incorporated into the project building permit plans or an exemption letter from the district must be provided to the Town.

44. All the District's rules and regulations in effect at the time service is requested must be complied with.

Ross Valley Sanitary District (RVSD)

45. A sewer connection permit and a side sewer connection permit are required for all work outside the new building footprint.

46. Fees will include sewer capacity charges as well as permit fees.

47. The sewer lateral(s) shall be tested from the outer face of the building to the connection at the existing sewer main, in accordance with RVSD Ordinance 100 and Standards.

48. Include a sewer cleanout and backwater protection device within 2-feet of the building foundation, the Ross Valley Sanitary Standard Notes shall be shown and are found in Subsection L of Section 3 of the Design and Construction Standards and demonstrate that all materials used in the construction of the sewer improvements are from the approved materials list.

49. A hold will be placed on the property when the building permit is issued and will not be released for occupancy until the district permit and sewer requirements have been fulfilled.

50. A Certificate of Compliance for the lateral must be obtained from the RVSD prior to the project final inspection by the Fairfax Building Department.

Fairfax Public Works Department

51. All large trucks with more than two axles accessing the site for construction will be limited daily to the hours between 9 AM to 3 PM.

52. Complete road closures will be limited to concrete pours and steel placement and will be coordinated with the Fairfax Police Department and Ross Valley Fire Department.

Miscellaneous

53. A drainage system maintenance agreement including a system location plan and required maintenance schedule shall be approved by the Town Engineer and then be recorded at the Marin County Recorder's Office setting forth the required maintenance schedule to ensure the drainage system continues to function as designed. A copy shall be provided to the Town prior to issuance of the building permit.

54. All the exterior lighting fixtures must be dark sky compliant (fully shielded and emit no light above the horizontal plane with no sag or drop lenses, side light panels or upplight panels) as well as compliance with color temperature to minimize blue rich lighting. The lighting plan shall be submitted with the building permit application and be approved by the Planning Department prior to issuance of the project building permit. The lighting shall not emit direct offsite illumination and shall be the minimum necessary for safety.

55. A driveway width variance shall be approved by the Fairfax Town Council prior to issuance of the building permit.

NOW, THEREFORE BE IT RESOLVED, the Planning Commission of the Town of Fairfax hereby finds and determines as follows:

The Hill Area Residential Development Permit, Design Review Permit, Excavation Permit, Encroachment Permit, Tree Removal Permit and Parking and Minimum and Combined Side-yard Setback Variances to allow construction of the proposed house and parking deck are approved and the findings have been made to grant the requested discretionary permits. Therefore, the project is in conformance with the 2010 – 2030 Fairfax General Plan, the Fairfax Town Code and the Fairfax Zoning Ordinance, Town Code Title 17; and

Construction of the project can occur without causing significant impacts on neighboring residences and the environment.

The foregoing resolution was adopted at a regular meeting of the Planning Commission held in said Town, on the 25th day of August 2022, by the following vote:

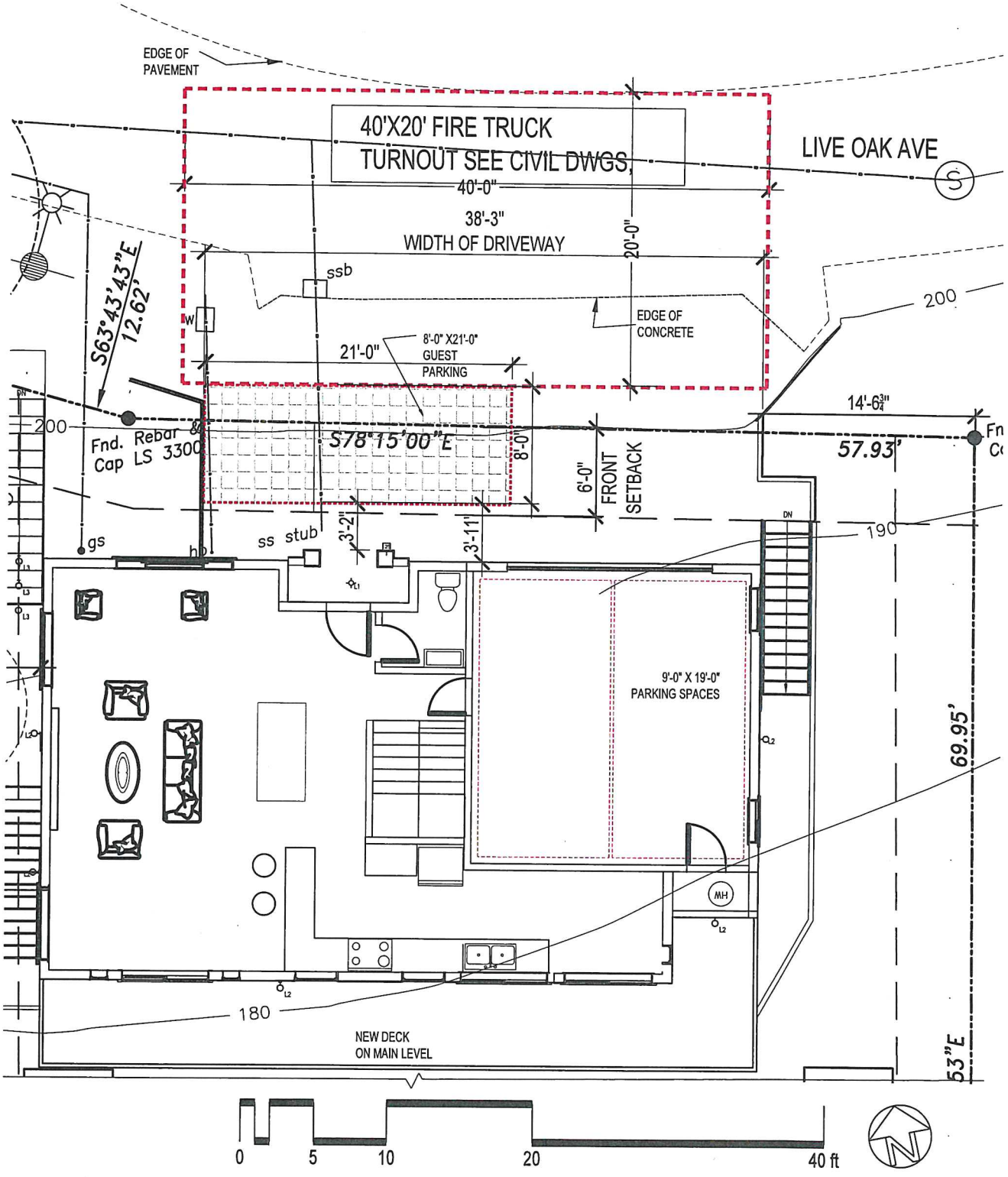
AYES:
NOES:
ABSENT:

_____
Chair Norma Fragoso

Attest:

_____
Linda Neal, Principal Planner

E3

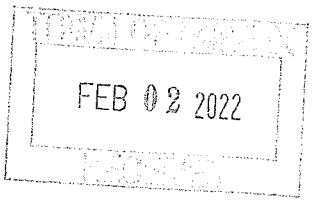


1 PARKING DIAGRAM

1/8"=1'-0"

125 LIVE OAK AVE

ATTACHMENT B



SALEM HOWES ASSOCIATES INC

GEOTECHNICAL CONSULTANTS

1202 Grant Avenue, Ste F
Novato, CA 94945
415/892-8528

REPORT
GEOTECHNICAL INVESTIGATION

CADIEUX RESIDENCE
125 LIVE OAK DRIVE
FAIRFAX, CA

28 JANUARY 2022

ATTACHMENT C

SALEMHOWESASSOCIATES INC.
GEOTECHNICAL ENGINEERS AND GEOLOGISTS

28 January 2022

Paul Cadieux
pmcf150@yahoo.com

Job :2111056

SUBJECT: Report
Geotechnical Investigation,
Paul Cadiuex
125 Live Oak Avenue, Fairfax

Contents

1202 GRANT AVENUE, SUITE F
NOVATO, CALIFORNIA 94945
(415) 892-8528
FAX 892-8568

Introduction

This report presents the results of our geotechnical investigation of the proposed residential building site located at the above address. It conforms to the requirements of section 1803 in the 2019 California Building Code (CBC). The purpose of our investigation was to evaluate the geotechnical feasibility of the proposed development, assess the suitability of the building site, and provide detailed recommendations and conclusions as they relate to our specialty field of practice, geotechnical engineering and engineering geology. The scope of services specifically excluded any investigation needed to determine the presence or absence of issues of economic concern on the site, or of hazardous or toxic materials at the site in the soil, surface water, ground water, or air.

If this report is passed onto another engineer for review it must be accompanied by the approved architectural and structural drawings so that the reviewer can evaluate the exploration and data in the context of the complete project. Ground conditions and standards of practice change; therefore, we should be contacted to update this report if construction has not been started before the next winter or one-year from the report date.

For us to review the drawings for compliance with our recommendations the four following notes must be on the structural drawings:

- The geotechnical engineer shall accept the pier holes prior to placing any reinforcing steel in accordance with the CRC requirements. Notify geotechnical engineer before the start of drilling. (If that isn't stated they may require inspections in accordance with CBC Chapter 2-Definitions, "Special Inspections, Continuous". This would require a full time inspector during drilling.)
- Drainage details may be schematic, refer to the text and drawings in the geotechnical report for actual materials and installation.
- Refer to Geotechnical Report for geotechnical observation and acceptance requirements.

Along with the structural drawings, to complete the review, we need the pertinent calculations from the structural engineer or the geotechnical design assumptions should be included on the drawings notes per requirements of the 2019 CBC.

- ***It is the owner's responsibility*** that the contractor knows of and complies with the BMP's (Best Management Practices) of the Regional Water Quality Control Board, available at www.swrcb.ca.gov, ↵ water quality ↵ stormwater ↵ construction

The fieldwork consisted of reconnaissance mapping of exposed geologic features on the site and in the immediate surrounding area and the drilling of four borings around site of the proposed new residence. The borings were advanced using a portable hydraulic drill rig with 3-inch flight augers and sampled by Standard Penetration Tests* (see "notes to borings logs"). Fieldwork was conducted in December of 2021. During this period we reviewed select geotechnical references pertinent to the area and examined stereo-paired aerial photographs of the site, which were available from Pacific Aerial Surveys in Oakland.

We have not seen the proposed architectural drawings, when they are availed we may

Discussion and Summary

Bedrock was found at an average depth of six feet below the surface, under soft fill and residual soil. The sandstone/shale bedrock will provide substantial bearing for a drilled pier type foundation with moment embedment in the bedrock Due to the sloping ground and the depth to bedrock drilled piers

are the only indicated foundation design. The depth to the top of rock at the location of the test borings is shown on Drawing A. Ground water was not encountered in the test borings.
During our investigation we did not observe any local geologic hazards that would adversely affect the site. We judge that following the recommendations in this report and standard Marin County hillside construction practices a structure can be safely constructed on this site without adversely impacting the slope stability or changing the drainage in any measurable manner. Detailed discussions and recommendations are covered in the following sections of this report.

Geology and Slope Stability

The site has been mapped by Rice and others [1] as the Cretaceous Sandstone [Ks] member of the Franciscan Geologic Assemblage. The sandstone is described in the literature as bedded, thin to massive sandstone and associated shale if present. The sandstone is often inclined, fractured and can be interbedded with shale and can have varying textures over short distances. Bedrock of shale and sandstone was encountered within all of the borings to depths of six feet except for boring "B" that encountered sandstone and shale at four and one half feet. The site varies with sandstone and shale across the site and along the road cut for Live Oak Ave. The bedrock is inclined steeply and varies in dip and strike throughout the site and is not traceable within the borings. The property is founded at the top of the lot by the street and a driveway apron that is retained supporting the roadway and some fill for the street. The site also contains an existing foundation for a residence that has been removed some time ago and features older foundation features that has been retrofitted in the past as the site likely experienced some settlement and needed to be reinforced. There are also seven to nine isolated deck piers or piers that have been sonotubed at the surface and are adjacent to random spoils piles visible on the surface with a few being retained lightly by batter board walls. The topsoil is wet from recent rains, silty clayey and soft. Boring "D" encountered soft soils to depths of three feet before encountering residual soils common to the site. The residual soil encountered is orangish gray, clayey [CL] and contains weathered, angular sandstone and shale clasts that appear to be clastized bedrock with soil matrix. Roots were not encountered within any of the borings. A narrow swale is adjacent to the property to the east and contains a elongated swale feature that also supports a drainage pipe features and the exit for half of the "V" ditch that drains the site with the other halve of the "V" ditch exiting somewhere to the west. The downslope property is an apartment structure and is likely within a slope cut.

Rock of this formation has been classified [1] as highly stable on natural slopes and fresh sandstone and shale will stand in vertical cuts except where blocks slip along outward dipping joints or bedding planes. The sandstone encountered within the borings will stand up in vertical cuts for long periods of time as the rock is weak and often highly weathered. The sandstone bedrock weathers readily to a silty, non-swelling, easily erodible soil. Rock surfaces of low relief are covered with a thick layer of deeply weathered soil; however steep slopes are stripped essentially bare of soil cover. Landslides and debris flows in this formation are confined to well-developed swales and drainages where deep soil deposits have accumulated. The topographic position of this property within the flanks of the slope may expose it to these types of natural hazards if certain conditions are exacerbated due to over steepening of cuts, undercutting soil embankments, overloading upslope soils and excessive water infiltration during excavations. During our investigation we did not identify any geomorphic features that would indicate that any unusual geologic hazards would affect this site.

Ground Water

Ground water was not observed in any of the borings during our investigation. There are no surface seeps or any clusters of Pampas Grass (Cortderia Jubata) or Sedge (Cortaderia Selloana and Carex) which are indicators of high ground water. However, ground water conditions vary with the seasons and annual fluctuations in weather. A general rise in ground water can be expected after one or more seasons of above average rainfall. Based on the limited time we have been able to collect ground water data on this site, it is not possible to accurately predict the range of ground water fluctuations in the future. Therefore, ground water sensitive structures such as retaining walls, basements and wine cellars should be designed to anticipate a rise in the water level that could potentially affect their function and stability. During construction it should be anticipated that ground water may be encountered at the rock/soil contact or at the soil/rock contact.

Earthquake Hazards and Seismic Design

This site is not subject to any unusual earthquake hazards, located near an active fault, within a current Alquist-Priolo Special Studies Zone or Seismic Hazards Zone as shown on the most recently published maps form the California Geologic Society. There were no geomorphic features observed in the field or on air photos, or geologic features in the literature that would suggest the presence of an active fault or splay fault traces. However, historically the entire San Francisco Bay Area has the potential for strong earthquake shaking from several fault systems, primarily the San Andreas Fault which lies approximately 10 miles to the southwest and the Hayward/Rodgers Creek Faults, 16 miles to the northeast. The U.S. Geologic Survey estimates [(2)] (we realize these percentage estimates have been up dated practically every year; however, the basic message is that we live in earthquake country and one should be prepared) there is up to 21 percent chance of a major quake (Magnitude 8) from 2000 to 2030 on the San Francisco Bay region segment of the San Andreas Fault. The probability is lower north of San Francisco and increases to the south. However, in the same period, there is a 32 percent chance of a major event (Magnitude 7) on the Hayward fault and Rodgers Creek Faults. The total 30-year probability of one or more large earthquakes occurring in the entire San Francisco region is 70 percent (see Plate 1). Based on the bedrock and soils observed at the site, we do not anticipate those seismically induced hazards, specifically: liquefaction, settlement and differential compaction, landsliding, and flooding are present. Generally speaking structures founded on bedrock fare far better during an earthquake than structures on soil, fill or bay mud.

For California Building Code design purposes on this site the top 100 feet of the ground has an average Soil Profile Site of Class B per Table 20.3-1 ASCE-7. Seismic design criteria in conformance with the latest edition of the CBC and ASCE-7 should be obtained from the USGS web site. In California, the standard of practice requires the use of a seismic coefficient of 0.15, and minimum computed Factor of Safety of 1.5 for static and 1.1 to 1.2 for pseudo-static analysis of natural, cut and fill slopes.

As a homeowner there are a number of measures one can take to limit structural damage, protect lives and valuable objects in the event of a major earthquake. To be prepared and understand the mechanics of earthquakes we strongly recommend that you purchase a very practical book entitled "Peace of Mind in Earthquake Country" by Peter Yanev. This book is written for the homeowner and, while currently out of print, used copies are available in paperback (Chronicle Books/S.F.) from Amazon.com and other locations.

Foundation Conditions

Sandstone bedrock lies at an average of six feet below the surface In the area of development. The depth to the top of bedrock at the location of the test borings is shown on Drawing A. The rock, albeit hard, is generally highly fractured and can normally be excavated by common means; however, hard massive areas may be encountered that could require the use of an excavator mounted "hoe ram" or core barrel. The soil above the bedrock is soft and not suitable for foundation bearing, the top four feet is very soft.

CalOSHA regulations require shoring on cuts over five feet. Temporary slopes and shoring design are the responsibility of the contractor.

No laboratory testing was performed; since all foundations will be in rock, soil properties, such as moisture and density, do not provide any relevant engineering data for foundation design. In view of the fact that bedrock features in the Franciscan Formation can rarely be correlated over short distances, testing of small rock pieces provides no viable data for use in design. We based our recommendations on assessment of rock mass properties. During exploration in situ testing and sampling of the soil was performed by Standard Penetration Tests (ASTM D-1586)*. We will continue to evaluate the ground conditions during excavation and modify our recommendation if warranted.

Design Recommendations

All foundations must bear on the unweathered sandstone bedrock by drilled pier/piles or footings. Structures with footings in the soil section above the bedrock are not recommended. The depth to rock can be interpolated from the data on Drawings A.

Structures with foundations on rock will not experience any measurable settlement and there are no conditions that require provisions to mitigate the effects of expansive soils, liquefaction, soil strength or adjacent loads. The slope setback provisions in §1808.7 of the CBC do not apply to foundations on slopes that are bottomed in bedrock. Except for seismic none of the requirements in CBC § 1803.5.11 and .12 apply.

We have not seen the proposed architectural plans. When they are available we may fine tune our recommendations or add to them if warranted.

Summary of Design Parameters

The design engineer should compare the topography, building elevations and geotechnical report to determine the appropriate active earth pressures and type of foundation to be used. The actual type of foundation should be determined by the architect and design engineer based on construction and economic considerations. The use of a mixed foundation design is usually a practical solution. Design parameters in this report were determined by field observations and testing and per section 1806.2 of the CBC supersede the presumptive values in the CBC table 1806.2.

Foundations in the soil layer must resist creep by anchors into bedrock.

- Seismic Design (See Earthquake Hazards Section) Soil Profile Site Class Type B, Ground motion parameters from USGS web site with site coordinates.

- Active earth pressure: (see lateral loading formula in Eq. and Seismic Design Section)
  In a Soil Section = 35 for level and 45 lbs/ft^3 equivalent fluid pressure for sloping backslope
  In a Rock Section = 35 lbs/ft^2 (pounds per square foot)
- Allowable Bearing Capacity (P_{allow}) On Bedrock[1]
  $P_{allow.}$ = 0.33 * 10.0 * (footing width in feet) = (kips/ft^2) (Not to exceed 10.0)
  A 20-percent increase is allowed for each additional foot, beyond one-foot, of depth that the footing is excavated into the bedrock subgrade.
- Lateral Bearing In Bedrock
  Passive equivalent fluid pressure of 750 lbs/ft^3 and a friction factor of 0.45 to resist sliding. They may be combined and a one third increase is allowed for transitory loading.
- Pier Design (Per 2019 CBC section 1807)
  Rock passive pressure: 800 lbs/ft^2/ft to calculate S_1 or S_3 (1.5-ft below the top of rock on slopes)
  Adhesion: (skin friction) 900 lbs/ft^2 (In the rock)
- Foundation Drainage
  Include items in "Drainage Check List"

Details on the application of these design values are included in the following sections of this report.

Drilled Piers (CIDH)

Drilled, cast-in place, reinforced concrete piers should be a minimum of 18 inches in diameter and should extend at least six feet into competent bearing stratum as determined by the Engineer in the field. The structural engineer may impose additional depths. The piers shall extend into the bearing stratum six feet below a 30° line projected up from the bottom of the nearest cut slope or bank. Piers should be designed to resist forces from the gravitational creep of the soil layer. The height of the piers subject to the creep forces is equal to the depth to the top of rock. For design purposes this may be, interpolated from the data on Drawing A. Creep forces should be calculated using an equivalent fluid pressure[3] of 45 lbs/ft^3 acting on two pier diameters. Because the rock and soil are discontinuous media, for geotechnical considerations, the piers should have a nominal spacing of eight feet or less on center and connected by tie and grade beams in a grid like configuration. The piers should be no closer than two-diameters, center to center. In general, isolated interior and deck piers should be avoided. Normally end bearing should be neglected (see conditions below).

Piers should be designed by the formula in section 1807 of the 2019 CBC, with 'P' equal to the soil creep forces between the surface and top of rock (plus any lateral loads from the structure) and 800 lbs/ft^2/ft used to calculate 'S_1' or 'S_3'. ***Note*** that in this formula 'b' is the actual diameter of the pier not a multiple and 'h' is measured from the point of fixity. These values are not appropriate for other methods of design. The structural engineer should contact us for the applicable values if another method of pier design is to be used.

Note: (The value used to calculate "s" for the fractured bedrock was selected by rock mass classification and conservatively assuming the bedrock to be a dense gravel with a Ø = 50° [4] then equating the results of Bowles[3] design for cantilevered sheet piles in a granular soil to the CBC formula. Since bed rock features in the Franciscan Formation can rarely be correlated over short distances, testing of small rock pieces provides no viable data for design. Using these values to calculate "s" in the CBC formula results in a conservative pier depth calculation. The "s" values are not passive pressure in the technical soil mechanics sense; they are only related to the CBC formula)

We judge that when piers are in a full rock cut or the tops are connected by rigid moment connections, in the upslope-downslope direction, fixity occurs at the rock surface and the conditions

result in a constrained top of the pier. For this case the depth may be calculated by using the CBC formula in section **1807.3.2.2 Constrained.**

Design Parameters

Depth of fixity below top of bedrock surface for a sloping area:	1.5 feet
Soil active pressure on pier	45 lbs/ft^3 on 2 Ø
Rock active pressure:	$K_a = 0.0$
Rock passive pressure:	800 lbs/ft^2/ft to calculate S_1 or S_3
Adhesion: (skin friction)	900 lbs/ft^2

Neglect adhesion in the soil section

The values recommended for the calculation of "S" incorporate a factor of safety. There is no requirement for the retaining wall designer to add an additional factor of safety for overturning.

Piers drilled into bedrock are completely confined and should not be designed as columns; there is no shear in the pier below the rock surface.

In order for these strength values to be realized, the sides of the pier holes must be scaled of any mudcake.

End bearing may be used if the bottoms of the holes are thoroughly cleaned out with a "PG&E" spoon or other means. Drilled piers may be any convenient diameter that allows for readily cleaning the bottom of the holes. The end allowable bearing capacity may be determined as follows:(1)

$$P_{allow.} = 0.33 * 10.0 * (\text{pier width in feet}) = (\text{kips/ft}^2) \quad \text{(Not to exceed 10.0)}$$

Bearing may be increased 10 percent of the allowable value for each foot of depth extending below one foot of the rock surface.

Notice: We will not accept the foundation for concrete placement if the pier holes are over 48 hours old and will require that they be redrilled. One should plan ahead and have the pier cages assembled prior to drilling the holes so that there is no delay in placing the concrete. The contractor may submit plans for remedial measures, such as spraying or covering the excavation, to extend this time period. However, acceptance is always subject to the condition of the foundation grade immediately prior to the pour.

Ground water may be encountered in the drilled pier holes and it may be necessary to dewater, case the holes and/or place the concrete by tremie methods. All construction water displaced from the pier holes must be contained on site and filtered before discharging into the storm water system or natural drainages. Hard drilling will be necessary to reach the required depths. The contractor should be familiar with the local conditions in order to have the appropriate equipment on hand. The rock to be encountered in the drilling can be observed in outcrops in the area.

Footings

Not recommended for this site unless footings are excavated into rock.

Footing foundations may only be used where the entire footing is excavated into unweathered rock.

For retaining wall footings the toe of the footing must be excavated into rock, if a keyway is not used the top of the toe must have three feet of horizontal confinement in the unweathered rock.

As a minimum, spread footings should conform to the requirements of Section 1809 of the CBC except that for foundations bottomed on rock the "Depth below Undisturbed Ground Surface" in the Table shall be interpreted as to mean "The Depth below the Top of Weathered Rock". The footings should be stepped as necessary to produce level bottoms and should be deepened as required to provide at least 10 feet of horizontal confinement between the footing base and the edge of the closest slope face. Stepped footing configuration per 1809.3 shall be accepted by the soil engineer. In addition, the base of the footing should be below a 30 degree line projected upward from the toe of the closest cut slope or excavation. For geotechnical considerations, since rock and soil are discontinuous media, footings should be connected up and downslope in a grid like fashion by tie beams. Isolated interior and deck footings should be avoided.

The maximum allowable bearing pressure for dead loads plus Code live loads for footing type foundations bottomed in rock can be determined by the following formula[1] :

$$P_{allow.} = 0.33 * 10.0 * (\text{footing width in feet}) = (\text{kips/ft}^2) \text{ (Not to exceed 10.0)}$$

A 20-percent increase is allowed for each additional foot, beyond one-foot, of depth that the footing is excavated into the subgrade. The portion of the footing extending into the undisturbed subgrade may be designed with a coefficient of passive earth pressure (K_p) equal to 6.0 with rock unit weight of 130 lbs/ft^3 or a passive equivalent fluid pressure of 750 lbs/ft^3 and a friction factor of 0.45 to resist sliding. Lateral bearing and lateral sliding may be combined and a one third increase is allowed for transitory loading.

Note: (The allowable bearing pressure was based on visual rock mass classification and one-half the presumptive value in NAVFAC DM-7.2 Table 1[1] for this rock type; lateral bearing was calculated assuming $\emptyset = 45°$ and $\gamma = 130$ lbs/ft^3)

Retaining Walls

All retaining walls should be supported on rock by piers or on rock by footing type foundations. Design parameters for retaining wall foundations are covered under the appropriate section for footings or drilled piers. The toe of footing type retaining walls should be excavated below grade and the concrete poured against natural ground, the toe should not be formed.

Retaining walls supporting *sloping soil slopes* or the soil portion of the cut above the rock contact should be designed for a coefficient of active *soil* pressure (K_a) equal to 0.41, or an equivalent fluid pressure of 45 lbs/ft^3[3(4)]. Level backslope may use 35 lbs/ft^3 for active pressure. For seismic loading from the soil portion of the cut, refer to the previous section on Seismic Design. Since the backfill never truly provides rigid support that prevents mobilization of the active pressure, this value is appropriate for normal or restrained walls.. Based on the principles of Rock Mechanics, when protected from erosion intact bedrock does not produce an active fluid pressure with a triangular distribution; therefore, the portion of any wall *supporting a rock backslope may be designed for a nominal pressure of 35 lbs/ft^2* (yes, that is square feet). See Drawing A for the depth of the soil layer. Any wall where the backfill is subject to vehicular loads within an area defined by a 30-degree (from vertical) plane projected up from the base of the wall or *top of bedrock*, should have the design pressure increased equivalent to a 200-lbs/ft^2 (q') surcharge. In this case if a uniform surcharge load q' acts on the soil behind the wall it results in a pressure P_s in lbs/ft. of wall equal to:

P_s = q' * (height of wall) * K_a (where K_a is taken as 0.41)
It acts midway between the top and bottom of the wall. Or the design height of wall may be increased two feet to account for the surcharge.

When determining wall loads the civil structural engineer should consult with us if using a proprietary design program to be sure the soil loads are appropriately applied.

Allowable foundation bearing and lateral resistance to sliding should be obtained from the formulae in the respective sections on pier or footing foundations. The factor of safety may be reduced to 1.1 for combined static and dynamic loading.

If the shoring is constructed with rock bolts (see following sections), reinforced shotcrete may be used in lieu of structural concrete walls. Conventional concrete structural retaining walls may be constructed without forming by using shotcrete and chimney drains. However, complete waterproofing with this system is very difficult and one should consult a waterproofing specialist.

Piers for 'garden' type walls (supporting only landscaping) founded in the stiff soil may be designed using the criteria in section 1807.3.2.1 (Equation 18-1) of the CBC, with an allowable lateral bearing pressure of 200 lbs/ft^2/ft of depth to calculate S_1. Also Marin County Standard Type A, B or C may be used [3].

All retaining walls should have a backdrainage system consisting of, as a minimum, drainage rock in a filter fabric (e.g. Mirafi™ 140N) with at least three inch diameter perforated pipe laid to drain by gravity. If Caltrans specification Class 2 Permeable is used the filter fabric envelope may be omitted. The pipe should rest on the ground or footing with no gravel underneath. **The pipe should be rigid drainpipe, 3000 triple wall HDPE, 3 or 4 inch ID, ASTM F810 or Schedule 40**. Pipes with perforations greater than 1/16 inch in diameter shall be wrapped in filter fabric. A bentonite seal should be placed at the connection of all solid and perforated pipes. All backdrainage shall be maintained in a separate system from roof and other surface drainage. The two systems may be joined two-feet in elevation below the lowest backdrain at a bubbler to prevent surface water from backing up and into the backdrainage system. Cleanouts should be provided at convenient locations, per §1101.12 of the CPC; however, that is a plumbing and maintenance consideration and not a geotechnical concern.

Retaining walls which are adjacent to living areas should have additional water proofing such as three dimensional drainage panels and moisture barriers (e.g. "Miradrain™ 6000" panels and "Paraseal™") and the invert of the drainage pipe should be a minimum of four inches below the adjacent interior finished floor or crawl space elevation. Drainage panels should extend to 12 inches below the surface and be flashed to prevent the entry of soil material. The heel of the retaining wall footing should be sloped towards the hill to prevent ponding of water at the cold joint; the drainage pipe should be placed on the lowest point on the footing. The backslope of the retaining walls should be ditched to drain to avoid infiltration of surface run-off into the backdrainage system. All waterproofing materials must be installed in strict compliance with the manufacturer's specifications. A specialist in waterproofing should be consulted for the appropriate products, we are not waterproofing experts and do not design waterproofing, we only offer general guidelines that cover

the geotechnical aspect of drainage. We have worked with Division 7 in Novato for waterproofing design services.

Tiebacks

The anchor section of the tieback must be in unweathered bedrock. The capacity of tiebacks should be determined by the methods in Table 1, Capacity of Anchor Rods in Fractured Rock[1], which does not use an unbonded length. While a ten-foot long unbonded length is preferred it is not necessary to develop the low capacity tieback normally required for retaining wall stability. One should observe the property lines and not show the tiebacks extending into the adjacent property.

Regardless of the type of anchor used (e.g. mechanical, grouted or helical) tiebacks must meet the following two criteria:

- Proof testing to 1.25 times the design capacity
- Depth of anchor must equal or exceed that determined by Table 1

The method of construction for a tiedback wall is to build the wall, backfill for drainage, install the tiebacks and then tension. This method allows the wall to be unrestrained for a period of time which lets the soil mass move enough to mobilize its shear strength and become an 'unrestrained' wall.

The structural engineer should prepare detailed shop drawings, for approval, of the specific materials and connection methods to be used at the bulkhead. Installation should follow manufacturer's specifications. The anchor rods should be high strength threaded rods specifically manufactured for this application, such as "Williams" or "Dywidag" threadbars. For corrosion protection contact the manufacturer.

Grout should be tremmied to the bottom of each hole so that when the bar is inserted the grout will be displaced to the surface. The bar should be provided with centering guides, and when placed in the hole rotated and vibrated several times to assure thorough contact between the bar and grout.

Anchors should be one-inch threaded bars intended to for rock bolting, such as Williams Form Engineering Corp. R1H Hollow-core "spin Lock" mechanical rock bolts. The actual design and specification is highly site and application specific and should be designed in conjunction with your structural engineer. Frequently they are placed in a two-inch diameter hole drilled slightly downward (typically 15° from the horizontal), normally six–feet deep (the specific depth will be determined by our geologist when the excavation is exposed) that is backfilled with a 5000 psi sand-cement grout with expansive additives. The

When the grout has obtained the desired strength the anchor bars should be tested to 125 percent of the design load and tied off at a designated post tensioning load, normally about 33 percent of the design load. The lift-off readings should be taken after the nut has been set to confirm the post tensioning. Typical tieback configuration is attached.

Geotechnical Considerations for Slab on Grade Construction

Slab on grade construction which spans cut and fill or rock and soil sections will settle differentially and crack. Therefore this type of construction is not recommended for living areas or garages unless the areas are completely excavated into rock or underlain by compacted fill or the slab is designed as a structural slab. If the slab is underlain by a wedge of fill or natural soil over rock a floating slab will still settle differentially, sloping towards the thickest section of fill. Because the loads on a floating slab are usually small the settlement may be negligible.

At the slab-on-grade location remove loose deleterious substances such as expansive clay, rubbish, and organic, perishable or uncompactable material. Compact the footing bottom with a "jumping jack" hand compactor. This applies to larger areas such as the sub-base for slabs-on- grade. If soft areas of soil are encountered at foundation grade they should be overexcavated to firm material as directed by the engineer and backfilled to grade with Caltrans Specification Class 2 Material. All fill densities should be verified by testing procedures ASTM D-1556 and D-1557, or ASTM D-2292 and D-3017 (Nuclear Method).

The base for slabs on grade should consist of a 4-inch capillary moisture break of clean free draining crushed rock or gravel with a gradation between 1/4 and 3/4 inch in size. The base should be compacted by a vibratory plate compactor to 90 percent maximum dry density as determined by ASTM D-1557. A 10-mil impermeable membrane moisture vapor retarder should be placed on top of the gravel. An under-slab drain system, as shown on the attached drawing, should be installed in/under the drainrock. The gravel should be "turned down" by a vibratory roller or plate to provide a smooth surface for the membrane. Recycled material is never acceptable.

Where migration of moisture vapor would be undesirable (e.g. under living spaces and areas covered by flooring) a "true" under-slab vapor barrier, such as "Stego® Wrap", should be installed. In this case one should consult an expert in waterproofing, our recommendations only apply to the geotechnical aspect of drainage and do not address the prevention of mold or flooring failures.

The top of the membrane should be protected during construction from puncture. .Any punctures in the membrane will defeat its purpose. The contractor is responsible for the method of protecting the membrane and concrete placement. *Drains and outlets should be provided from the slab drain rock.* (See attached Drawing for Typical Under-slab Drains)

Cuts and Fills

Unsupported cuts and fills are generally not recommended for this site. Fills behind retaining walls should be of material approved by the geotechnical engineer and compacted to a maximum dry density [MDD] of 90 percent as determined by ASTM D-1157. Fills underlying pavements shall have the top 12 inches compacted to 95 percent MDD. Unclassified landscape fills need only be compacted to 80-percent MDD. After clearing and grubbing native soil (if accepted by the engineer) underlying pavements and hardscape shall be scarified to a depth of 12-inches and compacted to 90-pecent MDD. Structural fills shall be compacted to 90-percent MDD and placed under the direction of the geotechnical engineer.

For fill specifications in utility trenches refer to the project civil drawings. Do not used standard PG&E trench specifications, as the trench will act as a drain and has caused landslides.

Geotechnical Drainage Considerations

These recommendations apply to the geotechnical aspect of the drainage as they affect the stability of the construction and land. They do not include site grading and area drainage, which is within the design responsibility of civil engineers and landscape professionals. The civil and landscape professionals should make every effort to comply with the Marin County "Stormwater Quality Manual for Development Projects In Marin County" by the Marin County Stormwater Pollution Prevention Program (MCSTOPPP www.mcstoppp.org) and Bay area Stormwater Management Agencies Association (BASMAA www.basmaa.org) when possible.

The site should be graded to provide positive drainage away from the foundations at a rate of 5 percent within the first ten feet (per requirements of the CBC section1804.3). All roofs should be equipped with gutters and downspouts that discharge into a solid drainage line. Gutters may be eliminated if roof runoff is collected by shallow surface ditches or other acceptable landscape grading. All driveways and flat areas should drain into controlled collection points and all foundation and retaining walls constructed with backdrainage systems. Surface drainage systems, e.g. roofs, ditches and drop inlets *must be maintained separately* from foundation and backdrainage systems. The two systems may be joined into one pipe at a drop-inlet that is a minimum of two feet in elevation below the invert of the lowest back or slab drainage system. A bentonite seal should be placed at the transition point between drainpipes and solid pipes.

One should observe the ponding of water during winter and consult with you landscape professional for the location of surface drains and with us if subdrains are required.

All drop inlets that collect water contaminated with hydrocarbons (e.g. driveways) should be filtered before discharged in to a natural drainage.

All cross slope foundations should have backdrainage. In compliance with section 1805.4.2 of the CBC foundation drains should be installed around the perimeter of the foundation. On sloping lots only the upslope foundation line requires a perimeter drain. Interior and downslope grade beams and foundation lines should be provided with weep holes to allow any accumulated water to pass through the foundation. The top of the drainage pipe should be a minimum of four inches below the adjacent interior grade and constructed in accordance with the attached Typical Drainage Details. All drainpipes should rest on the bottom of the trench or footing with no gravel underneath. Drain pipes with holes greater than ⅛-inch should be wrapped with filter fabric, if Class 2 Permeable is used, to prevent piping of the fines into the pipe. If drain rock, other than Class 2 Permeable, is used the entire trench should be wrapped with filter fabric to prevent the large pore spaces in the drain rock from silting up. On hillside lots it may not be possible to eliminate all moisture from the substructure area and some moisture is acceptable in a well-ventilated area. Site conditions change due to natural (e.g. rodent activity) and man related actions and during years of below average rainfall, future ground water problems may not be evident. One should expect to see changes in ground water conditions in the future that will require corrective actions.

All surface and ground water collected by drains or ditches should be dispersed across the property below the structure. Since a legally recognized storm drainage system is not present downslope, we recommend that your attorney be consulted to determine the legal manner of discharging drainage from the roof and surface area drains. It should be noted that improperly discharged concentrated drainage might be a source of liability and litigation between adjacent property owners. The upslope property owner is always responsible to the adjacent lower property owner for water, collected or natural, which may have a physical effect on their property.

One suggestion is that water from drains or ditches should be naturally dissipated across the surface of the slope along a length equal to that of the collected area. Some engineers believe that a buried dispersal system might increase the risk of slope instability and surficial soil sliding. There are numerous civil engineering and landscape solutions to the dispersal of surface water; some are more ascetically pleasing than others, for instance the dispersion pipe can be located behind garden walls or in shrubbery. We should discuss possible solutions with your landscape professional at an appropriate time. Suggested dispersion field details are attached. When it is not possible to locate outfalls in an established drainage, there is a risk that sloughing may occur. The owner should be diligent in maintaining the energy dissipating riprap and correcting minor slumps as they occur. The upslope property owner is always responsible to the adjacent lower property owner for water, collected or natural, which may have a physical effect on their property.

All laterals carrying water to a discharge point should be SDR 35, Schedule 40 or 3000 triple wall HDPE pipe, depending on the application and should be buried. 'Flex pipe' is never acceptable. Cleanouts for stormwater drains should be installed in accordance with §1101.12 of the CPC, without pressure testing. However, this is not a geotechnical consideration and is the responsibility of the drainage contractor.

Retaining walls should be graded to prevent water from running down the face of the slope. Diverted water should be collected in a lined "V" ditch or drop inlet leading to a solid pipe.

If the crawl space area is excavated below the outside site grade for joist clearance, the crawl space will act as a sump and collect water. If such construction is planned, the building design must provide for *gravity or pumped drainage from the crawl space.* If it is a concern that moisture vapor from the crawl space will affect flooring, a specialist in vapor barriers should be consulted, we only design drainage for geotechnical considerations.

The owner is responsible for periodic maintenance to prevent and eliminate standing water that may lead to such problems as dry rot and mold.

Construction grading will expose weak soil and rock that will be susceptible to erosion. Erosion protection measures must be implemented during and after construction. These would include jute netting, hydromulch, silt barriers and stabilized entrances established during construction. Typically fiber rolls are installed along the contour below the work area. Refer to the current ABAG[9] manual for detailed specifications and applications. Erosion control products are available from Water Components in San Rafael. The ground should not be disturbed outside the immediate construction area. Prevention of erosion is emphasized over containment of silt. Post construction erosion control is the responsibility of your landscape professional. ***It is the owner's responsibility*** that the

contractor knows of and complies with the BMP's (Best Management Practices) of the Regional Water Quality Control Board, available at www.swrcb.ca.gov, ↵ water quality ↵ stormwater ↵ construction. In addition, summer construction may create considerable dust that should be controlled by the judicial application of water spray. After construction, erosion resistant vegetation must be established on all slopes to reduce sloughing and erosion this is the responsibility of a landscape professional. Periodic land maintenance should be performed to clean and maintain all drains and repair any sloughing or erosion before it becomes a major problem.

Drainage Checklist

Before submitting the project drawings to us for review the architect and structural engineer should be sure the following applicable drainage items are shown on the drawings:

- Under-slab drains and outlets
- Crawl space drainage
- Cross-slope footing and grade beam weep holes
- Retaining wall backdrainage pipes with no gravel under the pipes
- Top of retaining wall heel sloped towards rear at ⅛ - inch per foot
- Drain pipe located at lowest part of footing
- Invert of foundation drains located 4-inches below interior grade
- No gravel under any drainpipe
- Upslope exterior foundation drains
- Drains installed in accordance with §1101.12 of the CPC
- Bentonite seals at drainpipe transition to solid pipe
- Proper installation of the drainage panels
- Outfall details and location

In lieu of the above details actually being shown on the drawings there may be a:

- ***Note on the structural drawings***: "Drainage details may be schematic and incomplete, refer to the text and drawings in the geotechnical report for actual materials and installation"

Construction Observations

In order to assure that the construction work is performed in accordance with the recommendations in this report, SalemHowes Associates Inc. must perform the following applicable inspections. We will provide a full time project engineer to supervise the foundation excavation, drainage, compaction and other geotechnical concerns during construction and accept the footing grade / pier holes prior to placing any reinforcing steel in accordance with the CRC or CBC Section 1702-Definitions and Table 1704.9 continuous inspections for drilled piers and earthwork, if required. Otherwise, if directed by the Owner, these inspections will be performed on an "periodic as requested basis" by the Owner or Owner's representative. We will not be responsible for construction we were not called to inspect. In this case it is the responsibility of the Owner to assure that we are notified in a timely manner to observe and accept each individual phase of the project.

Key Observation Points

- Map excavations in progress to identify and record rock/soil conditions.
- Observe and accept pier drilling and final depth and conditions of all pier holes. *We must be on site at the start of drilling the first hole.* We will perform special inspections in

accordance with the CRC or, unless otherwise required by the building official, CBC Chapter 2-Definitions, "Special Inspections, Continuous".
- Accept final footing grade prior to placement of reinforcing steel.
- Accept subdrainage prior to backfilling with drainage rock.
- Accept drainage discharge location.
- Observe tieback placement and proof testing

Additional Engineering Services

We should work closely with your project engineer and architect to interactively review the site grading plan and foundation design for conformance with the intent of these recommendations. We should provide periodic engineering inspections and testing, as outlined in this report, during the construction and upon completion to assure contractor compliance and provide a final report summarizing the work and design changes, if any.

Any engineering or inspection work beyond the scope of this report would be performed at your request and at our standard fee schedule.

Limitations on the Use of This Report

This report is prepared for the exclusive use of Paul Cadieux and his design professionals for construction of the design and construction of the proposed new residence. This is a copyrighted document and the unauthorized copying and distribution is expressively prohibited. Our services consist of professional opinions, conclusions and recommendations developed by a Geotechnical Engineer and Engineering Geologist in accordance with generally accepted principles and practices established in this area at this time. This warranty is in lieu of all other warranties, either expressed or implied.

All conclusions and recommendations in this report are contingent upon SalemHowes Associates being retained to review the geotechnical portion of the final grading and foundation plans prior to construction. The analysis and recommendations contained in this report are preliminary and based on the data obtained from the referenced subsurface explorations. The borings and exposures indicate subsurface conditions only at the specific locations and times, and only to the depths penetrated. They do not necessarily reflect strata variations that may exist between such locations. The validity of the recommendations is based on part on assumptions about the stratigraphy made by the geotechnical engineer or geologist. Such assumptions may be confirmed only during earth work and foundation construction for deep foundations. If subsurface conditions are different from those described in this report are noted during construction, recommendations in this report must be re-evaluated. It is advised that SalemHowes Associates Inc. be retained to observe and accept earthwork construction in order to help confirm that our assumptions and preliminary recommendations are valid or to modify them accordingly. SalemHowes Associates Inc. cannot

assume responsibility or liability for the adequacy of recommendations if we do not observe construction.

In preparation of this report it is assumed that the client will utilize the services of other licensed design professionals such as surveyors, architects and civil engineers, and will hire licensed contractors with the appropriate experience and license for the site grading and construction.

We judge that construction in accordance with the recommendations in this report will be stable and that the risk of future instability is within the range generally accepted for construction on hillsides in the Marin County area. However, one must realize there is an inherent risk of instability associated with all hillside construction and, therefore, we are unable to guarantee the stability of any hillside construction. For houses constructed on hillsides we recommend that one investigates the economic issues of earthquake insurance.

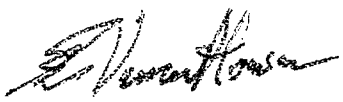
In the event that any changes in the nature, design, or location of the facilities are made, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by SalemHowes Associates Inc. We are not responsible for any claims, damages, or liability associated with interpretations of subsurface data or reuse of the subsurface data or engineering analysis without expressed written authorization of SalemHowes Associates Inc. Ground conditions and standards of practice change; therefore, we should be contacted to update this report if construction has not been started before the next winter.

We trust this provides you with the information required for your evaluation of geotechnical properties of this site. If you have any questions or wish to discuss this further please give us a call.

Prepared by:

SalemHowes Associates, Inc.
A California Corporation

Reviewed by:



E Vincent Howes
Geotechnical Engineer
GE #965 exp. 31 Mar 22

Attachments: Drawing A, Site Plan and Location of Test Borings
Table 1, Capacity of Anchor Rods in Fractured Rock
Typical Under-slab Drains
Typical Drain Detail
Typical Dispersion Field Details
Typical Retaining Wall Drainage
Logs of Test Borings

References: General: 2019 California Building Code and Residential Building Code

[1] Rice, Salem J; Smith, Theodore C and Strand, Rudolph G.; Geology for Planning Central and Southeastern Marin County, California, California Divisions of Mines and Geology, 1976 OFR 76-2 SF.

[2)] USDA, Soil Conservation Service, Soil Survey of Marin County California, March 1985

[2] U.S. Geological Survey, Probabilities of Large Earthquakes in the San Francisco Bay Region, 2000 to 2030, Open-File Report 99-517, 1999

[3] California Department of Conservation, Division of Mines and Geology, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, February 1988, International conference of Building Officials

[4] Department of the Navy, Naval Facilities Engineering Command, Soil Mechanics, Design Manual 7.1, 7.2, (NAVFAC DM-7) May 1982,

[5] Uniform Construction Standards, most recent edition, Marin County Building Department

[6] Leps, Thomas M.,Review of Shearing Strength of Rockfill, Journal of the Soil Mechanics and Foundation Division, Proc. ASCE, Vol.96 No.SM4. July 1970, pp1159

[7] Bowles, Joseph, E., Foundation Analysis and Design, fourth edition, McGraw-Hill, 1988 pg. 614

[6] Seed, H.B. and Whitman, R.V. (1970) Design of Earth Structures for Dynamic Loads. Lateral Stresses in the Ground and Design of Earth Retaining Structures, ASCE, Cornell University

[9] Association of Bay Area Governments (ABAG), Manual of Standards for Erosion & Sediment Control Measures. Most recent edition.
Storm Water Quality Task Force, California Storm Water Best Management Practice Handbooks, Construction Activity, March 1993.

[10] USGS web site at http://earthquake.usgs.gov/research/hazmaps/design

Terzaghi and Peck 1967 *Soil Mechanics in Engineeering Practice* 2nd ed, Wile and Sons, NY

Teng, W.C. 1962 *Foundation Design*, Prentice-Hall, Englewood Clifs, N.J.

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PROJECT: 125 Live Oak Ave	BORING: A
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 2111056	DATE: 15 December 2021

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1–3		FILL [Qaf] 0.0'-3.5' at edge of spoils pile, brown to reddish brown clast rich soil, moist from recent rains, no rooting.		
		SPT	8	4–5		RESIDUAL SOIL 3.5'-6.0' medium stiffness, reddish brown to orangish brown silty clayey to clayey [ML-CL] soil. sandstone and shale inclusions, somewhat clastized texture with depth. slightly moist and no rooting		
		SPT	35	6–7		SHALE [Ks] 6.0'-7.5' hard gray inclined and bedded shale, friable, somewhat sheared in texture.dry no rooting		Top of rock 6.0' SHALE [Ks]
				8–21		End of Log		Ground water was not Encountered in boring

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1

PROJECT: 125 Live Oak Ave	BORING: B
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 2111056	DATE: 15 December 2021

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1–21		FILL [Qaf] 0.0'-3.5' below bulkhead wall at driveway skirt, brown to reddish brown clast rich soil, moist from recent rains, no rooting.		
						RESIDUAL SOIL 3.5'-4.5' reddish to orangish brown silty clayey to clayey [ML-CL] soil, clast rich, moist. toughens at 4.0'		Top of rock 4.50' SANDSTONE/SHALE [Ks]
		SPT	28			SANDSTONE/SHALE [Ks] 4.5'-6.0' hard gray and brown bedded sandstone and shale, friable, fractured. inclined, dry no rooting		
						End of Log		Ground water was not Encountered in boring

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1

PROJECT: 125 Live Oak Ave	BORING: C
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 2111056	DATE: 15 December 2021

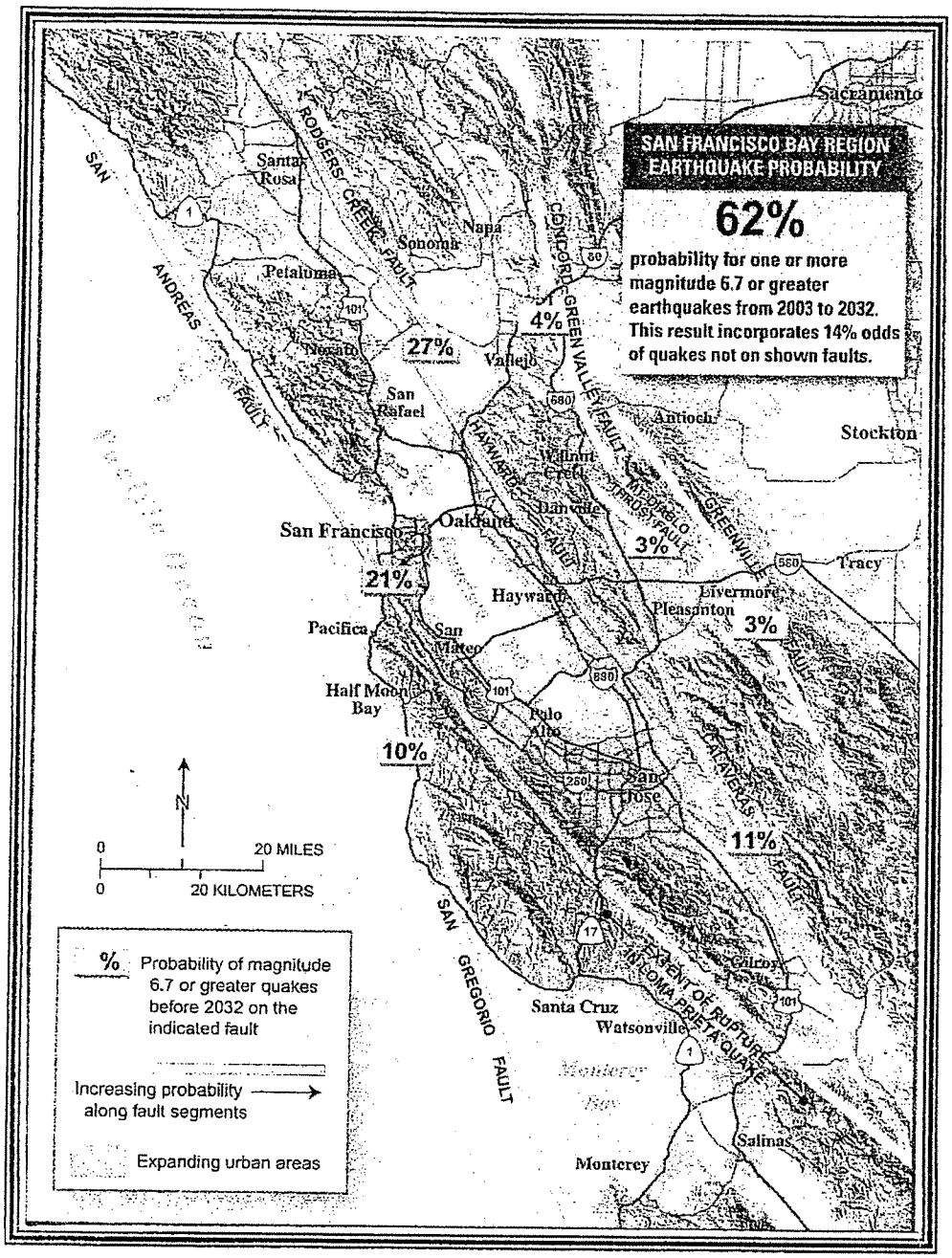
PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1–3		FILL [Qaf] 0.0'-3.0' adjacent to spoils from past construction, brown to reddish brown clast rich soil, moist from recent rains, no rooting. loose where wet		
				3–6		RESIDUAL SOIL 3.0'-6.0' reddish to orangish brown silty clayey to clayey [ML-CL] soil, clast rich, moist. shale and clay rich at 5.0'. toughens at 6.0'		
		SPT	42	6–7		SANDSTONE [Ks] 6.0'-7.5' very hard brown inclined and bedded sandstone, friable, fractured. dry no rooting		Top of rock 6.0' SANDSTONE [Ks]
				8		End of Log		
				9–21				Ground water was not Encountered in boring

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1

PROJECT: 125 Live Oak Ave	BORING: D
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 2111056	DATE: 15 December 2021

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1		FILL [Qaf] 0.0'-3.0' below bulkhead wall and street. very soft at surface, brown to reddish brown clast rich soil, moist from recent rains, no rooting. loose where wet		
		SPT	3	2				
		SPT	2	3				
		SPT	13	4				
				5				
				6		RESIDUAL SOIL 3.0'-6.0' soft to stiff with depth. reddish to orangish brown silty clayey to clayey [ML-CL] soil, clast rich, moist. clastized texture. toughens at 6.0'		
		SPT	28	7		SANDSTONE/SHALE [Ks] 6.0'-7.5' hard brown inclined and bedded sandstone, friable, fractured. dry no rooting		Top of rock 6.0' SANDSTONE/SHALE [Ks]
				8		End of Log		
				9				
				10				
				11				
				12				Ground water was not Encountered in boring
				13				
				14				
				15				
				16				
				17				
				18				
				19				
				20				
				21				

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1



Using newly collected data and evolving theories of earthquake occurrence, U.S. Geological Survey (USGS) and other scientists have concluded that there is a 62% probability of at least one magnitude 6.7 or greater quake, capable of causing widespread damage, striking somewhere in the San Francisco Bay region before 2032. A major quake can occur in any part of this densely populated region. Therefore, there is an ongoing need for all communities in the Bay region to continue preparing for the quakes that will strike in the future.

Plate 1, San Francisco Bay Region Earthquake Probabilities

From: USGS Fact Sheet 039-03
Revised September 2004

Terra Spiritus Purgamus

SALEMHOWES ASSOCIATES INC.
GEOLOGISTS AND GEOTECHNICAL ENGINEER

Live Oak 125 27May
211056

27 May 2022

Linda Neal
Principal Planner
Town of Fairfax
142 Bolinas Road
Fairfax, CA 94930

Civil response in red. - Patrick MacDonald, PE

Reference MPEG letter 15 April 2022

Subject : Response to Geotechnical Review

Items 1& 2 no geotechnical response necessary

Item 3, since we cannot verify the existing foundation construction we will discuss adding some drilled piers in front of the retaining wall with the structural engineer.

Item 4 no geotechnical response necessary

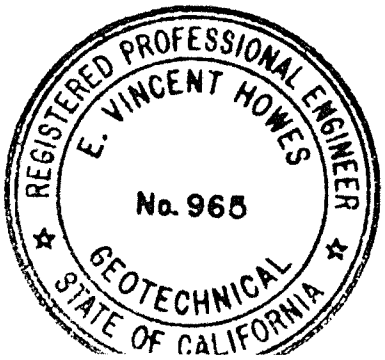
Item 5 The design of the bioretention planters is best answered by the civil engineer designer. Nevertheless from a geotechnical standpoint they should be bottomed in the colluvium below the fill layer. Bioretention planters are in planter box. No infiltration below planter.

None of the historic improvements have been affected by or pose a risk to the proposed improvements. The proposed drainage system will not affect the stability of the site slope.

Item 6: Cuts will be sloped so that no vertical cut exceeds five feet, shoring will not be required.
5 feet max cut per grding and drainage plan and cut and fill plan.

Item 7: This is an oversite on our part the average slope is 30°, Terzaghi and Peck pg.385 recommend 70 lbs/ft^2/ft for this slope angle. We will issue an addendum to the structural engineer.

Item 11: We disagree, except for item 7 there are no specific hazards present on this site that need to be addressed. By Marin standards this is a normal steep slope and using standard hillside construction practices the structure can be safely constructed here. Based on this comment we made a site visit on 22 May and failed to notice any distress due to historic settlement. There is some erosion under cantilevered grade beams. Each foundation element will be evaluated by us and the structural engineer before reuse.



For SalemHowes Associates Inc.

E Vincent Howes

Geotechnical Engineer
GE #965 Exp. 31 Mar 24

1202 GRANT AVE. SUITE F
NOVATO, CALIFORNIA 94945
(415) 892-8528
howesgeo@aol.com

ATTACHMENT D

MILLER PACIFIC ENGINEERING GROUP

April 15, 2022
File: 201.208altr.doc

Town of Fairfax
Planning and Building Services Department
142 Bolinas Avenue
Fairfax, California 94930

Attn: Ms. Linda Neal, Principal Planner

Re: First Planning-Level Geologic, Geotechnical, and Civil Engineering Review
New Single-Family Residence and Accessory Dwelling Unit (ADU)
125 Live Oak Avenue (APN 001-236-03)
Fairfax, California

Introduction

In response to your request and in accordance with our agreement dated March 20, 2018, this letter summarizes our first planning-level review of project plans and supporting documentation for the planned new single-family residence, accessory dwelling unit (ADU) and associated improvements at 125 Live Oak Avenue (APN 001-236-03) in Fairfax, California. The purpose of our services is to review the submitted documents, comment on the completeness and adequacy of the submittal in consideration of Town requirements, and to provide a recommendation to Town Planning staff regarding project approval.

The scope of our services to date has included:

- A site reconnaissance to observe existing conditions and review proposed development features;
- Development of opinions regarding project compliance with applicable Town Hill Area Residential Development Overlay Zone requirements; and
- Development of recommendations to Town staff as to whether the project may be safely constructed in consideration of any geologic, hydrologic, or geotechnical hazards.

The purpose of our current review is to determine whether all planning-level geotechnical comments and conditions of approval are appropriately reflected by the building plans. It should be noted that the scope of our review is limited solely to geologic, geotechnical, and civil portions of the project, and does not include review of structural, architectural, mechanical, or other items beyond the scope of our qualifications. We recommend that non-geotechnical aspects of the plans be reviewed by suitably qualified professionals.

Project Description

The project generally includes construction of a new 3-story residence structure generally within the footprint of a previous residence that has been recently demolished. The structure will include a new 1,914 square-foot, 2-story primary single-family residence and attached 2-car garage over a lower/basement-level 800 square-foot ADU. Plans indicate that new retaining walls up to about 5.5-

feet high will be required to accommodate the new lower-floor ADU, while an existing retaining wall near the road frontage will be retained to support the new driveway and garage approach.

Project Review

We performed a brief site reconnaissance on March 23, 2022 to observe existing conditions at the site. Additionally, we reviewed the following documents provided by the Town:

- Bacilia Macias Architecture (2022), "New Residence with ADU, 125 Live Oak Ave, Fairfax, CA, APN 001-236-03" (Architectural Plans), Sheets A0 through AD (12 sheets), dated January 28, 2022.
- Chicago Title Insurance Company (2021), "Owner's Policy of Title Insurance", Policy No. CA-FSDT-TMS-72031-21-200256840", dated September 2, 2021.
- KCP, Inc. (2016), "Record of Survey, Lands of DJB Property Solutions, Inc., APN 001-236-03, Town of Fairfax, County of Marin, State of California", Page 1 of 1, Marin County Record Document No. 2016-40631, recorded September 9, 2016.
- Marin County Assessor-Recorder (2021), "Grant Deed, APN 001-236-03", Document No. 2021-0055159, recorded September 2, 2021.
- Mountain Pacific Surveys (2022), "Boundary & Topographic Survey, 125 Live Oak Avenue, APN 001-236-03, Fairfax, Marin County, California", Job No. 521107, First Revision dated February 23, 2022.
- Salem-Howes Associates (2022), "Report, Geotechnical Investigation, Cadieux Residence, 125 Live Oak Drive, Fairfax, CA", dated January 28, 2022.
- SF Civil (2022), "New Residence with ADU, 125 Live Oak Avenue, Fairfax, CA, APN 001-236-03" (Civil Plans), Sheets C0.1 through CC3.0 (8 sheets), dated March 2, 2022.

Conclusions

Based on our site reconnaissance and document review, the following submittal items required by the Town of Fairfax Hill Area Residential Development Ordinance remain outstanding:

Hill Area Residential Development Ordinance

- Section 17.072.080(C) – Site Plan

1) The Site Plan (Sheet A1.0) indicates that the new ADU access stairs will encroach about 2-feet into the 5-foot minimum side setback on the west side of the property. Plans should be revised to show improvements outside the side setback zone, or a variance should be obtained.

2) The Site Plan (Sheet A1.0) indicates that the new ADU access stairs will be constructed within about 3-feet of a 22-inch oak tree on the western lot line, with the new house foundation sited within about 7-feet of the tree. An arborist report should be provided to

determine whether the proposed construction may impact the tree and provide mitigation recommendations as warranted.

3) The Site Plan (Sheets A1.0 and C1.0) indicates that an existing concrete retaining wall along the edge of Live Oak Drive will be reused for the planned project. It is noted that this wall will support the designated Fire Truck staging area, and the geotechnical report (Page 3) indicates "older foundation features that has been retrofitted in the past as the site likely experienced some settlement and needed to be reinforced". As such, the project geotechnical and structural engineer should confirm whether the existing wall is capable of supporting emergency vehicle surcharge loads. If the structural engineer cannot certify that the wall, as it exists, is capable of supporting vehicle loads, then plans should be revised to show a new, appropriately-designed retaining wall or structural modifications.

Existing wall to be removed. New wall to be constructed.

4) The Site Plan (Sheet A1.0) indicates that some improvements, including a new extension of the existing roadside retaining wall and new concrete pavements, will be constructed within the Live Oak Avenue right-of-way. An encroachment permit should be required for all work in the public right-of-way.

- Section 17.072.080(E) – Geotechnical Report

The project geotechnical report was prepared by Salem Howes Associates of Novato, California on the basis of 4 exploratory soil borings extending to maximum depths of about 7.5-feet below the ground surface. No laboratory was apparently performed for the project.

The report provides discussion of local geologic mapping, groundwater and seismicity, and provides recommendations for seismic design, shallow footing and drilled-pier foundations, retaining walls, tiebacks, concrete slabs on grade, fill compaction, and site drainage.

5) The Geotechnical Report indicates that existing foundations at the site, some of which are apparently proposed to remain, exhibit evidence of historical settlement. The report also indicates that "Landslides and debris flows . . .are confined to well-developed swales and drainages where deep soil deposits have accumulated" and that "the topographic position of this property within the flanks of the slope may expose it to these types of natural hazards if certain conditions are exacerbated due to over-steepening of cuts, undercutting soil embankments, overloading upslope soils, and excessive water infiltration during excavations". Boring logs and report narrative both indicate at least 3-feet of weak, erodible soil underlies most of the project site. The report recommends that "all surface and ground water collected by drains or ditches should be dispersed across the property below the structure"

Plans indicate that new (temporary) cuts up to about 5.5-feet deep will be needed for the new lower-level ADU, and also indicate site surface runoff will be directed to a pair of bioretention planters on the slope below the structure – it is currently unclear whether these planters are impermeable and intended to detain water, or whether they are intended to promote infiltration of surface water into the natural soils.

Bioretention planter detail on sheet C3.0. No infiltration. Stormwater reduced by evapotranspiration in bioretention planter. Bioretention planter sized per county bioretention planter sizing for 100 year storm event.

Regardless, the Geotechnical Engineer should clarify whether or not the historic improvements have been affected by landsliding/mass-wasting, by erosion/undermining, or by other means. The Engineer should state whether any of these hazards pose a risk to

the proposed improvements and provide mitigation recommendations as warranted. The Engineer should also review the project plans and comment on the anticipated effect of the proposed drainage system on site stability, including the risk of impact to the subject site as well as adjacent properties downslope.

6) The Geotechnical Report does not provide Cal/OSHA soil-type classifications or recommendations for temporary cut slopes, such as will be needed while retaining walls are constructed and backfilled. The Engineer should provide soil-type classifications in accordance with Cal/OSHA guidelines along with recommended maximum allowable inclination of temporary cut slopes.

7) On Page 6 of the report, the active pressure for sloping backfill conditions for foundation and retaining wall design does not specify the corresponding slope inclination (i.e. 3:1 horizontal:vertical). The Geotechnical Engineer should clarify and also provide recommended active pressures for intermediate slopes.

- Section 17.072.080(F) – Grading and Erosion-Control Plan

8) The Grading and Drainage and Stormwater Control Plans (Sheets C2.0 and C2.1) indicates that site surface runoff will be discharged into a pair of new bioretention planters. Planters are shown to have a discharge pipe which directs runoff from the planter into an existing v-ditch lower on the slope, but no planter details are provided. The project Civil Engineer should clarify whether these planters are impervious (and effectively intended to function as detention basins), or are intended to promote infiltration of runoff into the natural soils, which may increase the site's susceptibility to slope instability. Details for planter construction and infill should be provided. Additionally, site drainage should be designed to accommodate runoff associated with, at minimum, a 100-year storm event such that the post-project peak flow rate is equal to or less than existing conditions.

Bioretention planter detail on sheet C3.0. No infiltration. Stormwater reduced by evapotranspiration in bioretention planter. Stormwater calcs on sheet c2.1.

9) The Grading and Drainage Plan (Sheet C2.0) indicates about 114 cubic yards of excess soil will be removed from the site. Given the extremely limited site access along Live Oak Avenue, a detailed Construction Management Plan should be developed and provided at the Building Permit stage.

Okay

10) The Site Plan (Sheet A1.0) indicates that native seasonal grasses will be removed, and erosion-control measures below the new residence will include jute netting and 4-inches of arbor mulch. No new vegetation or plantings are apparently proposed. The Geotechnical Engineer should comment on the suitability of the proposed erosion-control measures in light of site slope and soil conditions, and provide supplemental recommendations if needed.

- Section 17.072.110(C) – Geotechnical Report Adequacy

11) It is our opinion that the current geotechnical report does not clearly address potential geologic hazards which may impact the site. The report indicates that existing foundation elements at the site, some of which are to be re-used, have experienced distress as a result of historic settlement, but does not clearly state the cause of such settlement and does not

clearly address the risks of future slope instability and erosion. The report should be updated to reflect the comments above and resubmitted.

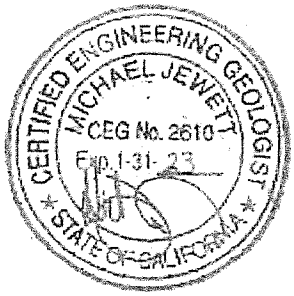
Recommendations

We recommend that project processing be delayed until the aforementioned materials are submitted for review. Initial items to be resolved/addressed include 1) commentary from the Geotechnical Engineer on the project's exposure to risks associated with slope instability and erosion, 2) clarification of the ADU stairs/setback encroachment on the west side of the site, and 3) clarification/additional detail regarding the bioretention basins and their potential effect on slope stability.

Remaining items, including review of design-level Grading, Drainage, Structural, and Erosion control plans, drainage calculations, and other matierals can be handled at the Building Permit submittal level with minimal anticipated impact.

We trust that this letter contains the information you require at this time. If you have any questions, please call. We will directly discuss our comments with the applicant's consultants if they wish to do so.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP



Mike Jewett
Town of Fairfax Contract Geologist
Engineering Geologist No. 2610
(Expires 1/31/23)

REVIEWED BY:

Scott Stephens
Town of Fairfax Contract Engineer
Geotechnical Engineer No. 2398
(Expires 6/30/23)

SPEC SHEETS ATTACHED

Please provide further manufacturer's information on the two fixtures identified for use verifying they are dark sky compliant and provide a plan showing where fixtures L3 and L4 will be used or an indication that they are no longer proposed for use in writing.

Elevations

SEE REVISED ELEVS

☐ Dimension all ***new second and third story windows from finished floor to bottom of windowsill***

Tree Committee Tree Removal Recommendation Application and Site Plan

SEE ATTACHED APPLICATION

☐ ***Submit a Tree Removal application form and submit it with a copy of the approved vegetative management plan showing the two acacia trees that will have to be removed as part of the project to the Fairfax Administrative Assistant with a copy submitted at the same time to the Planning Department.***

☐ ***The trees shown to be removed in the Vegetative Management Plan must be shown in the Tree Removal Recommendation Permit plan (you can just submit a reduced version of the VMP plan as the tree removal application site plan).***

Grading Information

☐ Provide the amount of cut and fill required for the project as separate amounts ***in a table on the grading plan.***

Cut and fill table shown on grading plan.

Drainage Plan

The Town Engineer requires that drainage calculations be provided by the project engineer to be reviewed in conjunction with the proposed drainage plan to verify that the project will not increase the amount of flow or its speed and will not negatively impact neighboring properties or properties downhill from the site.

See stormwater plan. Project meets county stormwater standards by directing stormwater landing on roof and road to bioretention planter. Stormwater calcs provided on stormwater plan showing sizing of bioretention.

Parking and Parking Variance

There is a disconnect between the architectural site plan, the elevation drawings and the engineering plans. While the architectural elevations show the driveway bridge being 19 feet in length and able to accommodate the required third parking space and presumably the fire truck 40 foot by 20 foot "turn-out" within the roadway, the architectural site plan and the engineering plans appear to show that if someone is parked in the required third parking spot the fire truck turn out will not be available. The plans must be revised to show the location and dimensions of all the required parking, the fire truck "turn-out", the edge of the paved roadway and the right-of-way in addition to the roadway width at 5-foot intervals along the entire property frontage.

Driveway widened to accomodate parking stall. Parking stall does not conflict with fire truck turn out. Roadway dimensions viewport added to sheet c2.0 showing roadway width every 5 feet.

MILLER PACIFIC ENGINEERING GROUP

July 6, 2022
File: 201.208cltr.doc

Town of Fairfax
Planning and Building Services Department
142 Bolinas Avenue
Fairfax, California 94930

Attn: Ms. Linda Neal, Principal Planner

Re: Third Planning-Level Geologic, Geotechnical, and Civil Engineering Review
New Single-Family Residence and Accessory Dwelling Unit (ADU)
125 Live Oak Avenue (APN 001-236-03)
Fairfax, California

Introduction

In response to your request and in accordance with our agreement dated March 20, 2018, this letter summarizes our third planning-level review of project plans and supporting documentation for the planned new single-family residence, accessory dwelling unit (ADU) and associated improvements at 125 Live Oak Avenue (APN 001-236-03) in Fairfax, California. We previously issued our first and second review comments in letters dated April 15, 2022 and June 13, 2022, respectively. The purpose of our services is to review the submitted documents, comment on the completeness and adequacy of the submittal in consideration of Town requirements, and to provide a recommendation to Town Planning staff regarding project approval.

The scope of our services to date has included:

- A site reconnaissance to observe existing conditions and review proposed development features;
- Development of opinions regarding project compliance with applicable Town Hill Area Residential Development Overlay Zone requirements; and
- Development of recommendations to Town staff as to whether the project may be safely constructed in consideration of any geologic, hydrologic, or geotechnical hazards.

The purpose of our current review is to determine whether all planning-level geotechnical comments and conditions of approval are appropriately reflected by the building plans. It should be noted that the scope of our review is limited solely to geologic, geotechnical, and civil portions of the project, and does not include review of surveying, structural, architectural, mechanical, or other items beyond the scope of our qualifications. We recommend that non-geotechnical aspects of the plans be reviewed by suitably qualified professionals.

Project Description

The project generally includes construction of a new 3-story residence structure generally within the footprint of a previous residence that has been recently demolished. The structure will include a new 1,914 square-foot, 2-story primary single-family residence and attached 2-car garage over a lower/basement-level 800 square-foot ADU. Plans indicate that new retaining walls up to about 5.5-

feet high will be required to accommodate the new lower-floor ADU, while an existing retaining wall near the road frontage will be retained to support the new driveway and garage approach.

Project Review

We performed a brief site reconnaissance on March 23, 2022 to observe existing conditions at the site. Additionally, we reviewed the following documents provided by the Town as part of our first review:

- Bacilia Macias Architecture (2022), "New Residence with ADU, 125 Live Oak Ave, Fairfax, CA, APN 001-236-03" (Architectural Plans), Sheets A0 through AD (12 sheets), dated January 28, 2022.
- Chicago Title Insurance Company (2021), "Owner's Policy of Title Insurance", Policy No. CA-FSDT-TMS-72031-21-200256840", dated September 2, 2021.
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- Mountain Pacific Surveys (2022), "Boundary & Topographic Survey, 125 Live Oak Avenue, APN 001-236-03, Fairfax, Marin County, California", Job No. 521107, First Revision dated February 23, 2022.
- Salem-Howes Associates (2022), "Report, Geotechnical Investigation, Cadieux Residence, 125 Live Oak Drive, Fairfax, CA", dated January 28, 2022.
- SF Civil (2022), "New Residence with ADU, 125 Live Oak Avenue, Fairfax, CA, APN 001-236-03" (Civil Plans), Sheets C0.1 through CC3.0 (8 sheets), dated March 2, 2022.

More recently, we reviewed the following documents submitted in response to our first review comments:

- Bacilia Macias Architecture (2022), "Response to Planning Letter dated April 16, 2022, 125 Live Oak Ave, Fairfax, dated May 31, 2022.
- Salem-Howes Associates (2022), "Response to Geotechnical Review, MPEG Letter dated April 15", dated May 27, 2022.
- SF Civil (2022), "New Residence with ADU, 125 Live Oak Avenue, Fairfax, CA, APN 001-236-03" (Civil Plans), Sheets C0.1 through CC3.0 (8 sheets), dated May 11, 2022.
- Steve Svienty Tree Care (2022), (untitled and undated letter addressing Oak Tree on property line near proposed stairs).

Most recently, we reviewed the following document for this Third Review.

- Steve Svienty Tree Care (2022), (second untitled and undated letter addressing Oak Tree on property line near proposed stairs, includes site plan markup).

Conclusions

The most recent letter from the project Arborist includes specific discussion regarding the apparent conflicts raised in our first and second review letters, and it is our opinion that the submitted narrative adequately addresses our concerns. In addition, we understand from planning staff that a variance application is in process. As such, Comments #1 and #2 from our Second Review letter are judged to have been sufficiently addressed at this time. Based on our site reconnaissance and document review, the following submittal items required by the Town of Fairfax Hill Area Residential Development Ordinance remain outstanding:

Hill Area Residential Development Ordinance

- Section 17.072.080(C) – Site Plan

1) The Site Plan (Sheet A1.0) indicates that some improvements, including a new extension of the existing roadside retaining wall and new concrete pavements, will be constructed within the Live Oak Avenue right-of-way. An encroachment permit should be required for all work in the public right-of-way.

- Section 17.072.080(F) – Grading and Erosion-Control Plan

2) The Grading and Drainage and Stormwater Control Plans (Sheets C2.0 and C2.1) indicates that site surface runoff will be discharged into a pair of new impermeable bioretention planters/detention basins, which is generally appropriate for the site conditions per the Geotechnical report. All site drainage should be designed to accommodate runoff associated with, at minimum, a 100-year storm event such that the post-project peak flow rate is equal to or less than existing conditions.

3) The Grading and Drainage Plan (Sheet C2.0) indicates about 114 cubic yards of excess soil will be removed from the site. Given the extremely limited site access along Live Oak Avenue, a detailed Construction Management Plan should be developed and provided at the Building Permit stage.

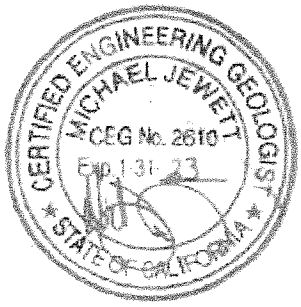
4) The Site Plan (Sheet A1.0) indicates that native seasonal grasses will be removed, and erosion-control measures below the new residence will include jute netting and 4-inches of arbor mulch. No new vegetation or plantings are apparently proposed. The Geotechnical Engineer should comment on the suitability of the proposed erosion-control measures in light of site slope and soil conditions, and provide supplemental recommendations if needed.

Recommendations

It is our opinion that all of our planning-level concerns have been adequately addressed, and we recommend that project processing be continued at the Planning level. Remaining items, including review of design-level Grading, Drainage, Structural, Construction Management, Tree Protection, and Erosion Control Plans, drainage calculations, and other materials can be handled at the Building Permit submittal level with minimal anticipated impact.

We trust that this letter contains the information you require at this time. If you have any questions, please call. We will directly discuss our comments with the applicant's consultants if they wish to do so.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP



Mike Jewett
Town of Fairfax Contract Geologist
Engineering Geologist No. 2610
(Expires 1/31/23)

REVIEWED BY:

Scott Stephens
Town of Fairfax Contract Engineer
Geotechnical Engineer No. 2398
(Expires 6/30/23)

TOWN OF FAIRFAX
142 BOLINAS ROAD, FAIRFAX, CALIFORNIA 94930
(415) 453-1584/FAX (415) 453-1618

Date: May 24, 2022

Permit #22-T-35

NOTICE OF TREE COMMITTEE ACTION

This action may be appealed to the Fairfax Town Council within 10 days of the Tree Committee decision. This permit is not in effect until the 10 day appeal period is over.

Request for a tree permit to remove: (2) Acacia (Cluster)

Address of Tree(s) to be removed: 125 Live Oak Ave

Applicant's Phone: Paul Cadieux (628) 233-4108

On May 23, 2022 the Fairfax Tree Committee took the following action on the above referenced tree permit application:

FOR RECOMMENDATION TO PLANNING COMMISSION ONLY

_____X_____ APPROVED - Richardson-Mack made a motion to make a recommendation to the Planning Commission to approve the application; the motion was seconded by Benson and voted on.

Vote:

Benson- Aye

Richardson-Mack- Aye

Romaidis- Aye

Item #4 Vote: Ayes- 3, Noes- 0

REMINDER: PLEASE KEEP PERMIT NOTICE UP DURING THE 10 DAY WAITING PERIOD

_____ CONTINUED

_____ DENIED

CONDITIONS OF APPROVAL:

THIS APPROVED APPLICATION IS YOUR PERMIT-KEEP IT ON THE JOB SITE. FAILURE TO HAVE THE PERMIT ON THE SITE WHILE THE TREE WORK IS IN PROGRESS MAY RESULT IN THE WORK BEING HALTED UNTIL YOU SHOW PROOF OF APPROVAL.

Please verify that the tree company performing the work has a current Fairfax Business license and worker's compensation coverage.

THIS TREE PERMIT EXPIRES IN SIX MONTHS. If necessary, you may apply for an extension in writing prior to the expiration date.

FOR RECOMMENDATION ONLY TO PLANNING COMMISSION

TOWN OF FAIRFAX

142 BOLINAS ROAD, FAIRFAX, CA 94930
(415) 453-1584 / FAX (415) 453-1618

TOWN OF FAIRFAX
APR 27 2022
RECEIVED

APPLICATION FOR TREE REMOVAL OR ALTERATION

A permit is required to remove or alter one or more trees on any parcel in the Town of Fairfax. All trees for which a permit is requested shall be tagged with an orange ribbon, a minimum of 10 days prior to the Tree Advisory Committee meeting date. Applicants must also post a notice of intent to alter or remove the marked Tree(s) in a prominent location visible along the frontage of the affected property.

APPLICANT INFORMATION

OWNER (APPLICATIONS MUST BE FILED BY PROPERTY OWNER): Paul Cadieux	DATE OF APPLICATION: 2/22/22
JOB ADDRESS/ASSESSOR'S PARCEL NO. IF SITE IS VACANT 125 Live Oak Ave, Fairfax CA 94930	PHONE NUMBER: 628-233-4108
EMAIL ADDRESS: westcoastalbuilders@gmail.com	FAX NUMBER:
PROPERTY OWNER'S ADDRESS IF DIFFERENT FROM ABOVE	ALTERNATE PHONE NUMBER:

TREE INFORMATION

SPECIES AND DESIGNATION OF HERITAGE/SPECIMEN/UNDESIRABLE TREE: Acacia (2) CLUSTER	CIRCUMFERENCE BREAST HEIGHT: 4"+6"
	REASON FOR REMOVAL/ALTERATION Per RVFD fire hazard / NEW HOME CONSTRUCTION
SPECIES AND DESIGNATION OF HERITAGE/SPECIMEN/UNDESIRABLE TREE:	CIRCUMFERENCE BREAST HEIGHT:
	REASON FOR REMOVAL/ALTERATION
SPECIES AND DESIGNATION OF HERITAGE/SPECIMEN/UNDESIRABLE TREE:	CIRCUMFERENCE BREAST HEIGHT:
	REASON FOR REMOVAL/ALTERATION
SPECIES AND DESIGNATION OF HERITAGE/SPECIMEN/UNDESIRABLE TREE:	CIRCUMFERENCE BREAST HEIGHT:
	REASON FOR REMOVAL/ALTERATION

Please attached a site plan to this application showing the location and species of all trees with a diameter of 4 inches (circumference of 12 inches or more), measured 4.5feet above grade at tree base, property boundaries and easements, location of structures, foundation lines of neighboring structures and paved areas including driveways, .

AGENDA ITEM # 4

Any tree company used for the removal or alteration must have a current and valid Fairfax Business license. Please include the name, address, and phone number of the person or company doing the above listed work:

NAME: TBD.	PHONE NUMBER:
ADDRESS:	CONTRACTOR BUSINESS LICENSE NUMBER

Please note the Tree Advisory Committee may require applicants to submit their application to a Qualified Arborist for a report or recommendation at the expense of the applicant. A Qualified Arborist is defined as a Certified Arborist, A Certified Urban Forester, a Registered Consulting Arborist, or a Registered Professional Forester.

OWNER'S STATEMENT

I understand that in order to properly process and evaluate this application, it may be necessary for Town personnel to inspect the property, which is the subject of the application. I also understand that due to time constraints it may not always be possible for Town personnel to provide advanced notice of such inspections. Therefore, this application will be deemed to constitute my authorization to enter upon the property for the purpose of inspecting the same, provided that Town personnel shall not enter any building on the property except in my presence or the presence of any other rightful occupant of such building. I understand that my refusal to permit reasonable inspection of any portion of the property by town personnel may result in a denial of this application due to the lack of adequate information regarding the property.

P. Cadieux

Signature of Property Owner

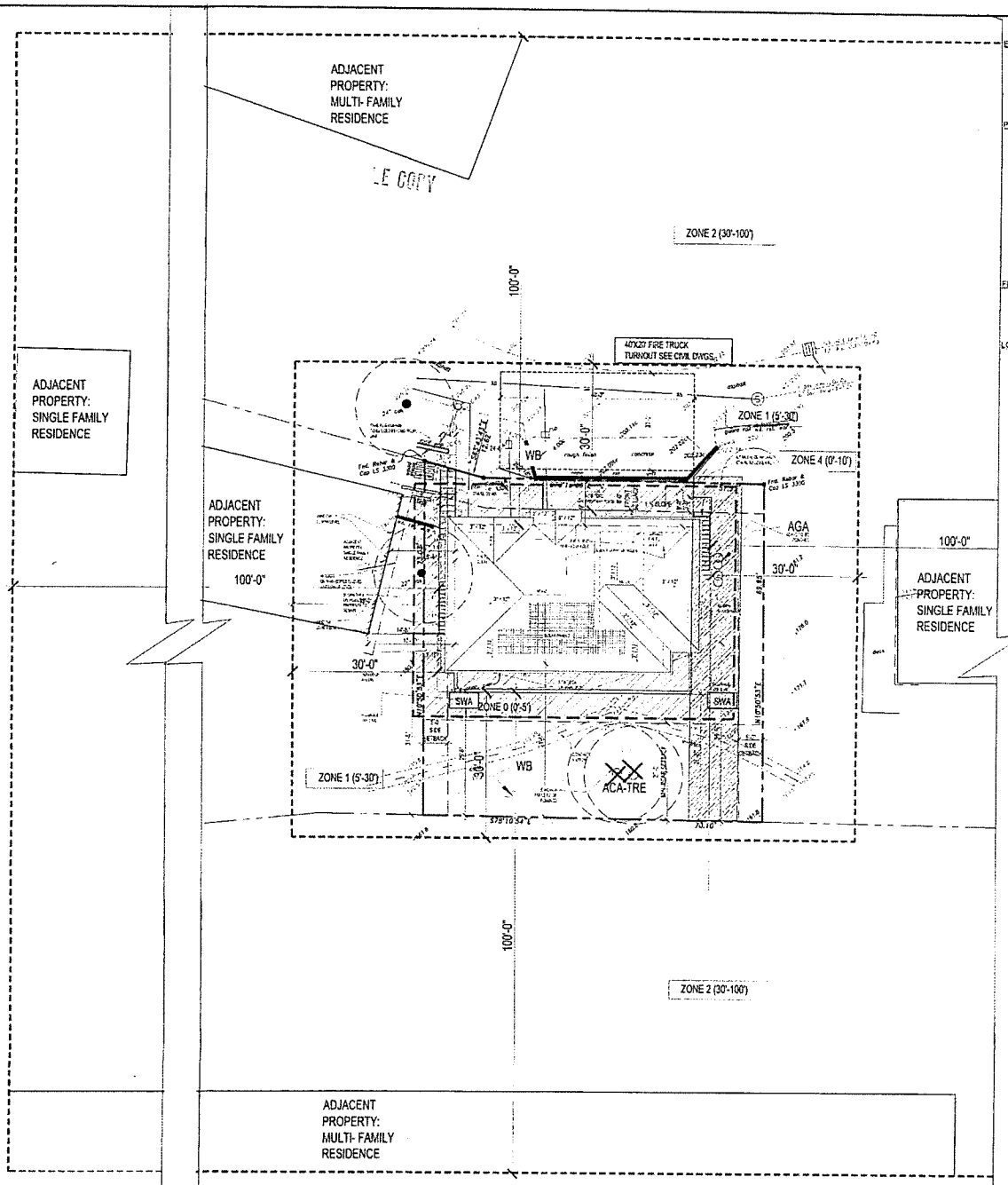
2/22/22

Date

[AREA BELOW FOR STAFF USE ONLY]

Permit Number: 22-T-35	
Date Received: 4-27-22	Received by: S. Oster
Conditions of Approval:	
Tree Committee Action:	Date:

Tree Committee Actions can be appealed to the Town Council within 10 days of the Tree Committee Action. Contact Town Hall for more information.



VMP NARRATIVE

EXISTING CONDITIONS

a. The site currently consists of the existing foundation of a single-family residence, retaining wall and concrete V-ditch towards the bottom of the lot. It is a hillside property. There a few miscellaneous native shrub species and grasses located throughout the property. On the west side the neighboring property has one mature live oak tree adjacent to the property line.

PROPOSED SCOPE

a. The intent of this plan is to properly maintain the property. Fire prone species will be removed. The existing shrubs and grasses will be thinned or removed to provide a fire break from 0'-30' from the home.
b. For drainage swales at bottom of lot mulch will be inorganic with composted wood chips.
c. No new planting to be added in rear and side yards
d. There shall be no vegetation within 0-5 feet of structure or under decks and stairs
e. Open area within Zone 1 (0-30') to have jute netting weed blocker and 4" of arbor mulch.
f. Black Acacia trees in rear yard to be removed root system to remain for erosion control
g. Vegetation shall be cut and maintained to ensure address numbers are visible from both angles of approach.

FUTURE PLANTING

a. Any future plantings outside of the 5' (Zone 0) area will include fire-resistant, shrubs, perennials, and ground covers as in the FIREsafe Marin planting lists located at www.firesafemarin.org/plants. New planting must be on irrigation system

LONG TERM MAINTENANCE SHCEDULE AND SAFETY PRACTICES

a. All fire prone fuels and dead material will be removed within 100' of the home.
b. Remove branches beneath large trees for a 6-foot minimum clearance
c. Needles and leaves and other combustible debris and litter shall be removed from roofs and gutter at minimum twice yearly
d. All weeds and grasses shall be cut regularly to a height of 4" or less.
e. Vegetation shall be trimmed to within 10' horizontally of roadways, and trees shall be trimmed as not to overhang roadways and provide 14' of clearance vertically.
f. All dead and dying vegetation shall be removed seasonally to reduce vegetation volume and ladder fuels
g. Coordinate with adjacent property owners to maintain tree canopies, vegetation and ladder fuels on an annual basis.
h. No native grasses shall be planted within Home ignition zones 1 and 2.
i. All planted areas inside Home ignition zones 1 and 2 shall be irrigated.
j. All plantings shall be selected in coordination with the FIREsafe Marin planting list located at www.firesafemarin.org/plants. Other fire resistant plants can be utilized with prior approval of the Fire Code Official.
k. Regardless of plant selection, shrubs shall be spaced so that no continuity exists between ground fuels and tree crowns, such that a ground fire will not extend into the tree canopy.

KEY

HAZARD ZONES

Immediate Zone (ZONE 0): 0'-5'

The Immediate Zone extends 0-5' from your house. ZONE 0 is the area closest to your house,including the structure itself, decks, outdoor furniture, and the outside walls and coverings. This area is most vulnerable, and should be most aggressively maintained for fire resistance.
- Remove any combustible outdoor furniture.
- Replace jute or fiber door mats with fire resistant materials.
- Remove or relocate all combustible materials, including garbage and recycling containers,lumber, trash, and patio accessories.
- Clean all fallen leaves and needles regularly. Repeat often during fire season.
- No vegetation is recommended within 5' of structures.
- Remove tree limbs that extend into this zone. Fire-prone tree varieties should be removed if they extend within 5' of structures..
- Do not store firewood, lumber, or combustibles here, even (especially) under decks or overhangs. Move stored combustibles inside, or at least 30' away from structures.
- Use only inorganic, non-combustible mulches such as stone or gravel. Composted mulch and large bark and chips (greater than 1/2" diameter) may be OK.

Intermediate Zone (ZONE 1): 5'-30'

The Intermediate Zone from 5' to 30' out from buildings, structures, decks, etc. Keep ZONE 1 "Lean, Clean, and Green" and employ careful landscaping to create breaks that can help influence and decrease fire behavior.
- Remove all dead plants, grass, and weeds (vegetation).
- Remove dead or dry leaves and pine needles from your yard, roof and rain gutters.
- Trim trees regularly to keep branches a minimum of 10 feet from other trees.
- Remove branches that hang over your roof and keep dead branches 10 feet away from your chimney.
- Remove vegetation and items that could catch fire from around and under decks.
- Remove fire-prone plants, and choose only fire-resistant varieties. Irrigate regularly.
- Remove limbs to a height of 10' above the ground (or 1/3 the height of the tree) to provide clearance and to eliminate a "fire ladder".
- Use only inorganic, non-combustible mulches such as stone or gravel. Composted mulch and large bark and chips (greater than 1/2" diameter) may be OK

Extended Zone (ZONE 2): 30'-100

The extended zone from 30' to 100' (or more, if required due to steep slopes, nearby vegetation conditions, and/or your local fire department). The goal here is not to eliminate fire but to interrupt fire's path and keep flames smaller and on the ground. This zone should include at a minimum:
- Cut or mow annual grass down to a maximum height of 4 inches.
- Create horizontal spacing between shrubs, trees and vertical spacing between grass, shrubs and trees.
- Remove fallen leaves, needles, twigs, bark, cones, and small branches. However, they may be permitted to a depth of 3 inches if erosion control is an issue.

Access Zone (ZONE 3): 0'-10'

Extends 10 feet horizontally from the edge on either side of the road or driveway.
- Within this zone, plantings shall be fire resistant and shall not extend within the 14 foot vertical
- Clearance above the surface of the roadway or driveway, as required for emergency access.
- All landscape shall meet the requirements for separation as stated in the Zone 2 above

WB
- SEASONAL GRASSES TO BE REMOVED
- JUTE NETTING TO BE INSTALLED WITH 4" ARBOR MULCH. THIS WILL ALSO FACILITATE EROSION CONTROL

SWA — BIOSWALE -SEE CIVIL DRAWINGS FOR DETAILS- TO CONTAIN APPROVED MULCH PER MARIN COUNTY FIRE GUIDELINES FOR IMMEDIATE ZONE 0 (0-5')

ANY CHANGES TO THE PLAN NOW OR IN THE FUTURE WILL REQUIRE FIRE DEPARTMENT REVIEW. IT IS RECOMMENDED THAT IF THE APPLICANT HAS PLANS TO LANDSCAPE IN THE FUTURE THAT THOSE PLANS BE INTERMINGLED INTO THIS

ROSS VALLEY FIRE DEPT
- Approved
- Approved with Conditions
- Not Approved-need revisies
- Incomplete

Date: 11/28/22

VMP PLANT LIST

SYMBOL	COMMON NAME	LATIN NAME	QTY	FIRE RESISTANT	TYPE	EXISTING OR NEW	REMARKS
ACA-TRE	Black Acacia	Acacia melanoxylon	2	N	TREE	E	REMOVED
AGA	FOX TAIL AGAVE	Agave Americana/Ray of	4	Y	succulent	E	REMOVED

BLACK ACACIA TREES TO BE REMOVED ROOT SYSTEM TO REMAIN FOR ERROSION CONTROL

1 VEGETATION MANAGEMENT PLAN
3/32"=1'-0"

BACILIA MACIAS
ARCHITECTURE
6007 NE Sacramento ST Portland OR 97213
510.929.0727 ph bacilia@bmarch.net

LICENSED ARCHITECT BACILIA MACIAS No. C-32322 Exp. 12-31-23 STATE OF CALIFORNIA

NEW RESIDENCE WITH ADU
125 LIVE OAK AVE
FAIRFAX CA
APN-001-236-03

REVISIONS DATE

DRAWN BY: BM

DATE: JAN 28, 2022

VEGETATION MANAGEMENT PLAN

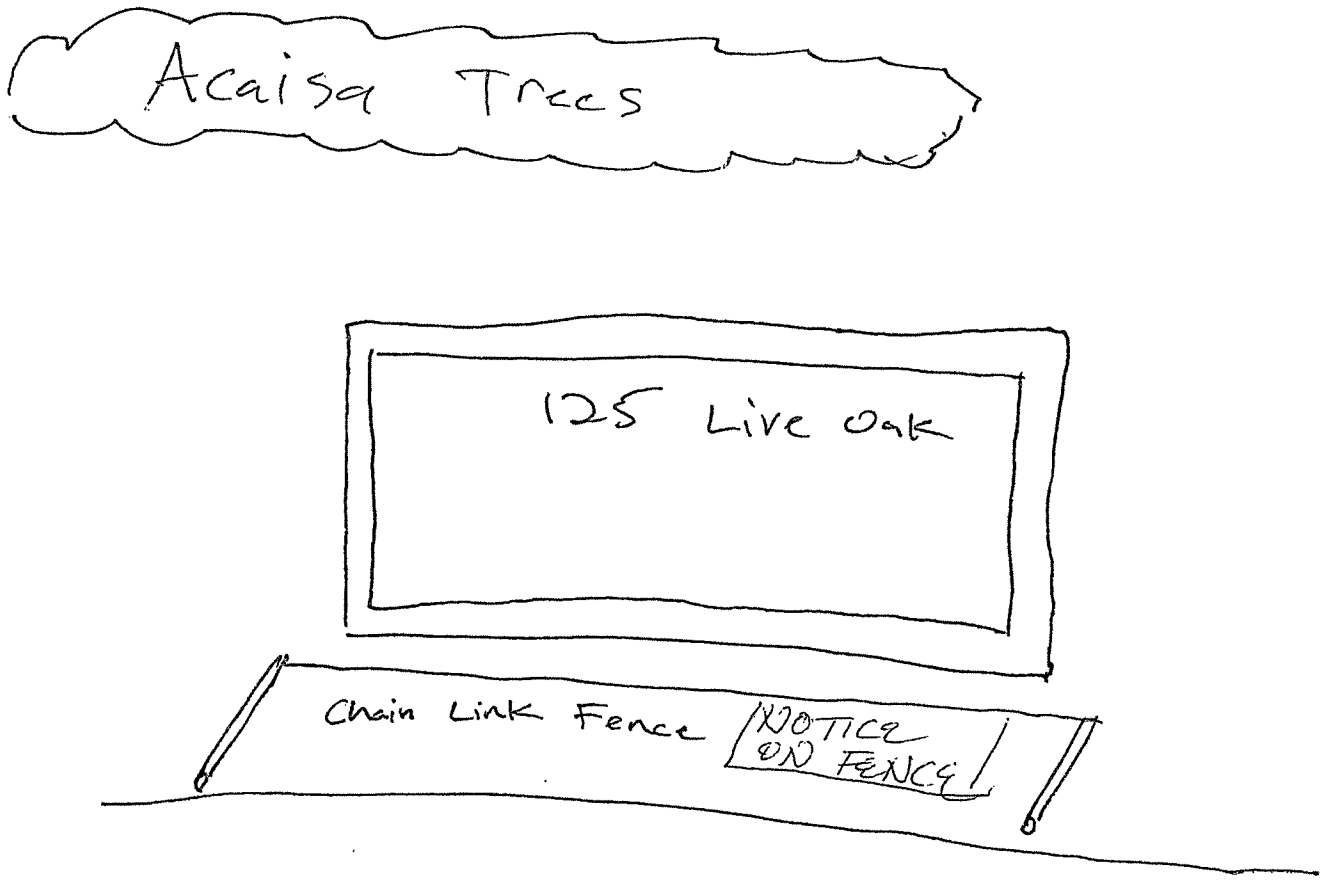
VMP

©COPYRIGHT 2021

Trees to be Removed are located down the hill between 125 Live Oak & ~~Red Hill Ave~~ Sr. Francis Drake Blvd

Sir Francis Drake Blvd.

~~Red Oak~~ →



LIVE OAK →

N

TOWN OF FAIRFAX
JUN 29 2022
RECEIVED

Steve Svienty Tree Care Inc.
415-328-4894/stevesvienty@gmail.com
102 West St San Rafael CA 94901

To the city of Fairfax,

The tree in question is a live oak tree located on the west side of the lot at 125 Live Oak Fairfax. In previous reports it was suggested that a 5ft buffer zone around the tree where no construction or digging is to take place This will prevent any damage to the tree and its roots. I've been told that construction plans a stairway that will be within the drip line of the tree and be within that 5 foot buffer zone. I've also been told that the stairway and landing will be elevated above ground and its supports will not be within that buffer zone. The support will be far enough away from the buffer zone. This plan will prevent any damage to the tree & its roots. The supports for the stairway are far enough away from the trees buttress roots where no or minimum damage will occur.. As far as the new storm drain, foundation and swale are far enough away from the tree to do any construction damage to the trees roots. (Please see attached diagram provided) I will be present during construction to ensure these measures are observed & followed. I believe if my instructions are followed from my previous report that the live oak tree will have enough room to prevent any damage to the tree.or its roots I also believe that the tree will be healthy if no dirt is added on top of the dripline during construction. With soil added on top of the dripline & buffer zone from the construction the trees roots will lose oxygen & go into slow decline. I suggest that the soil disturbed or moved during construction be hauled away if possible or moved to another location on the lot. The tree should also probably be treated with Agro Vos.to prevent any infection of Sudden Oak Death from the construction.of the house.

5 FOOT RADIUS
FROM BASE OF TREE

PROTECTION FENCE CAN BE MOVED FOR CONSTRUCTION OF ELEMENTS ABOVE GRADE
SUCH AS LANDING AT STAIRS.FOR NEW STORM DRAIN AT PERIMETER OF FOUNDATION AND SWALE

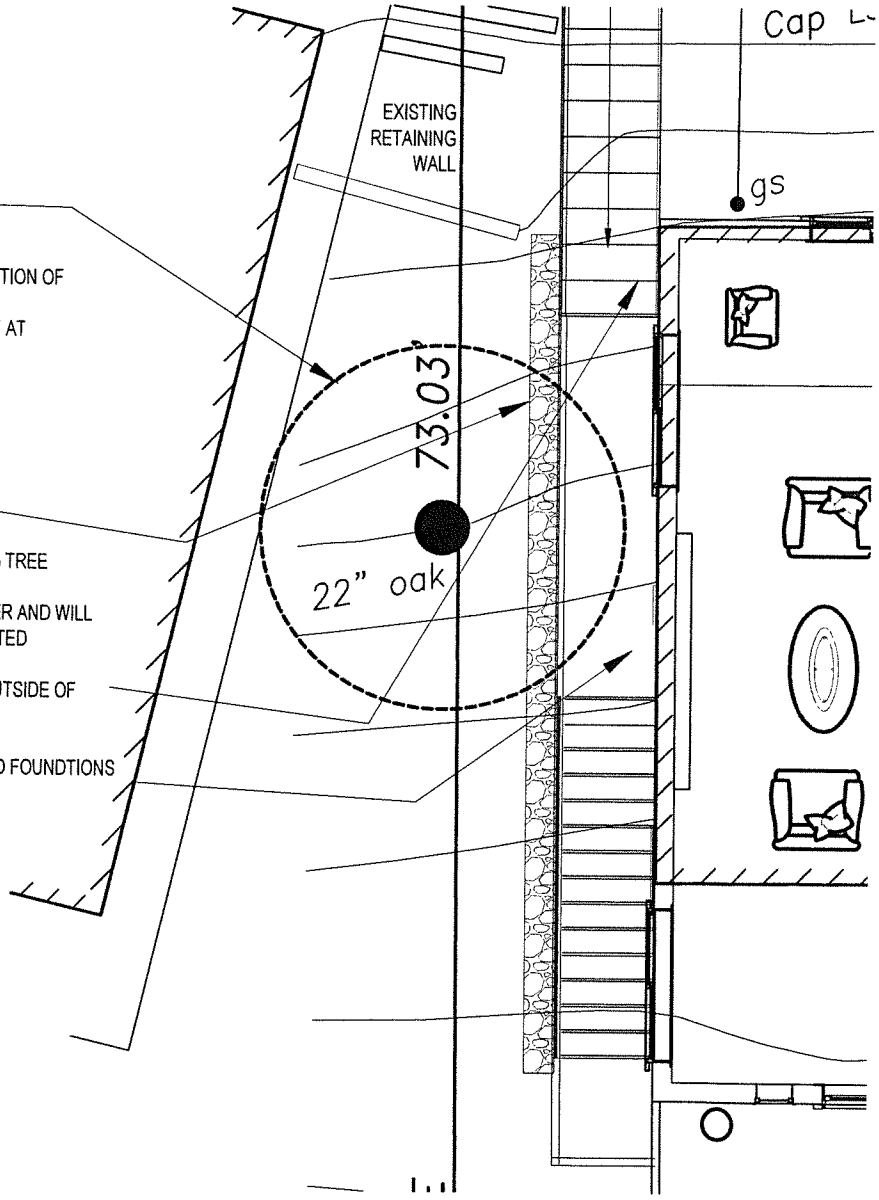
ARBORIST TO BE PRESENT DURING TRENCHING
AND INSTALLATION TO ASSURE
ROOTS OF TREE STAY IN TACT

PROPOSED SWALE IS 1" IN DEPTH AND
12" WIDE AND CAN BE LOCATED AT PROPOSED
LOCATION WITHOUT COMPROMISING THE WELL BEING TREE

THE STORM DRAIN COLLECTOR IS ONLY 4" IN DIAMETER AND WILL BE LOCATED OUTSIDE OF THE 5 FOOT CIRCLE INDICATED

THE UPPER FLIGHT OF STAIRS ARE ON GRADE AND OUTSIDE OF 5 FOOT CIRCLE

THE LANDING WILL BE SUPPORTED ONLY AT ENDS AND FOUNDTIONS WILL BE OUTSIDE OF 5 FOOT CIRCLE



Ross Valley Fire Department
777 San Anselmo Avenue, San Anselmo, CA 94960

Mark Mills
FIRE CHIEF

TOWN OF FAIRFAX
FEB 02 2022
RECEIVED

February 1, 2022

Address: 125 Live Oak Ave, Fairfax
Applicant: Bacilia Macias
Application #: 22-0009

The Vegetation Management Plan submitted for review by the Ross Valley Fire Department has been approved.

There shall be zero vegetation within 0-5 feet of structures or under decks and awnings. Please do not remove any tree that requires a permit from the town without first securing such permit.

Please note that all vegetation within the 30 foot zone shall be irrigated. Seasonal grasses within the 30 foot zone are not permitted unless regularly irrigated. If not kept as green grass the area shall be covered in a weed barrier which should be covered in a layer of mulch.

Every effort shall be taken to ensure erosion control efforts are in compliance with standards established by Town regulations.

The approved plan is to last the life of the property. Any changes to the plan now or in the future will require Fire Department review. It is recommended that if the applicant has plans to landscape in the future that those plans be intermingled into this plan.

Vegetation shall be maintained to ensure address numbers are visible from both angles of approach.

Minimum standards shall be in place prior to final fire clearance.

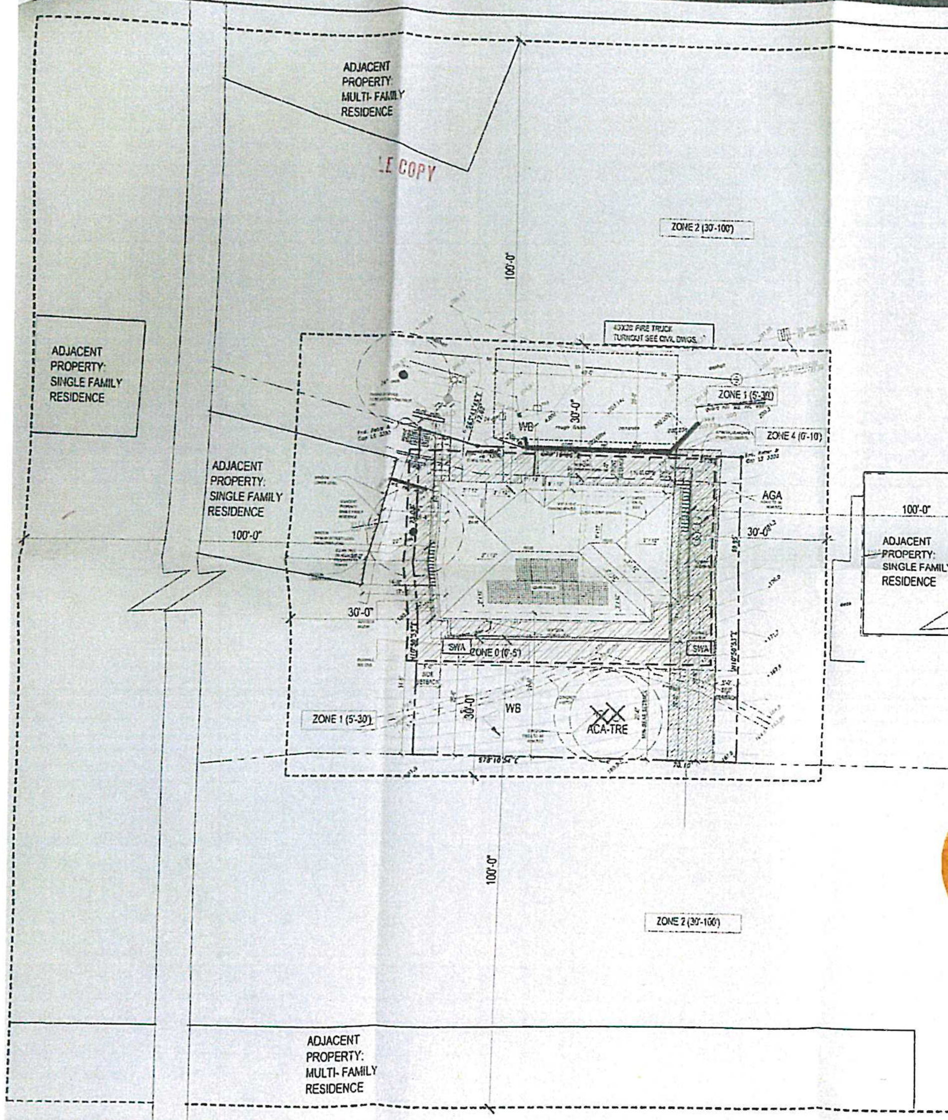
If you have any questions about any of the items listed above please call me. I am available to meet with you on site to help you develop a plan. Please contact me to schedule (415) 258-4674 if you desire my assistance.

Sincerely,

Derrick Shaw
Fire Inspector

FILE COPY

ATTACHMENT C



VMP NARRATIVE

EXISTING CONDITIONS

a. The site currently consists of the existing foundation of a single-family residence, retaining wall and concrete V-ditch towards the bottom of the lot. It is a hillside property. There a few miscellaneous native shrub species and grasses located throughout the property. On the west side the neighboring property has one mature live oak tree adjacent to the property line.

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f. Black Acacia trees in rear yard to be removed root system to remain for erosion control.
g. Vegetation shall be cut and maintained to ensure address numbers are visible from both angles of approach.

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a. Any future plantings outside of the 5' (Zone 0) area will include fire-resistant, shrubs, perennials, and ground covers as in the FIREsafe Marin planting lists located at www.firesafemarin.org/plants. New planting must be on irrigation system

LONG TERM MAINTENANCE SHCEDULE AND SAFETY PRACTICES

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g. Coordinate with adjacent property owners to maintain tree canopies, vegetation and ladder fuels on an annual basis.
h. No native grasses shall be planted within Home ignition zones 1 and 2.
i. All planted areas inside Home ignition zones 1 and 2 shall be irrigated.
j. All plantings shall be selected in coordination with the FIREsafe Marin planting list located at www.firesafemarin.org/plants. Other fire resistant plants can be utilized with prior approval of the Fire Code Official.
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- Remove tree limbs that extend into this zone. Fire-prone tree varieties should be removed if they extend within 5' of structures.
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- Use only inorganic, non-combustible mulches such as stone or gravel. Composted mulch and large bark and chips (greater than 1/2" diameter) may be OK.

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WB
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SWA BIOSWALE -SEE CIVIL DRAWINGS FOR DETAILS- TO CONTAIN APPROVED MULCH PER MARIN COUNTY FIRE GUIDELINES FOR IMMEDIATE ZONE 0 (0-5')

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ROSS VALLEY FIRE DEPT
___ Approved
DB Approved with Conditions
___ Not Approved - need revision
___ Incomplete
Date: 11/..../22

VMP PLANT LIST

SYMBOL	COMMON NAME	LATIN NAME	QTY	FIRE RESISTAN	TYPE	EXISTING OR NEW	REMARKS
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AGA	FOXTAIL AGAVE	Agave Attenuata	4	Y	Succulent	E	REMOVED

BLACK ACACIA TREES TO BE REMOVED ROOT SYSTEM TO REMAIN FOR ERROSION CONTROL

1 VEGETATION MANAGEMENT PLAN
3/32"=1'-0"

BACILIA MACIAS
ARCHITECTURE
6007 NE Sacramento ST Portland OH 97213
510.929-0727 ph bacilia@bmarch.net

LICENSED ARCHITECT BACILIA MACIAS STATE OF CALIFORNIA

NEW RESIDENCE WITH ADU
125 LIVE OAK AVE
FAIRFAX CA
APN:001-236-03

REVISIONS DATE
DRAWN BY BM
DATE JAN 28, 2022

VEGETATION MANAGEMENT PLAN

VMP

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FILE COPY