

APPENDIX A

Summary of Recommended Changes to MND/IS

SUMMARY OF RECOMMENDED CHANGES TO MND/IS

Mitigation Measure CUL-1 provides for an adequate screen to reduce any potential indirect impact on the Finger Farmhouse property to a less-than-significant level. Mitigation Measure CUL-1 currently reads:

Mitigation Measure CUL-1: Prior to completion of the first final building inspection, the project applicant shall install screening vegetation along the project site's westerly property line that within 2 years will reach a minimum height of 16 feet and which shall be of a species type that will completely block views of the entire project from the adjacent property year-round.

However, Staff agrees that the proposed revised language presented in Daniel Ponti's comment letter provides a better, more detailed direction as to how the mitigation measure is to be carried out and recommends that the Commission consider substituting the following mitigation for the one contained in the MND/IS.

Mitigation Measure CUL-1: Prior to issuing a building permit, a screening plan shall be developed by a qualified landscape architect and approved by City's Planning Division. The screening plan shall identify the appropriate height for screening vegetation that would completely obscure the views of the proposed home on lot 9 (or the proposed home adjacent to the Finger Farmhouse) from views from the Finger Farmhouse property adjacent to the historic house. The screening plan shall include a maintenance and monitoring program to ensure that the screening of the new home is maintained and successful. If it is determined by the screening plan that the new home on lot 9 cannot be fully screened from views on the Finger Farmhouse property, the City shall require the applicant to modify the project design to ensure that the new home on lot 9 will be appropriately screened from the Finger Farmhouse.

APPENDIX B

Historical and Cultural Resources

**Historic Resources Advisory Committee
Redwood City Hall
1017 Middlefield Road
Redwood City**

MINUTES

April 10, 2008
Conference Room 2B
7:00 p.m.

APPROVED

COMMITTEE MEMBERS PRESENT: M.Bursak, D. Eva, J. Gernand and Chair Rolandelli

COMMITTEE MEMBERS ABSENT: R. Holt, N. Jabba, J. Pellizzer

STAFF MEMBERS PRESENT: C. Jany, K. Mateo, T. Passanisi

GUESTS: Dan Ponti (Resident), Kirk McGowan (McGowan Development), Dean Collins (RWC Resident), Laura Jones, Ph.D, Dain Anderson (City Consultant), Sheila McElroy (City Consultant), Clark Chu, property owner of 418 Stambaugh Street; Henry Yang, property owner of 812-820 Hopkins & 1005-1011 Warren Street

1. Approval of Minutes for the regular meeting on March 13, 2008.

M/S (Bursak/Eva) to approve the minutes of March 13, 2008 as corrected.
J. Gernand abstained
R. Holt, J. Pellizzer absent from meeting

Motion continued to next meeting for lack of quorum.

2. Historic Evaluation Report relating to Finger Avenue subdivision proposal: Recommendation to Planning Commission:

- **Determination of adequacy and completeness of overall report**
- **Finger Farmhouse historic landmark – Determination of eligibility for listing on California Register**

Dain Anderson, City Consultant, stated that a determination had been made by the HRAC that none of the structures on the project site are considered historical resources eligible for listing on the California Register. He added that an on-site Archeologist will be on-site during excavation and grading activities. The next steps for this project is an Environmental Document will be completed, an Initial Study is in preparation, a Mitigated Negative Declaration or EIR will be recommended, there will then be a public review period in which comments will be taken in and the final documents will go to the Planning Commission for action on the Environmental evaluation.

Mr. Gernand referred to page 35 of the attachment to the memo and stated that the request from the November meeting was to have a diagram with the footprints of the buildings and mentioned that only a piece of the whole proposed development was shown.

(Committee members were shown complete set of plans by staff.)

Mr. Gernand asked if the side setback will be at the rear and if the rear setback is the same as a standard rear setback. He also asked about the proposed screening between existing and proposed buildings.

Mr. Anderson stated that the applicant is seeking narrower setbacks than typically required via a Planned Development Permit application. Regarding the proposed screening, the applicant shall submit detailed landscape plans for review by staff to insure an adequate landscape buffer.

Mrs. Eva asked if there will be a fence along the property line for screening.

Mr. Passanisi replied that these details will be reviewed by the Planning Commission at the time of review of the Planned Development Permit.

Dan Ponti, Finger Avenue resident and immediate neighbor to the proposal, passed out an information packet to the Committee and staff regarding the history of the development explaining his concerns about the project's integration to the scale and character of the existing neighborhood.

COMMITTEE COMMENTS

Mr. Gernand asked what will become of the report that was prepared by Mr. Ponti (photos and document).

Mr. Passanisi replied that the subject documentation will become part of the record and be incorporated into the Environmental Assessment.

Chair Rolandelli:

All references to the Finger Farm House regarding inclusion in the Redwood City Historic Inventory should be changed to Redwood City Historic Landmark. There are two general categories for historic resource classification in Redwood City: the Redwood City Historic Resources Inventory and the Historic Landmark Status, which are two different levels. Page 34, third paragraph of the report, states that the proposed new homes are no closer to the Finger Farmhouse than the existing structures at 80 & 88 Finger Avenue, which is incorrect in reference to visibility. He also disagrees with the applicability of the court case referenced in the report on page 34 and disagrees with the statement on page 39 of the report which first states that the FFH structure is a "weak example" of its kind. The Chair read from the DPR form that was prepared in 1994. Overall, the Chairman felt that the FFH was typical of its type.

Chair Rolandelli referred to the Field Guide to American Houses by Virginia and Lee McAlester.

Mrs. Eva stated that judging on the basis that the Finger family was historically significant to Redwood City; she believes that there is merit in having this on the Register of Historic Places. However, on the basis of the architecture, which may have changed quite drastically over the years, the historic significance would depend on whether it looked exactly the same as when the Finger family lived there.

Mr. Gernand believes that in the context of the "settlement" category listing on the California Register, the report on the FFH has produced a very telling history of how the people came to the area and what transpired on the site and in that context he felt that it would be eligible for historic resource.

Ms. Jones said that she would make the changes to the report as discussed.

Chair Rolandelli asked if the HRAC feels this proposed development will cause the Finger Farmhouse to lose its historical status.

Chair Rolandelli pointed out contradictory statements from an earlier report by Laura Jones dated December 19, 2007 indicating that the Finger Farmhouse appeared eligible for listing on the California Register under Criteria 1 & 2. Whereas, the latest report indicates that it is not likely to be eligible for listing.

Mrs. Eva felt that the development would not negatively impact the Finger Farmhouse.

Mr. Bursak stated that he would like adequate screening to be installed in the narrow distance (setback) between the existing Finger Farmhouse and the new structures, and was concerned that there may not be enough room for adequate foliage.

Mr. Anderson indicated that the Planning Commission may re-site the project to create a larger rear setback as a result of possible screening concerns.

Mr. Gernand referred to page 39 last paragraph and asked if the mature trees are remaining.

Mr. Anderson replied that some trees will be retained on the site.

Mr. Ponti corrected that there are 41 heritage trees and 13 will be removed.

Kirk McGowan, Developer, stated that in overall numbers, they will be replacing trees, not removing trees and if there are any suggestions to add more they will.

Chair Rolandelli felt that the FFH would not be impacted, however, he would like more adequate screening in order to insure that the historic integrity of the FFH would not be compromised.

M/S (Eva/Bursak) to determine that the report is adequate and complete and according comments and corrections will be noted in the Addendum.

Motion Passed 4-0

M/S (Gernand/Bursak) find that the Finger Farmhouse California Register eligible

Motion Passed 4-0

M/S (Eva/Gernand) that the proposed development will not affect the historic status of 90 Finger Avenue (FFH) (assuming screening concerns are addressed to the satisfaction of the City).

Motion Passed 4-0

3. 418 Stambaugh Street, updated Mill's Act proposal

Mr. Chu & M. Gaspar, property owners, stated that they have incorporated the suggestion HRAC revision to their Draft Mill's Act.

M/S (Bursak/Eva) recommendation to the Planning Commission that 418 Stambaugh Street be eligible for the Mill's Act contract.

Motion Passed 4-0

4. 812-820 Hopkins Avenue & 1005-1011 Warren Street, updated Mill's Act proposal

Mr. Yang, property owner, stated that he has incorporated the suggested changes by HRAC into his draft Mill's Act.

M/S (Eva/Gernand) recommendation to the Planning Commission that 812-820 Hopkins & 1005-1011 Warren Street is eligible for the Mill's Act Contract.

Motion Passed 4-0

5. Historic Redwood City "Path of History" update

Mrs. Eva spoke with Susan Moeller, Redevelopment Resources Consultant, and will be in touch with Lisa Park regarding the proposal and contract.

6. "Save our History" Grant Program

Chair Rolandelli stated that Mrs. Jabba has put together a grant application to propose education to students regarding history and is proposing a poster contest after the historic tours.

M/S (Gernand/Eva) to move to pursue the grant.

Motion Passed 4-0

7. Historic Preservation Workshop in Redwood City April 9, 2008

Mr. Jany stated that there were around sixty attendees at the workshop and he received a note of thanks from Marie Nelson from the State Office of Historic Preservation.

8. Proposed Main Street Historic District #2 (per Downtown Precise Plan)

Chair Rolandelli gave information and photos to the State regarding the district and will wait for their opinions regarding the boundaries and whether it is a local district or National Register eligible.

9. Courthouse Historic District proposal (per Downtown Precise Plan)

Chair Rolandelli gave copies of the DPR forms, etc. to the State.

10. National Historic Preservation Month

Chair Rolandelli stated that the HRAC has received a \$500 grant from the Peninsula Sunrise Rotary Club and a Committee member will need to attend a breakfast ceremony to receive the grant, he will send the Committee details of the event.

\$3,000 is needed:

\$500 – Watry Design

\$100 – Dee Eva

Civic Cultural Commission - \$1000 – to be determined

Port Commission (Mr. Bursak) - \$500 – to be determined

Peninsula Sunrise Rotary (Mrs. Jabba) - \$500

Mike Bursak to provide the condiments

On April 28, 2008 Chair Rolandelli will attend the City Council meeting to receive a Proclamation regarding "National Historic Preservation Month".

11. Historic designation certificates, historic landmark plaques and certificates of recognition for restoration work

- **1827 Brewster**
- **702 Warren**
- **175-177 Birch** – Slate roof replaced?
- **831-835 Main Street**
- **Lathrop House**
- **Britsghi House on Hopkins – 1633 Hopkins**

12. Oral Communications and Matters of Committee Interest:

- **Historic Resources Inventory – staff update**
Continue to next meeting.
- **Sequoia High School graduation plaques and c. 1939 woodshop building update**
Continue to next meeting.
- **1126 Allerton update**
No information
- **1405 Middlefield Mill's Act**
No information
- **Mayor's Beautification**
May 30, 2008 deadline for submittals. Continue to next meeting.

13. CLG Review – Historic Status Confirmation for Housing Department

- **2600 Middlefield Road** – Fair Oaks Community Center – Cultural/Social
- **1445 Hudson** – YMCA – Cultural/Social
- **2033 Jefferson** – re-sided property
- **210 Lexington** – small cottages appeared to be altered

OTHER COMMUNICATIONS

- 2008 Governors Historic Preservation Awards due May 30, 2008
- 2008 CLG Grants due April 28, 2008
- Training California Preservation Foundation – April 23-26 in Napa, CA
- 611 Heller Street – 1860's gothic cottage (on inventory) the siding has been altered
- The National Alliance Preservation Commission Booklet
Chair Rolandelli read that the city of Phoenix defines "acceptable replacement" window as a fiberglass, aluminum, or vinyl window (generally in that order of preference) which uses the original window opening size (i.e., no partial closing up of window), opens the same way as the original window (i.e. a vertical sash operating window) and creates a similar "profile" or depth in the wall opening as the historic window. Generally speaking, they view fiberglass as the best alternative for metal windows when owners are unwilling to use matching materials. A window replacement with a matching muntin pattern is also required, with a true-divided light window preferred and exterior snap-on muntin grids viewed as the best choice. Dual-pane window replacements are also permitted as long as the muntins are exterior-mounted (no flat "air space" grid strips between the glass panes).

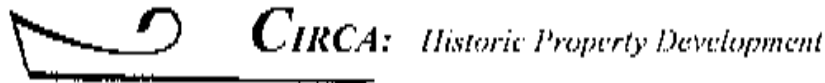
14. **Adjournment**

M/S: (Bursak/Eva) to adjourn the meeting.

Motion Passed

The meeting adjourned at 9:38PM to reconvene at the regular HRAC meeting scheduled for May 8, 2008 7:00 p.m. in **Conference Room 2B**, City Hall, 1017 Middlefield Road, Redwood City.

Staff Liaison: Charles Jany (650) 780-7239 email: cjany@redwoodcity.org



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April 2, 2008

Dain Anderson
Associate Principal
Impact Sciences
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Re: Compatibility Section (*Cultural Resources Evaluation for Properties Located at 50, 80 and 88 Finger Avenue, Redwood City, California*)

Dain,

I recently reviewed the Compatibility in Scale section of the *Cultural Resources Evaluation for Properties Located at 50, 80 and 88 Finger Avenue, Redwood City, California* received via e-mail on Friday, March 28, 2008. The new section (page 37) adequately addresses concerns and comments regarding the size, massing and scale issue brought up by the City of Redwood City Historic Resource Commission, therefore, new revisions are not necessary.

Regarding the question of scale/square footage: Ms Jones correctly identifies the Finger Farm House as being 1827 square feet, then adds the two garages and a shed (a combined total of 1975 square feet) for a total of 3802 square feet for all detached structures on the Finger Farm House property. The proposed new residences will range from 2825 square feet to 3369 square feet *plus* 500 square feet for attached garages. To compare "apples to apples" the Finger Farm House residence is 1827 square feet and the new residences will range from 2825 square feet to 3369 square feet for a difference of 998 square feet to 1542 square feet. Since the proposed new residences will also have an attached garage (in comparison to the detached garages and shed on the Finger Farm House property) the total square footage of the new residences with attached garage will be 3325 square feet to 3869 square feet. Regarding the issue of scale we must compare building-to-building; the difference between the detached Finger Farm House and the new residences with attached garage is actually 1498 square feet to 2042 square feet.

Regarding the question of height: Ms Jones correctly identifies the Finger Farm House gable roof peak as being 31 feet high. The immediately adjacent residence (80 Finger Avenue) has a gable end (no height given) with a small percentage of roof slope observed from the Finger Farm House. While the simulated black and white photograph, and the simulated mature trees minimize the simulated image of the new residence, the roof of the new residence appears to be a combination of hipped and gable (not specified). While noted as being only 24 feet high at the area nearest to the Farm House, the full length of the roof slope will be visible from the Finger property. This orientation will expose a significant percentage of roof slope and material, thereby adding to the mass of the new residence. If mature trees and plantings are proposed as mitigation measures to camouflaged the extensive amount of exposed roof material, then the report should say so.

Regarding the question of setback: Ms Jones states that the "proposed new house at Lot 9 is 15-17 feet from the Finger Farm House; this is no closer than the existing secondary structures at 80 Finger Avenue". The question asked by the commission was 'how close is the existing 80 Finger Avenue residence to the Finger Farm House, and how close will the proposed new residences be from the Finger Farm House.' Proximity to garages and sheds is irrelevant.

Should there be any questions, I may be reached at 415 362 7711.

Respectfully submitted

Sheila McElroy
Principal, Circa: Historic Property Development

**Residential Redevelopment Project at 50, 80, and 88 Finger Avenue
(complete revised report)**

**Cultural Resources Evaluation for
A Proposed Single-Family Residential Redevelopment Project
at 50, 80 and 88 Finger Avenue
Redwood City, California**

Prepared by
Laura Jones, Ph.D.

Prepared for
McGowan Development
655 Skyway, Suite 230
San Carlos CA 94070

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Project description

The proposed project includes the demolition of seven existing structures (six detached single-family residential structures and one shed) and their replacement with nine new single-family detached homes. The Finger House, a structure listed as a Redwood City Historic Landmark, is on an adjacent property at 90 Finger Avenue. This report evaluates the properties to determine whether any significant cultural resources are impacted by the proposed redevelopment project.

Three basic questions will be addressed:

- 1) Are any of the existing structures on the proposed project site eligible for listing as historic landmarks, using the criteria included in the City Code of Redwood City, Section 40.6 or the criteria for listing on the California Register of Historic Places?
- 2) Are there any archaeological deposits on the site of the proposed project?
- 3) Does the project have the potential to adversely affect the character of the adjacent historic resource?

Section 1: Historical Context

General Local History

The first people to live in the area known today as Redwood City were the Ohlone (also referred to as the Costanoan) tribe of Native Americans that lived in the San Francisco Bay Area. Physical evidence of Ohlone villages existing within Redwood City consisted of shell mounds, results of the Ohlone diet staple of shellfish, gathered from the nearby bay. At least twenty-five generations of Native Americans lived in California before the Europeans arrived. While their cultural practices evolved over the thousands of years they occupied the area, the pace of culture change increased dramatically as European explorers and colonists arrived in the late 1700s.

The Spanish first passed through the future site of Redwood City in 1776, when Juan Bautista de Anza led his second expedition up from Mexico to the San Francisco Bay Area as part of an effort to settle Alta California. He led a party of two hundred and forty soldiers and soldier-colonists, together with four families. More soldiers and settlers soon followed; those that settled on the San Francisco peninsula tended to raise cattle or farm.

Don José Darío Argüello, a distinguished officer in the military, was awarded a land grant of 69,000 acres for his service by the Spanish government. He commanded the presidio established at San Francisco between 1787 and 1791, then again from 1796-1806. Don José served as acting governor of Alta California from 1814-1815, then as governor of Baja California from 1815-1822. His land was bounded by San Mateo Creek to the north, San Francisquito Creek to the south, the San Francisco Bay to the east, and the Coastal Range mountains to the west. The Argüello family named their holding *Rancho de las Pulgas* (Ranch of the Fleas); they raised cattle and horses, and provided the nearby missions with food and animal hides.

When Mexico gained its independence from Spain in 1821 it took almost a year for the news to reach Alta California. Once it did, the land was regranted to Don José's son, Don Luis Argüello. Don Luis was the first native born *Californio* to serve as governor of Alta California (1822-1825). He died in San Francisco at the age of 45 in 1830; his widow and children took up residence at the *Rancho de las Pulgas* (in an adobe home located in the present city of San Carlos) after his death. The Argüellos continued to live on the land through the Mexican War (1846-1848). California was annexed by the United States in 1848 and became a state two years later. In 1851, the Land Act was passed, requiring *Californios* to prove title to Spanish and Mexican land grants. The Argüellos hired a lawyer, Simon Mezes, who successfully defended their claim. He ended up with roughly one quarter of the subsequent thirty-five thousand acres retained by the Argüellos. Mezes's portion consisted of what is now downtown Redwood City. He informed the squatters living in the area that they would now have to purchase their lots from him. He renamed the town "Mezesville," but the disgruntled local inhabitants insisted on continuing to call it Redwood, or Redwood Landing. By 1856, Redwood City was the official designation after the post office was established.

Simon Theodore Finger arrived in California in 1852 and moved to Redwood City in 1855. Born in Frankfurt, Germany in 1816, Theodore (as he was known) was listed in the 1860 U.S. Census as a farmer. He purchased 13.45 acres from John Sprague on March 15, 1855. This parcel of land was “300 feet on the west side of the county road (El Camino Real), south of Cardillas Creek.” The creek was known as Arroyo de los Cadillos (Cocklebur Creek), but generally misspelled as Cordillas. By 1862, it was known as Finger’s Arroyo, then later Finger’s Creek or Finger Creek. An 1877 San Mateo County map shows it as Cordillas Creek; the Wellesley Park subdivision map labelled it Cordilleras Creek in 1888, and the USGS accepted this name in 1895. Local residents still called it Finger Creek for many years.

Seven months later, on October 15, 1856, Margaret Wilhelmina Finger, Theodore’s wife, purchased a much larger section of land from Simon Mezes. This 50-acre parcel, “all lying east of the county road...also lying adjacent and south of the Cordilleras Creek, and extending down to the arm of the creek or slough named Smith’s Creek, also shown as Finger’s Creek.” Mina Finger was a native of either Frankfurt or Saxony (census reports differed); she was born in 1827. The 1860 U.S. Census listed the Fingers as having three sons, Herman (aged 13, born in Texas; adopted by the Fingers), Henry (aged 7, born in California), and Frederick (aged 1, also born in California, and christened Lorenz Fredrick).

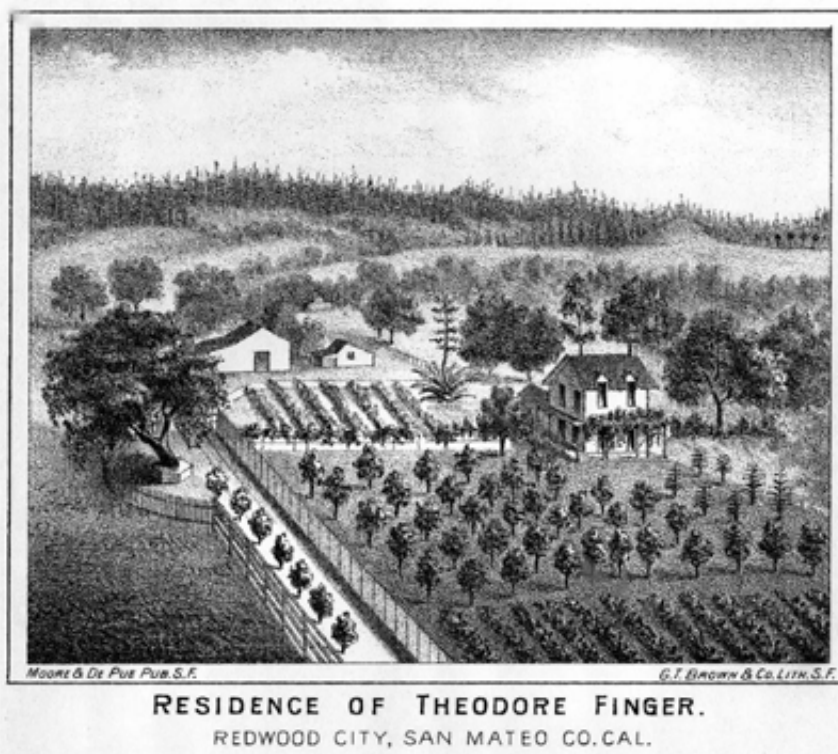


Figure 1: The Finger farm house as seen in Moore and De Pue's *Illustrated History of San Mateo County*. Finger Lane runs up perpendicular from the county road (El Camino Real). An oak tree stands at the future intersection of Hyde and Finger. A fruit orchard and some of the grape vines can be seen, as well as the grove of redwoods off in the distance.

By 1861, Theodore had planted out the combined Finger acreage in table and wine grapes. (Remnants of grape arbors could still be found on the Finger property as late as 1978.) He was one of the earliest pioneers to try growing grapes in the area. A year later, he placed an ad in the *San Mateo County Gazette*, on February 15, 1862: “Grape vines for sale. The undersigned has a fine assortment of cuttings, yearling, roots, and 3 year old bearing vines; this is a fine French table grape and as a large runner well adapted to be planted around houses, arbors, etc. T. Finger, near Redwood City.” The *San Francisco Chronicle* published a long article about grape culture on May 18, 1885 that was reprinted in the May 23, 1885 *Times and Gazette*. Theodore was featured in the article:

...About a half mile from Redwood City is the vineyard of Theodore Finger. Mr. Finger is the premier vineyardist of the county, as he first engaged in the business over 24 years ago, when he

planted the vineyard which he now owns, and which has ever since been in good bearing condition. The largest crop was during the famous dry year of 1877, when it produced 1400 gallons of wine....He also considers the Mission grapes the best adapted to the soil and climate....thus far, the indications are that the coming season's crop of grapes will be a large one.

In July of 1862, the Fingers had deeded both parcels of property over to local attorney George Fox, of Fox and Fox, as tenants in common. He promptly deeded the land back to them as joint tenants.

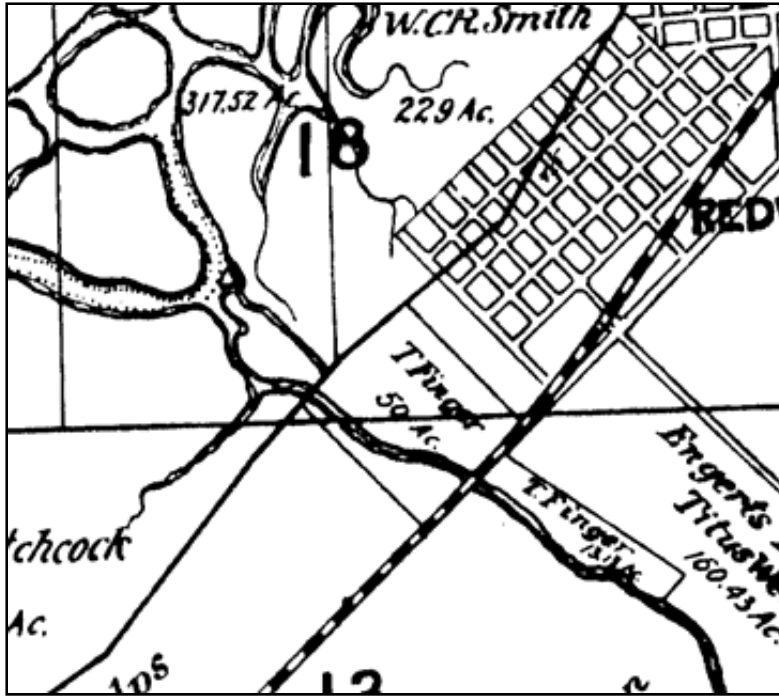


Figure 2: The 13-acre Finger tract on the right is the original parcel purchased by Theodore Finger in March 1855. This is the parcel that was later subdivided into the Finger Park Tract in 1906. Mina Finger purchased the 50-acre lot (center) in October 1855. Note the wharf and access road (left of the 50-acre lot) leading from the creek directly to the Finger property. The two Finger lots were divided by the county road (El Camino Real) and the railroad tracks. Map date: 1868.

An 1868 San Mateo County map shows the two Finger parcels divided by the county road and Southern Pacific railroad tracks. W.C.R. Smith had built a wharf on the creek, as well as a warehouse and road that ran directly to the Fingers' fifty acre parcel. Smith, a successful and wealthy drugstore owner, owned two hundred twenty nine acres adjacent to the easternmost end of the Finger property. An 1877 San Mateo County map shows that Theodore and Mina purchased from Smith a third tract of land that included the wharf, warehouse, and access road. Marked 70 acres on the map, it may have been less, as the boundaries appear to define an area smaller than the 50 acre parcel. This wharf became known as Finger's Wharf or Finger's Landing; a boathouse was constructed at some point (whether by Smith or the Fingers is unknown). It is possible that Finger used the warehouse as a winery.

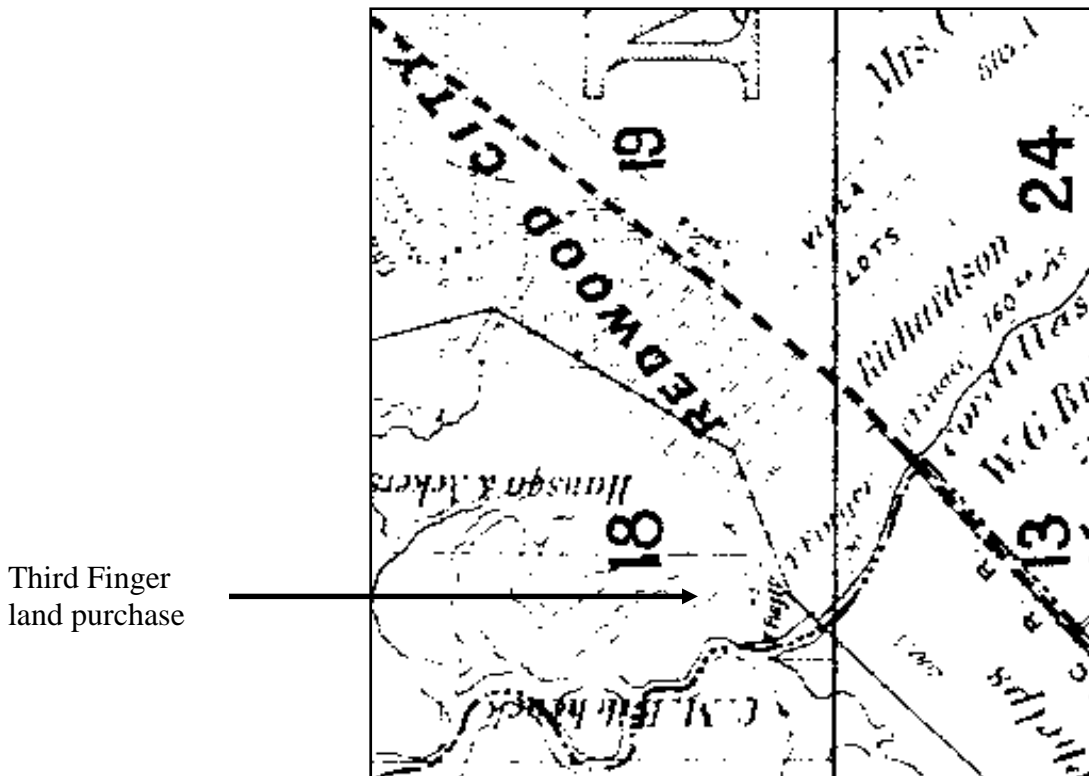


Figure 3: This 1877 San Mateo County map shows the third Finger property purchased from WCR Smith. The wharf, warehouse, and access road now belonged to the Fingers.

The Fingers were active members of the community and extremely well thought of. Both were noted for their generosity. They adopted several children (two boys and two girls) in addition to their three natural-born sons. Rudolph Grund, a talented architect and draftsman from Hamburg, Germany, suffered from ill health and made his home with the Fingers for many years before he died in 1870 at the age of forty-one.

One of the gestures made towards the local community was the provision of Finger Grove for picnics. The grove was a patch of woods that sat at the westernmost end of the 13-acre tract, with the creek as the top boundary and Finger Lane dead-ending at its most southern point. (Finger Lane was changed to Finger Avenue after the property was subdivided in 1906.) In 1872, Theodore leased the property to the Turn Verein for ten years; the group built a dance pavilion that cost \$800. The Turn Verein was a local chapter of a nationalist group that formed in Berlin in 1811; they combined promoting physical exercise with vigorous discussion of German political and economic reforms. Liberty and a love for the fatherland were two favorite topics; the Fingers called their home “Liberty Hall.”

Theodore Finger also allowed fraternal organizations, such as the Odd Fellows, the local Sunday school children, and tourists from San Francisco to visit the grove. A live band provided music for the many dances that took place in the open pavilion, which remained standing until 1902.

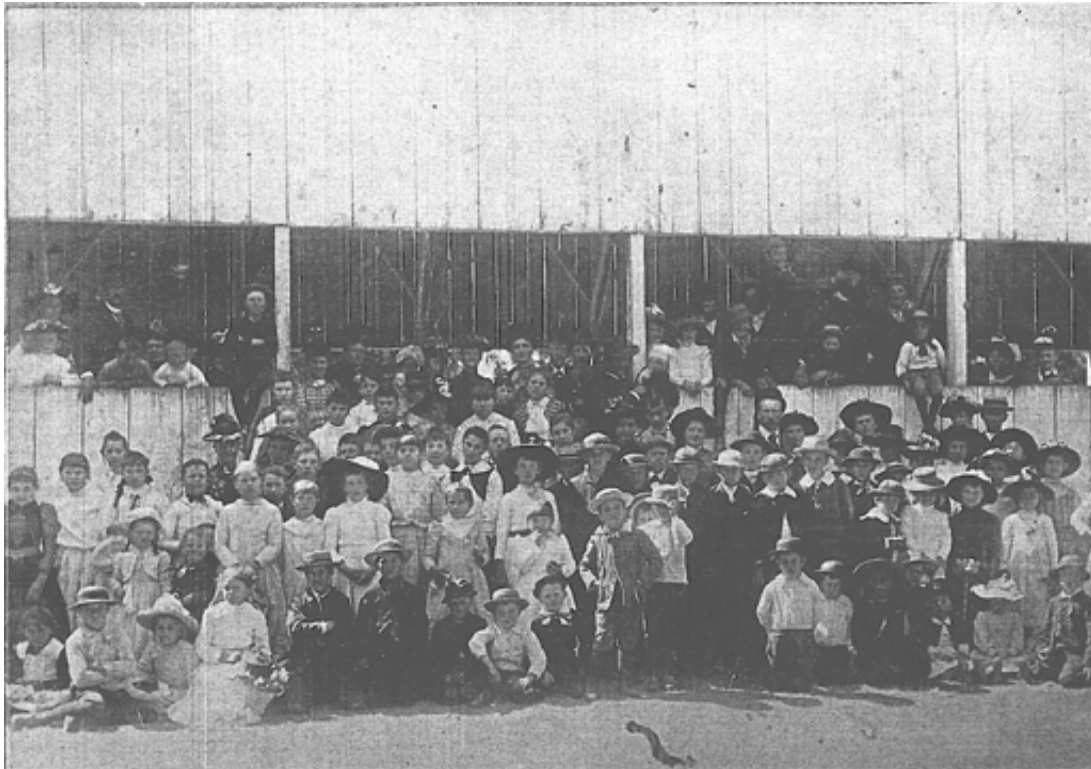


Figure 4: A Sunday school picnic held at Finger Creek with the wooden dance pavilion in the background.

Theodore Finger was killed on August 6, 1887, hit by the southbound 5:33 p.m. express train at Finger Crossing. The *San Mateo Gazette* claimed that he was “preoccupied, short sighted, at least slightly deaf.” A week later, the editor corrected the account, writing that in fact Theodore Finger had been far-sighted and possessed of acute hearing. His boot heel had become caught in the track; the horrified engineer saw him struggling to free himself but could not stop the train in time. Theodore Finger’s obituary described him as a “daily exemplar of frugality, of probity, of good citizenship in its best sense. . . . The hospitality which gave the home of the Fingers its childset charm was an indescribable blending of old-world courtesy and new world informality.” The paper goes on to describe the Finger home as “a Liberty Hall pervaded by an atmosphere of self-respectful dignity. It was a home where the flowers bloomed all the year, where vine and orchard tree fruited abundantly and deliciously, where good cheer tempered by simplicity was part of the daily regime.”

On October 8, 1887, the following notice appeared in the local paper: “Notice to creditors, estate of Simon Theodore Finger, also commonly known as Theodore, deceased. . . . Mina Finger, executrix.” An 1889 reference to Mina Finger lists her as a farmer, two years after Theodore’s death.

August and Otto Finger

Theodore and Mina Finger were not the only Fingers to make generous community gestures. Theodore’s older brother, August Finger, was listed as a farmer in the 1870 U.S. Census. Born in Possen, Prussia, in 1807, he was living with his wife, Emily, and Otto Finger (most likely their son, based on their respective ages), in Fremont, on the other end of the Dumbarton Strait from Redwood City. August had a nursery business with multiple depot locations at Adobe Creek (between Mountain View and Mayfield), Oak Grove (Menlo Park), Mr. Steven’s (Redwood City), and W.C. Alt’s (San Mateo). In 1871, August Finger donated two hundred evergreen trees to the Catholic Church in Redwood City, built at the corner of Eighth (now Brewster) and the county road, less than a mile from the Finger home.

In 1877, August lost his Adobe Creek lease and relocated to Redwood City. He set up the Pacific Nursery close to the depot, on the lot next to the Catholic Church. A year later, he invited customers to spend a pleasant day at the grounds, free of charge, but whether he meant the Finger grove, the churchyard grounds, or the nursery grounds is unclear. Frederick Botsch, secretary of the Turn Verein, took orders for August at his saloon on Bridge St.

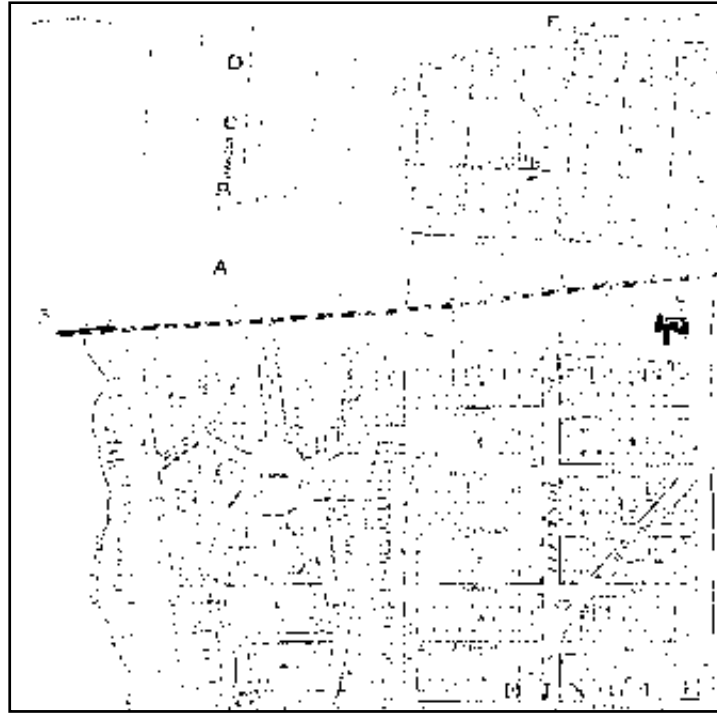


Figure 5: The Catholic Church where August Finger donated 200 evergreen trees can be seen at the far right edge (the dark building). It was at the corner of Brewster and the county road, near the depot. August Finger's Pacific Nursery was at the lot to the immediate left of the church. The Finger Park Tract can be seen at the far left of this 1909 map.

Richard Schellens made note of a middle brother, Otto Finger, but only Theodore and August appear in any of the U.S. Census Reports. Otto was supposedly two years younger than August, but the Otto Finger living with August in Fremont in 1870 is only thirty-five years old to August's sixty-three; presumably he was August's son, not his brother. (Schellens cited an entry with no source that lists August as aged 75, Otto as aged 73, and Theodore as aged 67 in 1888, but none of these dates match up with the U.S. Census records and, in fact, Theodore died in 1887.)

Children of Theodore and Mina Finger

In 1881, adopted daughter Emma married Fremont Older, who became editor of the Redwood City *Times Gazette* in 1883. They were married for eleven years, divorcing in 1892. In 1882, adopted son Herman was killed at the age of thirty-four, crushed by a piece of heavy machinery while at work in San Francisco, at the Holbrook, Merrill & Company hardware firm. (Holbrook and Merrill both had summer homes in nearby Atherton, then Menlo Park.) Daughter Josie was a second grade schoolteacher in the Redwood City public school, and was noted for being her "foster mother's closest companion." Natural sons Lorenz (Lawrence) and Fredrick Augustus (Gussie) had died in 1861 (21 months) and 1876 (fourteen years old) respectively; baby Lorenz was the first Finger to be buried in Union Cemetery. The Finger family plot, which also holds longtime friend Rudolph Grund, is numbered 117. (Only three Finger and the Grund headstones remain today; the others have disappeared over time.)

An 1884 item in the local newspaper mentioned that Theodore and Mina's son, Henry Finger, had returned to Redwood City and had purchased the Pioneer Drugstore. If this was accurate, he did not remain in the Bay Area long. He had moved to Santa Barbara (one source says as early as 1872), where he worked as a druggist. In 1886, he married Miss Ella C. Huntley of New Haven, Connecticut, and they lived in Santa Barbara after they were wed. Henry was a member of the California State Board of Pharmacy, serving as its president. He was appointed by U.S. President Taft to act as a delegate for the International Opium Conference held at The Hague in 1911. He wrote many papers and was considered an authority on narcotics and other habit-forming drugs.

Finger Park Tract

In late 1906, Mina relocated to Santa Barbara, to live with her son Henry. She had lived in Redwood City for fifty-two years. It is unknown when the Finger family sold the two parcels on the east side of the county road. The 13-acre parcel, bounded by Finger Grove on the west side and the county road on the east side, was bought, according to one source, by “Blind Boss” Buckley of San Francisco. Born Christopher Augustine Buckley, “Boss” was a significant political manipulator behind the scenes of San Francisco Democratic politics. He would have bought the property only as an investment; his own summer home, Ravenswood, had been built in Livermore in 1885. It is possible Buckley purchased one or both of the lots that were east of the county road, and the newspaper reporter confused those parcels with the Finger Park Tract, which lay on the west side of the county road and was originally purchased by Theodore Finger back in 1855.

The formal 1906 Finger Park Tract subdivision map actually listed three proprietors, none of whom was Christopher Buckley: Joseph L. Ross, A. Miles Taylor, and William M. Barret. Joseph Ross and A. Miles Taylor were both physicians; Ross had a prominent practice in Redwood City and Taylor was associated with the prestigious St. Luke’s in San Francisco, in addition to his own hospital in Oakland. William Barret was a geophysicist who prospected for gold, oil, and gas.

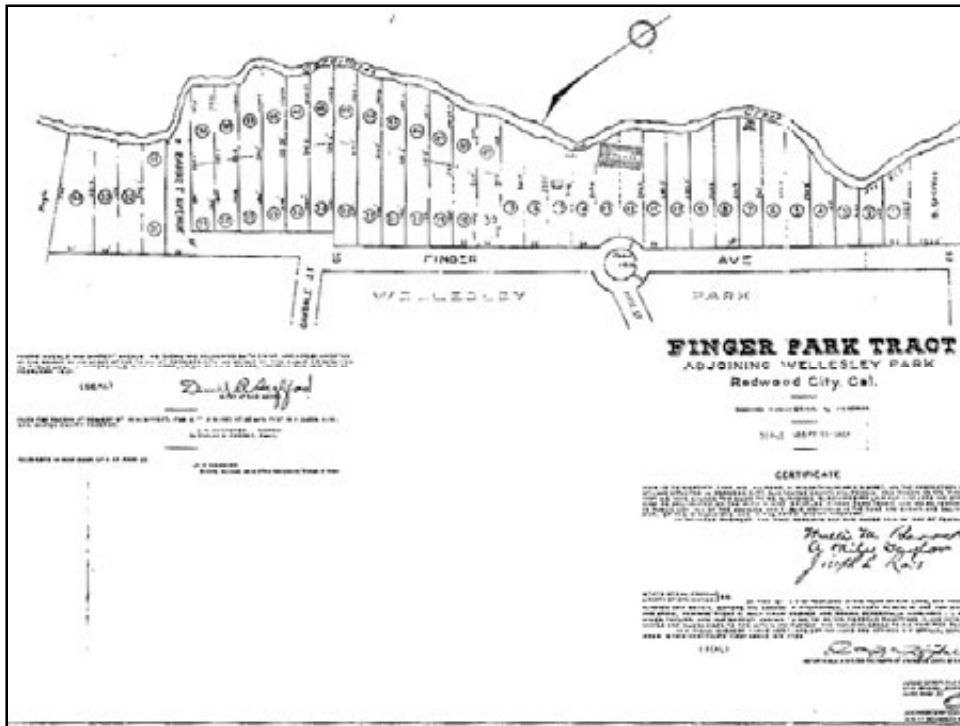


Figure 6: The subdivision map filed with the County Recorder in 1906. Although this map shows lots on the far side of Barret Avenue, the remainder of Finger Grove actually stood here for some years to come before it was finally developed. A few redwoods can still be found at this end of Finger Avenue today. Note the Finger farmhouse straddling lots 12 and 13, with two sheds identified on lots 14 and 15. These three buildings are the only Finger farm buildings identified on the subdivision map.

A separate lot, lying between the county road and the first Finger lot, belonged to a B. Smith, who subsequently purchased Lots 1 and 2. An ambitious total of forty-eight lots were laid out on the map. Lots 1-17 were single lots that ran perpendicular from the creek to Finger Avenue; lot 30 was inexplicably numbered between 17 and 18, lots 18-29 ran along Finger Avenue before hitting Barret Avenue. Lots 31-35 were laid out on top of the grove (separated from the rest of the tract by Barret Avenue, obviously named after William Barret), then lots 37-49 were doubled up with 18-29, along the creek. There was no lot 36. A well existed on Lot 7, the Finger farm house sat on lots 12 and 13; a shed built close to the creek sat halfway between lots 14 and 15, and a second shed sat on lot 15. The sheds were clearly labeled as such. No other structures were shown on this map, a copy of which can be found at the San Mateo County Clerk’s office.

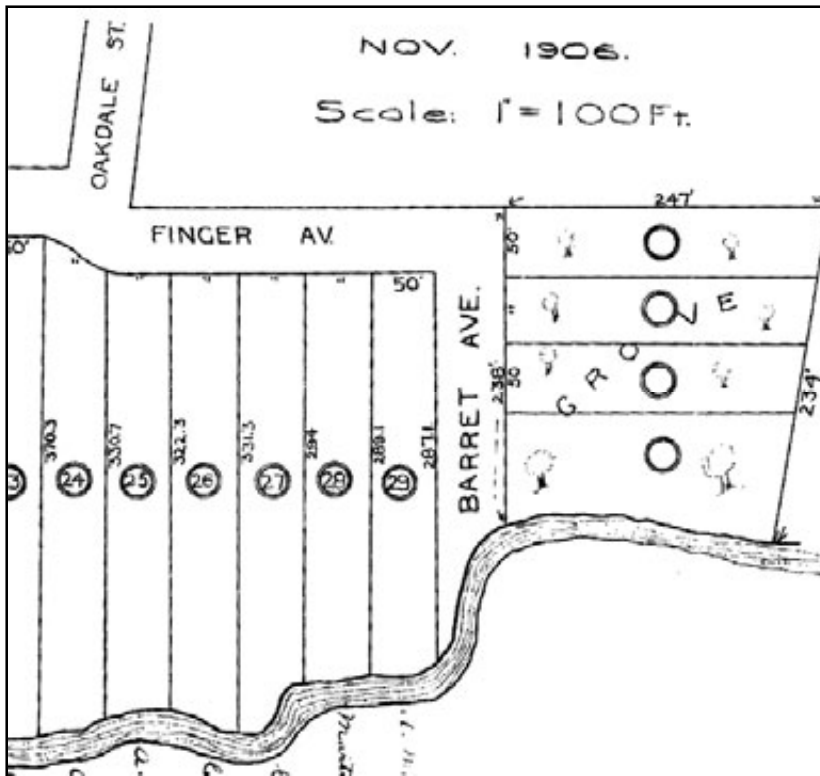


Figure 7: Note a portion of the Finger grove was still standing when the 1906 presentation map was drawn. The developers likely planned to sell those unmarked lots last, keeping the grove as long as possible as part of the “park” landscaping.

A presentation-style 1906 map of Finger Park Tract, housed at the Redwood City Public Library’s Local History Room, shows a somewhat different picture. The physical boundaries of the tract are the same, but there are only thirty numbered single lots (with 30 still falling between 17 and 18). Each individual lot was fifty feet wide; most purchasers bought two or three adjacent lots. Barret Avenue was drawn in, and there were four un-numbered lots laid out within the grove. Trees were drawn in on the designated grove (a portion of which may have been cleared to facilitate subdivision), a large oak tree sat in a traffic circle at the intersection of Hyde St. and Finger Ave., and a row of trees marched along Finger Avenue between Finger Park and Wellesley Park (adjacent to Finger Avenue and subdivided in 1889). The appellation of “park” to the Wellesley and Finger tracts was a shrewd attempt to incorporate the existing landscaping (some natural, some created by the previous property owners) as an enticing feature of the lots, much as the Flood estate in Atherton was utilized when Lindenwood was created from the Linden Towers estate during the late 1930s.

The trees shown on Finger Avenue on the 1906 presentation map were all included in a sketch of the Finger farm house in Moore and De Pue’s *Illustrated History of San Mateo County*, published in 1878. Schellens attributed a September 17, 1869, entry to the *San Mateo Gazette*: “Mr. Finger is about completing a fine residence to his farm.” He speculated that the Fingers lived in a smaller home when they first purchased their separate parcels in 1855, then built a larger home in 1869. The Finger farm house at 90 Finger Avenue is a portion of the 1869 home as pictured in 1878 in the Moore and De Pue book. The existing house has been altered since the period of its ownership by the Finger family, with removal of a wing on the western side and more recent additions to the east and north (rear) sides.

The Finger farm house straddled lots 12 and 13 on the presentation map. Lot 7 still held a well, but no other structures were displayed on the original map. Instead, someone at a later point hand drew two unlabeled rectangles, one straddling lots 1 and 2, the second one straddling lots 3 and 4. Three large X’s marked lots 6-8, all of which were purchased by William Barret. A. Miles Taylor purchased lots 22-24, and lot 29, although the name Ross was also handwritten on that lot.

Mr. and Mrs. Charles Boston purchased lots 12-13, with the Finger farm house, as well as lots 14-15. They could easily afford to pay for four lots; Charles Boston was a very successful dentist who had founded the College of Physicians and Surgeons in San Francisco in 1896. He also served for years on the Board of Supervisors, holding the office of mayor temporarily when Mayor Eugene Schmitz was convicted of graft and

bribery in 1907. Boxtton was in office more temporarily than originally intended; he confessed to taking bribes as well, and was forced to resign a week later. He promptly resumed his dental practice.

Another member of the College of Physicians and Surgeons eventually purchased the house two doors down from the Boxttons. Dr. Elizabeth E. Richardson, who headed the undergraduate orthodontic program at the College of Physicians and Surgeons in 1915, lived at 50 Finger Avenue, over on lots 6-8, originally owned by William Barret and his wife. She later built a new home on the lots sitting between her original house and the Finger farm house.

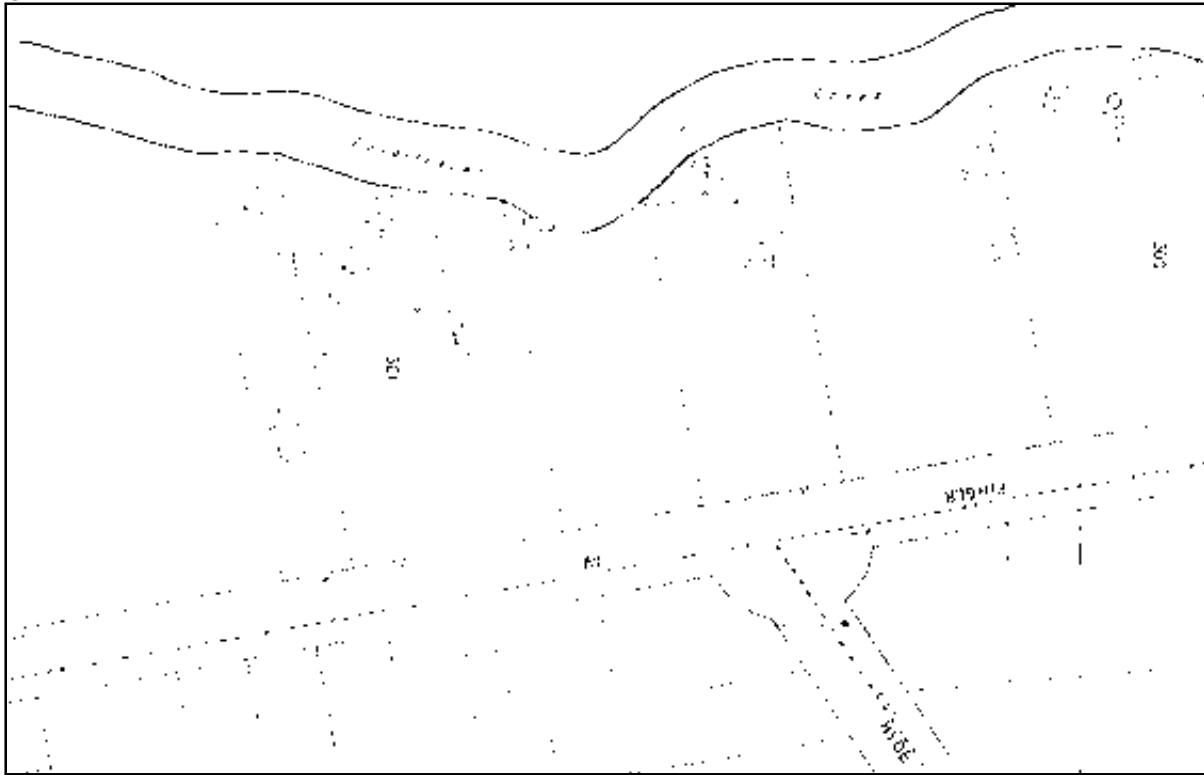


Figure 8: This 1919 Sanborn insurance map shows all of the buildings existing on the above lots. It is clear that the lots were originally sold in double, triple or even quadruple numbers; only two single lots existed on this stretch of Finger Avenue. An oak tree once stood in the semi-circle created at the junction of Hyde and Finger. The Finger farm house appears to have lost its western wing by the time of this survey.

A 1919 Sanborn map shows that most of the lots were sold in double and triple-sized sections, with relatively few structures built by 1919. Development differed from how it had been initially envisioned; rather than the thirty to fifty relatively small homes planned by Taylor, Ross and Barret, only a handful of variously sized homes were built in the first fifteen years after the property was subdivided. Some of the houses were used as summer retreats or retirement homes, others were year-round residences. Three structures were drawn in on the 90 Finger Avenue lot (one of which was the original farm house, minus its western wing), two structures that appear to be small houses were at the as yet un-numbered 80 Finger Avenue plot (neither has survived), and two small structures that also appear to be houses sat at 50 Finger Avenue. Neither of the 1906 sheds were displayed on the 1919 Sanborn map. The well was still clearly marked between the two buildings at 50 Finger Avenue.

Mina Finger Returns to Redwood City

Mina Finger made at least two trips back to Redwood City from Santa Barbara. One of the visits took place in 1909, when she took part in the Fourth of July parade that also marked Redwood City's Golden Jubilee. This time she rode in a car; in earlier parades she had ridden in a wagon pulled by mules. Her journey back to Redwood City in 1913 was her final one; she died at son Henry's home in Santa Barbara on December 8, 1913, at the age of eighty-seven. Her obituary noted her kindness: "Mrs. Finger spent her long life in doing good, alleviating the suffering of others and assisting the needy." She was known for feeding anyone in the area who turned up hungry at her back door. More remarkably, "Mrs. Finger is said to have been the only woman in the United States entitled to a pension for personal services during the Mexican War. She ministered to the sick

and injured during the Mexican war, through which her husband fought as a United States soldier. Because of her work, the Government awarded her a medal at the centennial exposition in 1876.” (It is not known if the medal was presented at Philadelphia, the site of the 1876 Centennial Exposition, or in San Francisco, where centennial events were also staged.)

Mina Finger’s pallbearers included some of the leading town luminaries. They included P.P. Chamberlain (a town trustee who operated the Dillard Store), Chase Littlejohn (whose parents were also early settlers of Redwood City; his father, William, had died in 1907), Dr. Joseph L. Ross (who would become one of the three purchasers of the Finger Park Tract), Ludwig P. Behrens (president of the Board of Trustees of the Sequoia Union High School), Robert Brown (he and his wife Lydia had been early settlers in the West Union area), and J.F. Utter. (Both Chamberlain and Brown had served as two of Theodore Finger’s pallbearers in 1887.) Her service was held at the Congregational Church and conducted by Reverend C.H. Stevens.

The life the Finger family lived was a classic example of a pioneer immigrant family successfully pursuing the American dream. The Fingers left an old life behind and started anew in California. They purchased land to farm, raised a lively family of seven children, and were engaged members of their burgeoning community. The agricultural and small business interests of the Finger family were typical of the area; hard work enabled the family to prosper over the years. Like the Finger farm, many of the farms and larger estates on the San Francisco peninsula were subdivided after the 1906 earthquake, allowing more people to settle in highly desirable areas such as Menlo Park and Redwood City.

Section 2: Finger Farm House

The Finger Farm House was listed as a Redwood City Historic Landmark in 1987. The site is included in the State of California Historical Resources Information System (C-392). The building is not currently listed on the California Register of Historic Places, California Inventory of Historical Places, or National Register of Historic Places. The Redwood City General Plan Historic Resources Element identified the houses as follows:

This old farm house was built in 1855 by Otto, August and Theodore Finger on their sixty four acre farm bordering Cordilleras Creek. It is quite possibly the oldest standing house in Redwood City, Its simple style, typical of a farm house, could be termed 'stripped' Gothic Revival as it is basically devoid of the ornamental details such as a barge board and quoining popular at the time. It has a porch supported by square columns and has window shutters as its sole ornamentation.¹

A recent photograph of the house appears below (Figure 9).



Figure 9: Finger Farm House (recent view)

Character-defining Features and Period of Significance

The Finger Farm House has four character-defining features in this description:

- Age
- Association with the Finger family
- Association with agriculture
- Architectural features as a simple example of Gothic Revival style, specifically:
 - pointed gables
 - steep roof pitch
 - board and batten siding
 - ornamental veranda trim.

It represents the style of life of an enterprising immigrant family of the mid-late 19th century in California. The period of significance for the structure is 1855-1906, the period of its ownership and occupancy by the Finger family.

¹ Redwood City General Plan Historic Resources Element, Appendix B. Page 13-B-13.

Construction History and Existing Conditions

The illustration of the house drawn during the period of significance shows the main house with two sections: a steeply gabled two-story section and a cross-gabled one-story section on the western side. The two-story section has dormer windows on the eastern wall and the porch's awning roof is indicated (Figure 10). The front and east sides have four windows apiece, two on each floor, vertically aligned. There are no shutters on the windows in this illustration. This is the only known image of the house from the period; it is remarkably accurate in many aspects: the location of the dormers and chimney, the roof pitch and window size for example.



Figure 10: Detail of Moore and De Pue Drawing (full illustration in Fig. 1 above)

The property has suffered a number of losses since its period of significance: the orchards, vineyard, and farm outbuildings were removed when the property was subdivided in the early 20th century and the setting became suburban rather than rural. At some point prior to 1919, the western wing of the house was removed and the opening was patched with wood shingles in contrast to the board and batten siding of the original structure (Figure 11). At some time after 1919, additions were made to the building on the eastern and northern sides (Figures 12, 13, 14), disrupting the symmetry of these facades and destroying the relationship of the second floor windows to the roof dormers (Figure 15). The ground floor of the front façade (Figure 1) has two windows and a large door in the original house section and a smaller window and door in the addition on the eastern side. (The porch has been extended in front of the addition.)



Figure 11: Shingles on western side where original house section was removed (side wall to left in photograph)



Figure 12: Detail of addition to eastern side (note change in window type)



Figure 13: Addition to eastern side, viewed from rear of house



Figure 14: Ground floor, addition on eastern side



Figure 15: Dormers on eastern wall; windows have been moved

Criteria for Historical Significance

To be considered a significant historic resource, a property should meet local, state or national criteria for listing. The criteria are as follows:

City Code of Redwood City Sec. 40.6 HISTORIC DESIGNATION CRITERIA:

For the purposes of this Chapter, an improvement may be designated an historic landmark or historic site by the City Council, and any area within the City may be designated an historic district by the City Council pursuant to Section 40.7 of this Chapter if it meets the following criteria or other criteria established by the Planning Commission pursuant to Section 40.5 of this Chapter:

- A. It exemplifies or reflects special elements of the City's cultural, aesthetic or architectural history; or
- B. It is identified with persons or events significant in local, State or national history; or
- C. It embodies distinctive characteristics of a style, type, period or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or
- D. It is representative of the notable work of a builder, designer or architect. (Ord. No. 1815, § 1, 3-10-1980)

California Register of Historical Places Criteria

- Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1).
- Associated with the lives of persons important to local, California or national history (Criterion 2).
- Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values (Criterion 3).
- Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation (Criterion 4).

National Register of Historic Places Criteria

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded or may be likely to yield, information important in prehistory or history.

The Finger Farm House has been identified with a local family who played a significant role in the early history of Redwood City and may thus be eligible for listing under criteria 2/B. It has also been identified as an example of gothic revival architecture and should be considered under 3/C as well. In order to fully meet the criteria, however, the property must retain integrity.

Aspects of Integrity

The National Register of Historic Places describes integrity as the ability of a property to convey the reasons for its significance and its historical period. Seven aspects of integrity are described: location, design, setting, materials, workmanship, feeling and association. Some aspects are more important than others, depending on the reasons for the significance of the property, but to meet the national level of significance a property should retain at least some level of integrity in all seven aspects.² The California Register allows acceptance of a property with a lower degree of integrity only “if it maintains the potential to yield significant scientific or historical information or specific data.”³ The seven aspects of integrity are evaluated below against a qualitative scale ranging from absent - poor - fair - good – excellent.

Location. The Finger Farm House is in its original location and thus has excellent integrity of location.

Design. Design is a more complex aspect, described as “Such elements as organization of space, proportion, scale, technology, ornamentation, and materials. A property's design reflects historic functions and technologies as well as aesthetics. It includes such considerations as the structural system; massing; arrangement of spaces; pattern of fenestration; textures and colors of surface materials; type, amount, and style of ornamental detailing; and arrangement and type of plantings in a designed landscape.”⁴

As shown above, the patterns of fenestration have been altered in the Finger Farm House, destroying the original symmetry of the design. The massing has been altered by the removal of the west wing and additions to the north and east sides. The texture of the west wall is noticeably different from the older parts of the house (shingled rather than board and batten). The amount of ornamental detailing appears to have increased slightly with the addition of shutters, a second entrance door and the extension of the front veranda. The overall scale of the house remains substantially the same. The Finger Farm House therefore has only a fair level of integrity of design.

Setting. The historic setting for the Finger Farm House was agricultural: orchards, vineyards, a farm yard with barns and sheds, in addition to the natural landscape features of the creek and redwood grove. The agricultural

² National Register Bulletin 15.

³ California Register eligibility, viewed at http://ohp.parks.ca.gov/pages/1056/files/06CalReg&NatReg_090606.pdf.

⁴ National Register Bulletin 15.

character and features of the setting are entirely missing; the natural features remain (the redwood grove is however no longer visible from the property). Integrity of setting is strongly tied to historical use; in the absence of its agricultural features the Finger Farm House displays poor integrity of setting.

Materials. The major material of the Finger Farm House is wood: board and batten siding, windows, and the ornamental porch trim. Secondary materials include the brick of the chimney; unfortunately the original roof material is not known (it is likely to have been wood shingles, or perhaps metal). The alterations to the west, east and south sides have required replacement of substantial areas of original board and batten siding; it is not known whether any of the wood was salvaged and reused in these construction events. Similarly, the wood trim on the porch has been extended with the eastern addition and it is not known whether any of the original posts and trim has been replaced.

Some of the windows from the period of significance have survived in good condition: six of the eight windows on the north and south sides of the surviving portion of the original structure for example appear to be original (although they appear have been moved on the first floor). There are four windows of similar size and type on the first floor east side that appear to have been reinstalled when the wall was moved out for the addition. Thus perhaps ten of an estimated fourteen original windows in this wing (four each on the north, south and east sides and two on the west) appear to have survived the changes to the house; while approximately fourteen new windows have been added. The brick chimney appears to be original.

The Finger Farm House retains about half of its historic materials in the surviving wing of the house; given the age of the structure this represents a fair level of integrity.

Workmanship. The evaluation of workmanship – “evidence of artisans’ labor and skill” -- is hampered by the lack of detailed information regarding the construction history of the property (the older building permit files were lost) and the rather plain character of the work. Certainly the original window frames and sashes appear to be intact and in good condition; the structure has two front doors and while they are nicely made it is not clear that either dates to the period of significance. The board and batten siding and porch trim have been altered, however, the work is nearly indistinguishable from the older materials therefore it appears that the Finger Farm House has a fair level of integrity of workmanship.

Feeling. Feeling is defined as “a property's expression of the aesthetic or historic sense of a particular period of time.”⁵ The Finger Farm House has a simple, rustic quality that conveys the pioneer period and a level of ornament and dignity suitable to convey the social standing of the Finger Family. It conveys its age well. The Finger Farm House has a good level of integrity of feeling.

Association. Association is “the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character.” The association of the Finger family to the Finger farm House is good, due in part to the naming of Finger Avenue and to the listing of the property as a Redwood City Historic Landmark.

Summary

To be historically significant for association with the Finger family, the Finger Farm House must retain the character-defining features from the period of significance. A common sense test is “whether a historical contemporary would recognize the property as it exists today.”⁶ In spite of major alterations to the symmetry, massing and materials the visually dominant features of the steep roof pitch, pointed gables, high windows and ornamental porch trim make it likely that the hypothetical centenarian would recognize the front façade.

⁵ National Register Bulletin 15.

⁶ National Register Bulletin 15.

The historical significance of the architecture depends on two factors: 1) the degree to which it is a good example of a style, type or period and 2) its physical integrity. The National Register of Historic Places suggests that:

A building eligible under the theme of Gothic Revival architecture must have the distinctive characteristics that make up the vertical and picturesque qualities of the style, such as pointed gables, steep roof pitch, board and batten siding, and ornamental bargeboard and veranda trim.⁷

The Finger Farm House has many of these features, including the pointed gables, steep roof pitch, board and batten siding and ornamental veranda trim. It is an extremely modest example of the style.

The integrity of the design, materials and workmanship has been compromised by a series of changes to the house. The loss of symmetry in the alignment of windows on the first and second floors and the discontinuity of the windows and roof dormers are serious, irreversible losses.

A property important for illustrating a particular architectural style or construction technique must retain most of the physical features that constitute that style or technique. A property that has lost some historic materials or details can be eligible if it retains the majority of the features that illustrate its style in terms of the massing, spatial relationships, proportion, pattern of windows and doors, texture of materials, and ornamentation. The property is not eligible, however, if it retains some basic features conveying massing but has lost the majority of the features that once characterized its style.⁸

The dates of the alterations to the property are not known; a 1906 subdivision map shows a larger house footprint (Figure 16) while the 1919 Sanborn Insurance Map shows a smaller house than is standing today (Figure 17). These suggest that the western wing was removed between 1906 and 1919 and the eastern addition was constructed after 1919. This places the major alterations to the house outside the period of significance (1855-1906) created by the occupation by the Finger family.

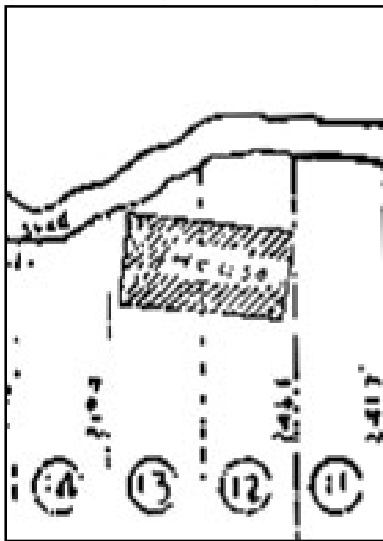


Figure 16: 1906 Map detail

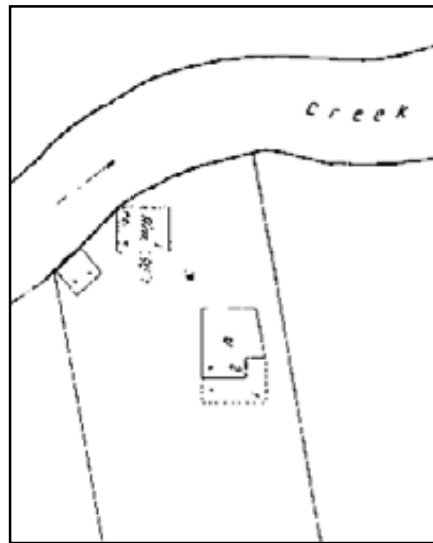


Figure 17: 1919 Map detail

The cottage and garage structures also display late 20th century style materials. The agricultural setting has been completely lost. The major changes to the main house and property since 1906 render it unlikely to be eligible for listing on the National Register of Historic Places or the California Register under criteria 3/C for architecture.

To be significant under criteria 2/B for association with the Finger family, the house “ideally might retain *some* features of all seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and

⁷ National Register Bulletin 15.

⁸ National Register Bulletin 15.

association. Integrity of design and workmanship, however, might not be as important” as it would be for listing under 3/C.⁹ If we assign a maximum value of 5 points for each aspect, based on the five levels of integrity, the property reaches a total score of 23 of a possible 35 points.

Location	Excellent	5
Design	Fair	3
Setting	Poor	1
Materials	Fair	3
Workmanship	Fair	3
Feeling	Good	4
Association	Good	4

Summary

If we discount the changes to the design, then the most serious issue is the loss of historic setting. The existing setting is nonhistoric. The agricultural character of the property is an essential part of the story of the Finger family; lacking the critical connection to agriculture it is unlikely that the property would be listed on the National or California Registers.

The Finger Farm House has been accepted for listing as a Redwood City Historic Landmark and is thus a historic resource under the California Environmental Quality Act. The potential of the proposed project to have a significant impact on the Finger Farm House such that it would no longer be eligible for listing at even the local level is considered in Section 5 below.

⁹ National Register Bulletin 15.

Section 3: Evaluation of Existing Structures on the Proposed Project Site

The two parcels that make up the site of the proposed project contain eight standing structures. A map and description of each of these appears below, indicated by house number.



Figure 18: Map showing existing structures on the proposed project site (not to scale)

Figure 19: Existing Structures on the Proposed Project Site

50 Finger Ave., Residence (after 1975)



50a Finger Ave., Residence (est. 1919)



80 Finger Ave., Residence (1931-32)



80a Finger Ave., Garage/Residence (after 1930)



80b Finger Ave., Residence (after 1930)



80c Finger Ave., Shed (after 1930)



88 Finger Ave., Residence (1949)



88a Finger Ave., Shed (after 1949)



Criteria for Historical Significance

To be considered a significant historic resource, a property should meet local, state or national criteria for listing. The criteria are as follows:

City Code of Redwood City Sec. 40.6 HISTORIC DESIGNATION CRITERIA:

For the purposes of this Chapter, an improvement may be designated an historic landmark or historic site by the City Council, and any area within the City may be designated an historic district by the City Council pursuant to Section 40.7 of this Chapter if it meets the following criteria or other criteria established by the Planning Commission pursuant to Section 40.5 of this Chapter:

- A. It exemplifies or reflects special elements of the City's cultural, aesthetic or architectural history; or
- B. It is identified with persons or events significant in local, State or national history; or
- C. It embodies distinctive characteristics of a style, type, period or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or
- D. It is representative of the notable work of a builder, designer or architect. (Ord. No. 1815, § 1, 3-10-1980)

California Register of Historical Places Criteria

- Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1).
- Associated with the lives of persons important to local, California or national history (Criterion 2).
- Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values (Criterion 3).
- Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation (Criterion 4).

National Register of Historic Places Criteria

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A.** That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B.** That are associated with the lives of persons significant in our past; or
- C.** That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D.** That have yielded or may be likely to yield, information important in prehistory or history.

None of the properties reflects the period of significance of 1855-1906 determined for association with the Finger family. However, they might meet one of the criteria for other reasons.

Property Evaluations

The assessor's files for the properties and insurance maps were used to determine construction date and subsequent modifications to each property. City directories were consulted to identify the occupants of the structures and their occupations. The Field Guide to American Houses is the basic reference on architectural style. A record search request conducted by the California Historical Resources Information Center did not identify any of the eight structures on the property as historic.

Structure 1: 50 Finger Avenue

City directories show that the property has been occupied by residential uses since 1920, when Ernest Selby (carpenter) and Dr. E.E. Richardson (dentist) are shown as two households at this address. The 1919 Sanborn Insurance Map shows two small structures on the property. The assessor's file on the property describes a wood frame and stucco house, a cottage, a garage and two sheds. The main structure on the assessor's record, a small single-story wood-frame and stucco house (described as two bedrooms at 1220 sf), was constructed in 1936 and demolished after a fire in 1975. Currently, there are two structures on the site: a two-story wood frame house (constructed after the 1975 fire) and a clapboard cottage (50a Finger Avenue, described below). The foundations and partial cellar of the garage and sheds are visible adjacent to the cottage but were reportedly also destroyed by fire.



Figure 20: House at 50 Finger Avenue

The existing house at 50 Finger Avenue is of traditional style (eclectic gothic shingle chalet), but modern construction (post 1975). It is not of sufficient age or distinction to merit additional evaluation.

Structure 2: 50a Finger Avenue

City directories list two additional households on the property: 50a and 50b. This suggests that the cottage (440 sf) was continuously occupied and that in the 1950s a portion of the garage (430 sf) was converted to residential use. There is one surviving cottage on the site; from its location it appears to be the original cottage (50a). This is a simple, vernacular wood frame structure with clapboard siding and a hipped roof. The façade is asymmetrical, with the door off-center. The shed-roof entry and wood panel door are consistent with an early twentieth century date of construction; however, the windows have been replaced with aluminum frames in more recent years. The structure is in poor condition.



Finger 21: Existing cottage -- 50a Finger Avenue

Architecturally, the structure does not appear to meet the criteria for special, notable or distinctive features or design. The architect, if there was one, is unknown. It is likely that it was constructed by Ernest Selby, a carpenter listed as occupying the address in the 1920 and again in the 1931 directories. (While the construction date is unknown, the building appears on the 1919 Sanborn Insurance Map, but no resident is identified in the city directories before 1920.) The hipped or “pyramidal” roof style was popular in vernacular construction because while it required more complex framing, the technique used shorter rafters and was thus less expensive to build (McAlester and McAlester p.100). The unusual rail pattern on the panel door and the eccentric door surround are another hint that the carpenter Mr. Selby may have contributed to its construction. Unfortunately, the original windows have been brutally removed and replaced with aluminum windows of a different vertical dimension. The interesting but crude detailing of the door hints that the structure may have had some charm, however the building does not appear to meet the criteria for architectural distinction and the integrity of its workmanship has been severely compromised by the loss of its original windows. This was in fact always a modest building and would be unlikely to meet the criteria even if it were better preserved.

The history of its occupancy does not suggest that this modest building was home to significant historic personages. The occupants of the cottages were working-class: carpenter, clerk, cafeteria worker. There is nothing to suggest that they left a lasting mark in local, state or national history or that the cottages are associated with significant historic events or patterns of events.

Structure 3: 80 Finger Avenue

A substantial (2170 sf), two-story wood frame and stucco home was constructed on the property in 1931-32 by Dr. E.E. Richardson (who lived next door at 50 Finger Avenue in 1920). Dr. Richardson was an orthodontist who taught at the College of Physicians and Surgeons in San Francisco and had an office on Stockton Street in the city. In 1935 a “maid’s room” was added to the rear of the house. In 1937 it is shown as vacant, with new occupants from 1939-41 (Samuel and Ruby Saboff), 1946-48 (Albert and Carolyn Larsen), and 1950-58 (John Baross, listed as a supervisor at the San Francisco Post Office). 80 and 88 Finger Avenue were under the ownership of the Baross family until the current owner’s recent purchase.



Figure 22: Front view, 80 Finger Avenue



Figure 23: Front entry porch, 80 Finger Avenue



Figure 24: Right side view, 80 Finger Avenue, showing 1935 addition at rear



Figure 25: Left side view, 80 Finger Avenue

Architecturally, the house is a weak example of eclectic craftsman or prairie style. Classic examples— of which there are hundreds in the local area — display wide eaves, decorative rafter braces and tails, massive and/or tapered porch columns — many have elaborated decorative detailing as well. The basic features of horizontal emphasis (evident on the front façade of this house but not the sides), overhanging eaves with exposed rafter ends, and a prominent entry porch are present in this gabled-roof example (lower pitched hipped roofs are more common for the style). The squared porch columns — doubled at the entry stairs — are a noted variant for the style. The bay windows, however, are less common.

The house at 80 Finger Avenue is a weak example of the craftsman style because it displays an unfortunate inconsistency in the treatment of the eaves and rafters on every façade of the house. The giant bay window dormer on the second floor for example, with its aluminum slider windows and awkward, uneven eave overhang, appears to be an unfortunate later addition detracting from the style of the front façade. The adjacent second floor balcony has wood windows and deep eaves but the rafters are hidden. The right side is marred by a series of aluminum windows and the upper gabled roof has concealed rafters while the lower bay window roof has exposed rafter tails. The left side (rafter tails concealed) is dominated by a chimney covered in plywood siding that appears to have been recently modified and is inconsistent with the stucco finish of the house. The stylistic inconsistencies in the house's design and its departures from classic craftsman or prairie forms prevent this from meeting the criteria as an example of a type, period or style of architecture. The inconsistencies in style and workmanship suggest that it was not designed by an architect and certainly was not the work of a master architect or builder.

Investigation into the occupants of the house suggested that a series of respectable families inhabited the property; however, none of these left a lasting historical legacy. This structure does not meet the criteria for landmark listing either for its architectural style or for association with historic events or persons.

Structure 4: 80a Finger Avenue

This is a three-room cottage and attached garage located immediately to the rear of the house at 80 Finger Avenue. The style is vernacular and displays an oddly angled corner and at least three types of wood clapboard siding. The windows are square, nine-paned casement style, consistent with a construction date in the 1920s or 1930s. They are notably square in form — different in style from the windows on any of the neighboring structures. (In fact, each structure has slightly different window forms, suggesting different periods of construction.) The roof is hipped with modestly overhanging eaves and exposed rafter ends. The entry is concealed in the rear of the building.



Figure 26: Cottage and garage, 80a Finger Avenue

The building shows craftsman influence in the horizontal emphasis created by the changes in siding pattern in the midsection of the structure and the treatment of the eaves. As a secondary building, it would be of more interest if it related more strongly to the style of the main house, which in this case it does not (the main house is finished in stucco rather than this eccentric series of wood clapboard “bands”).

City directories identify an address as 80 ½ Finger Avenue in the 1930s and later identify 80a and 80b – it is not clear which of the two cottages was 80 ½. By 1950, 80a is separately listed as the residence of Maurice Goudal, Presser. From 1954-58 it was occupied by Doris Suttle, an employee of Santa Clara Cleaners.

This structure does not meet the criteria for landmark listing either for its architectural style or for association with historic events or persons.

Structure 5: 80b Finger Avenue

Shown on the assessor's parcel record for 88 Finger Avenue, the construction date of this cottage is unknown. It is a wood frame, clapboard siding, side gabled cottage that shares some stylistic features with the neighboring buildings: exposed rafter tails, the square porch columns similar to those on 80 Finger Avenue, and the narrow horizontal clapboards that recall the central "band" on the 80a Finger Avenue cottage. 80b Finger Avenue is actually displays yet another variation on window styling with craftsman style picture windows and a glass front door. The rustic wood shutters are unique as well. The strongly symmetrical façade is typical of vernacular craftsman forms, but quite different from its neighboring buildings on the site.



Figure 27: Cottage, 80b Finger Avenue

It is a modest, but unremarkable example of craftsman style construction of which there are hundreds of stronger examples in the local area. While it has some charm, its quality does not approach that of a "landmark."

The cottage was occupied by a plasterer in 1950 (Andy Anderson), and later by several employees of United Airlines. This is a modest rental property occupied by working class laborers. This structure does not meet the criteria for landmark listing either for its architectural style or for association with historic events or persons.

Structure 6: Shed at 80c Finger Avenue

Yet another combination of vernacular forms: a further variant on clapboard siding, a carriage-style door and a hipped roof. It displays the shallow overhanging eaves (and short rafter tails) characteristic of other buildings on the property. Its construction history and use are unknown. This structure does not meet the criteria for landmark listing either for its architectural style or for association with historic events or persons.



Figure 28: Shed adjacent to 80b Finger Avenue (80c)

Structure 7: 88 Finger Avenue

This is a typical post-war house, constructed in 1949: modest in size, simple in design. It has a hipped roof, and the front is dominated by the single-car garage and picture window. It has horizontal clapboard siding and a brick masonry lower course that emphasize the horizontal dimension. Like the cottage to the rear, 80b Finger Avenue, this house has decorative wood shutters. Like its neighbor at 80 Finger Avenue, the front door is flanked by simple side lights.



Figure 29: 88 Finger Avenue

The style and workmanship are unremarkable and do not approach landmark quality in any dimension. The house was occupied from 1950-58 by Louis Delfino, gardener, and his wife Emma. This structure does not

meet the criteria for landmark listing either for its architectural style or for association with historic events or persons.

Structure 8: Shed at 88 Finger Avenue

There is a concrete block construction outbuilding sited on the lot line between 80 and 88 Avenue. The building has a sloping flat roof and roll-up metal awning windows. It is not shown on any assessor's maps and is clearly distinct in age and style from the wood frame structures surrounding it. It appears to house the water source for a small fountain in the garden of 80 Finger Avenue and may have been associated with other mechanical functions, perhaps a swimming pool that is no longer present on the site, or as a potting shed. The roll up awning windows recall a poolside "snack bar," and there is an adjacent brick barbecue structure. Its original function is unknown; it is currently used for storage.



Figure 30: Shed at 88 Finger Avenue (88a)

The style and workmanship of this structure are utilitarian and unremarkable. It does not appear eligible for listing on local, state or the national level.

Summary

None of the eight individual structures on the proposed project site meet the criteria for listing as landmarks on the local, state or national level. There are weak stylistic and social links between some of the structures however as a group, there is no common theme uniting any group of them that would merit a district evaluation and there is no strong anchoring structure to give the group distinction. The Redwood City Historical Heritage Advisory Committee concurred with the conclusion that there are no significant historic structures on the proposed project site, in a hearing on November 8, 2007.

Section 4: Archaeological Survey

Methods and Findings

The record search at the California Historical Resources Information System yielded no recorded historic or prehistoric archaeological sites in the project area. The site is immediately adjacent to Cordilleras Creek, however, and there are recorded prehistoric Ohlone sites upstream and downstream of the project location. An intensive surface reconnaissance survey was conducted by a qualified archaeologist. Indicators of prehistoric archaeological deposits include: dark soil color, burned rock, stone tool material, and pieces of shell and animal bone. Historic archaeological features can include building foundations, trash pits, and privies.

In spite of considerable ground cover in vegetation and pavement, there was abundant native soil visible across the project site. On the northern edge of the project site, along the driveway, there is an area of dark soil that contains a few small fragments of shell. The entire project was carefully examined and no other indicators of prehistoric occupation were observed. The area is restricted to one corner of the project site, along one side of the private entry road. The location of the darker soil and the extremely small size of the shell fragments suggest that there may have been archaeological deposits on adjacent properties (which are also developed) and soil has been moved onto the site. Alternately this may be the edge of a large site whose main deposits are located downstream.

The proposed project creates minimal subsurface disturbance: there are no basements or swimming pools included in the design as proposed. It would be prudent to engage an archaeological monitor during site clearing, grading and excavation for site utilities in the event that additional materials are discovered hidden beneath the surface.

No significant historic features were noted: the foundation slabs and cellar ruin from the sheds at 50 Finger Avenue are not significant. There are no visible surface signs of trash pits or privies associated with the Finger Farm property. Archaeological monitoring during site clearing would be sufficient to identify these elements if present.

Summary

There does not appear to be any significant archaeological resources on the proposed project site, and the methods of construction do not require deep excavation. No significant impact is expected, however, archaeological monitoring is recommended due to the proximity to Cordilleras Creek and to the @1850s Finger Farm property.

Section 5: Evaluation of Potential Impact on Adjacent Historic Resource at 90 Finger Avenue, Finger Farm House

As described in Section 2, the Finger Farm House at 90 Finger Avenue is a two-story wood frame house, locally significant for its association with the Finger family. There are a modern garage, cottage and several sheds as well as the main house on the property. None of the structures are visible from the public right-of-way, being concealed by a large hedge.

Following the Secretary of the Interior's Stanford for the Treatment of Historic Properties, the proposed project, which is adjacent to the Finger Farm House site, should not obscure its character-defining features from the public right-of-way, and should be compatible but distinct in style. If the construction of the proposed project blocks the public view of the Finger Farm House, or creates a false impression of historical relationship by imitating it in style, then the project may result in a significant adverse affect on the historic house.

Evaluation of Potential Visual Impact

First, it is clear that the proposed project does not further diminish the visibility of the Finger Farm House. The barrier to public appreciation of this historic resource is the vegetation screening currently on the 90 Finger Avenue property, and the substantial setback of the main house from the street (more than 100 feet). The proposed new homes are no closer to the Finger Farm House than the existing structures at 80 and 88 Finger Avenue. Thus there is no adverse impact on the ability of the public to appreciate the Finger Farm House, a privilege they do not currently enjoy but would not be harmed in any case by the construction of the new homes.



Figure 31: View from public-right-of-way of 90 Finger Avenue

California courts have found that visibility of a property is a critical issue in determining its value as a protected resource, and the potential impact of changes to its environment:

*Having in mind the context of this case — a homeowner's enjoyment of his private living quarters — it is pertinent to observe that “[u]nder **CEQA**, the question is whether a project will affect the environment of persons in general, not whether a project will affect particular persons.” (Mira Mar Mobile Community v. City of Oceanside (2004) 119 Cal.App.4th 477, 492.) That sine qua non of **CEQA** is missing here; no one not actually inside Martin's house will have any percipient awareness that interior modifications have been made. A purely intellectual understanding that work by Willis Polk may no longer be within an unobservable part of another person's private living quarters will not suffice to establish a significant effect on the environment. That what Martin proposes may strike some as cultural vandalism will not bring it within the ambit of **CEQA** unless there is a physical impact on the environment. (See Pub. Resources Code, § 21082.2, subd. (b)); Association for Protection etc. Values v. City of Ukiah, supra, 2 Cal.App.4th 720, 734.) Destruction of an irreplaceable antiquity not being savored by the **public** does not qualify as a significant effect. (Cal.*

*Code Regs., tit. 14, § 15064, subd. (e) [absent physical change, “social changes resulting from a project shall not be treated as significant effects on the environment”].*¹⁰

CEQA further requires that the analysis of potential affects consider only the existing conditions in the environment. The potential to improve or restore those conditions can only be considered if a significant adverse effect has been found based on changes that the project would make to existing conditions.

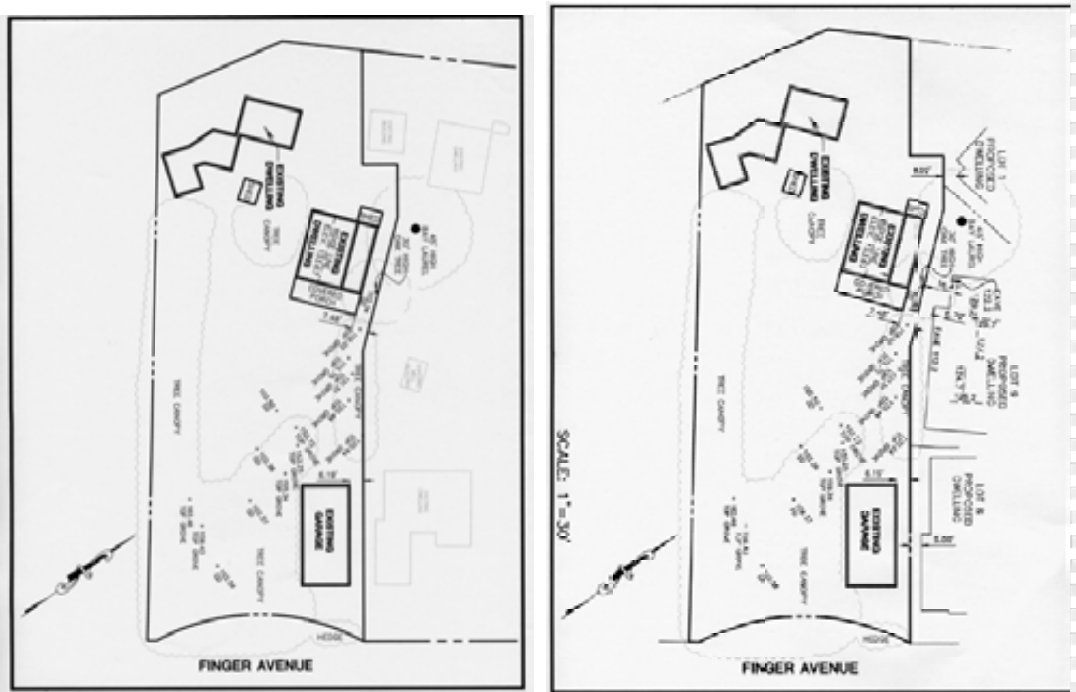


Figure 32: Site plan of Finger Farm House and Existing Structures (left) versus Proposed (right)

In its existing condition, the construction of new, two-story homes on the lots to the east of the Finger Farm House have no effect on its visibility from the public right-of-way because it is not now visible due to its distance from the street (nearly 170 feet), the intervening garage on the 90 Finger property, the house at 88 Finger Avenue, and the presence of large trees and hedges. Due to the depth of the lot, and the maturity and density of vegetation, it is highly unlikely that the new houses would be visually juxtaposed with the historic south façade of the Finger Farm House.

Evaluation of Design Compatibility

The neighborhood is mixed in age and style of construction. The properties are not included within any historic district and there are no adopted policies regarding architectural style or compatibility. Following the Secretary of the Interior’s Standards for the Treatment of Historic Properties, the design of the proposed new homes adjacent to the Finger Farm House should be sufficiently distinct in style as to not create any confusion as to their later date, and lack of historical relationship to the Finger Farm House. Here is the street front elevation for the proposed new home closest to the Finger Farm House on the Finger Avenue side:

¹⁰ Francis M. Martin III vs. City and County of San Francisco. Court of Appeal of the State of California, First Appellate District, Division 4. December 29, 2005. Viewed at <http://209.85.173.104/search?q=cache:jNBjiYQ8IVsJ:caselaw.findlaw.com/data2/californiastatecases/A107768.DOC+ceqa+historic+public+visible&hl=en&ct=clnk&cd=11&gl=us> on December 9, 2007.



Figure 33: Street front view, proposed new house

The style of this home is Spanish Eclectic, which while in common in the neighborhood is not likely to be confused with rustic Gothic Revival. It is clearly distinct in style and materials from the Finger Farm House. Moreover, given the difference in street setbacks, even though they are “next door” it will be nearly impossible to see the two houses at the same time.



Figure 34: Rear elevation of proposed new house (adjacent to Finger Farm House garage)

And the rear elevation of the house closest to the Finger Farm House along the lot line (the Finger Farm House is sited more than 100 feet back from the street edge on its lot):



Figure 35: Rear elevation of proposed new house, adjacent to Finger Farm House

The roof line of this house is likely to be visible from the front yard of the Finger Farm House, as is the existing home at 80 Finger Avenue. Given the amount of mature vegetation along the property line, this does not appear create a significant visual impact (see Figure 36 below).



Figure 36: View of 80 Finger Avenue from 90 Finger Avenue now (left), simulation with proposed project (right)

Compatibility in Scale

The Finger Farm House is a two-story home of 1827 square feet, with detached secondary structures (cottage, two garages, and sheds totaling an additional 1975 square feet (a total of more than 3800 square feet). The proposed new houses on Lots 1, 8, and 9 are sized between 2825 square feet (Lot 8) and 3369 square feet (Lot 9), with attached garages of approximately 500 square feet. In size then, the proposed new houses are compatible in scale.

The Finger Farm House, with a roof peak at 31 feet, is taller than the proposed new houses. The house at Lot 1 has a ridge line of 26 feet, with a roof at 24 feet in the section nearest the Farm House. The ridge lines of the roofs on the proposed new houses at Lots 8 and 9 are also 25-26 feet. The proposed new houses are compatible with the Finger Farm House in height.

The proposed new house at Lot 9 is 15-17 feet from the Finger Farm House; this is no closer than the existing secondary structures at 80 Finger Avenue. The proposed new house at Lot 8 is 12 feet from the one of the detached garages at the Finger Farm House. This is exactly the distance between this building and the existing house at 88 Finger Avenue. There is no change in setbacks or proximity created by the proposed project.

Summary

These two-story designs appear to be compatible in scale with the two-story Finger Farm House and are of distinct materials and styles. The proposed new homes are stucco finish rather than wood siding and have distinct roof materials and decorative features. The scale and traditional styling of these new homes is consistent with the character of the neighborhood which has an eclectic mix of traditional styles and building materials.



Figure 37: Finger Avenue houses

The proposed new homes are compatible in style, character and scale with the surrounding neighborhood. The proposed new homes adjacent to the Finger Farm House property do not further reduce its visibility from the public right-of-way and are distinct but compatible in design treatment. The proposed project does not create a significant adverse effect on the historic character of the Finger Farm House or the surrounding neighborhood.

Section 6: Summary and Conclusions

Cultural Resource Investigation of the Proposed Project Site

The land use history of the immediate area was researched and identified the Finger family's activities as a potentially significant historic context for further investigation. While properties associated with this context and its period of significance (1855-1906) are present in the vicinity, none of the structures on the proposed project site are associated with the Finger family. Additional review of each of the seven existing structures demonstrated that none meet the criteria for listing as historic structures at the local, state or national level. The Redwood City Historical Heritage Advisory Committee concurred with this finding.

No archaeological resources were identified in the record search or surface survey. Due to the proximity of Cordilleras Creek and the Finger Farm House, subsurface cultural deposits may be present on the site. Destruction of these as-yet-undiscovered deposits might cause a significance adverse effect; it is impossible to determine the significance of the deposits or the potential impact at this point as the project site is currently occupied by five dwellings and unavailable for systematic subsurface investigation. Mitigation of the potential impact to a less-than-significant level can be achieved through a program of archaeological monitoring, data recovery and recordation.

Potential Impact to Neighboring Historic Resource

The Finger Farm House is listed as a Redwood City Historic Landmark. Its primary significance is its association with the Finger family (criteria 2/B). The house retains sufficient character to convey the rustic, pioneer spirit of this period; however it is a relatively plain example of Gothic Revival architecture and does not appear eligible for listing under criterion 3. The Redwood City Historic Resources Inventory evaluation by Alan Michelson and Charles Jany concurs with this conclusion, stating that "In sum, the Finger house's prime significance lies not with its architectural details but in its local historical importance as the dwelling of an early European-American pioneer family."¹¹

The historic setting of the property, which during the period of significance was a working farm, has been irretrievably lost. Thus the replacement of the adjacent nonhistoric houses does no further harm than the existing conditions. Further, the unique characteristics of the site conceal this building nearly entirely from the public point of view: the house is set back from the street by nearly 170 feet, there is a circa 1989 detached garage between the house and the street, a formidable hedge at the sidewalk edge and a number of mature trees effectively screening the Farm House from public view along Finger Avenue. The proposed project to the east replaces existing houses with new houses, retains mature trees and creates no new barriers to public appreciation of the Finger Farm House. Given the site characteristics, it is highly unlikely that the new houses will be visibly juxtaposed with the Finger Farm House, particularly as the new houses are not located in front of the only intact historic portion of the façade: the original south façade (excluding the eastern addition).

¹¹ Evaluation dated 12/10/1994.

Recommended Mitigation Measure

Due to the proximity of Cordillera Creek and the Finger Farm House, monitoring by a qualified archaeologist during site clearing and subsurface excavation should be required to identify and recover any hidden subsurface artifacts or features. Should historic artifacts associated with the Finger family or prehistoric Native American artifacts or features be uncovered, these finds should be recovered and a report prepared. The report should be filed with the Redwood City Historical Archives, and the Northwest Information Center of the California Historical Resource Information System. Consideration should also be given to depositing any important artifacts with the San Mateo County Historical Association.

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Timeline

For more than 25 generations previous to 1776 - Ohlone Indians live on site where Redwood City is built

1807 – August Finger born in Possen, Prussia (U.S. Census)

1814-1815 - Don José Darío Argüello granted 69,000 acres -- *Rancho de las Pulgas* - between San Mateo Creek to the north and San Francisquito Creek to the south by Mexico (still part of Spain).

1816 – (Simon) Theodore Finger born in Frankfurt, Germany (U.S. Census); headstone reads: Native of Frankfurt on the Main

1822 – Ranch land grant reaffirmed by Mexico to Don Luis Argüello (son of Don José)

1827 – Margaret Wilhelmina Koch born in Germany (census reports differ between Frankfurt and Saxony)

1846 – U.S. declares war on Mexico

1847 – Herman, adopted son of Theodore and Mina Finger, born in Texas

1848 – Treaty of Guadalupe Hidalgo; Mina Finger reportedly served in the war, along with “her husband.” Is this a first husband, or did Theodore fight in Texas? While Theodore’s military service is not specifically documented, many German immigrants fought for the U.S. side during the war.

1850 – California becomes a state

1851 - Spanish and Mexican land grants challenged

1852 – Theodore comes to California

1853 – Henry, natural son of Theodore and Mina, born in California

1853 – Simon Mezes successfully defends half of Argüello land grant; ends up with one quarter of property settlement; his portion included most of downtown Redwood City area

1855 – Theodore buys 13.45 acres from John S. Sprague; located west of county road

1856 – Mina buys 50 acres from S.M. Mezes; located east of county road on RC side

1856 – Emma, adopted daughter of Theodore and Mina, born

1856 – San Mateo County established; Redwood City named county seat

1860 – Lorenz Fredrick, natural son of Theodore and Mina, born in California

1860 -- U.S. Census names Theodore, aged 45, married to Margaret Wilhelmina (Minny), with Herman (adopted, 13, born in Texas), Henry (7, born in California), Fredrick (1, born in California); land valued at \$4000, income/possessions worth \$2000

1861 – Theodore Finger plants his vineyard

1861 – 21-month-old Lorenz Fredrick Finger dies; first of the Finger family to be buried in Union Cemetery (plot 117)

1862 – T. Finger has grape vines (cuttings, yearlings, roots, 3-year-old bearing vines) for sale (*San Mateo Gazette*)

1862 – both properties deeded to George Fox, then back to Theodore and Mina Finger, joint tenants (before this they were tenants in common)

1862 – local map shows creek as Finger's Arroyo

1863 – San Jose San Francisco train begins to run

1865 – Josephine (Josie), adopted daughter of Theodore and Mina, born

1867 – Theodore, adopted son of Theodore and Mina, born

1868 San Mateo County map shows two Finger lots divided by county road; 50 acre lot east of El Camino Real and 13 acre lot west of El Camino Real

1868 – Redwood City incorporated

1869 – “Mr. Finger is about completing a fine residence on his farm” (San Mateo Gazette; Schellens says residence is named “Liberty Hall.” He speculates that original house was built in middle of vineyard c. 1855-56 on the 50 acre plot east of El Camino, and the second house is 90 Finger Ave. built in 1869 on 13 acre plot.)

1870 -- U.S. Census names Theodore as a farmer, married to Margaret, with Emma (14), Herman, Henry, Fredrick Augustus (8) in their household; Augustus Finger (b. 1807 in Prussia, 63), married to Emily (47), has one son Otto (35, gardener) shown living in Fremont as a farmer, earning \$250 per year.

1870 – Rudolph Grund dies in San Francisco; a Hamburg, Germany native, he was an architect/draftsman who lived with the Fingers for many years; he drew the Easton's San Mateo County map just before he died at the age of 41.

1871 – “Trees, shrubbery, etc. for sale, a choice variety of trees from 1-2 yrs old, incl. Monterey Cypress and pine, pepper, mammoth, locust, rosebushes, etc. Trees can be had at Mr. Steven's near the depot, Redwood City, at W.C. Alt's in San Mateo, or at my nursery at Adobe Creek, between Mayfield and Mountain View.”

1871 – “Mr. Finger (August) nurseryman near Mountain View, has donated 200 evergreen trees to the Catholic church in this town, and they have been planted in the church lot.”

1872 – Turn Verein organized in Redwood City (German American organization, “sports club”); they leased “the beautiful grove of T. Finger for a term of 10 years, and erected a pavilion at a cost of about \$800. “

1876 – Theodore and Mina's son Fredrick Augustus “Gussie” accidentally killed by climbing through fence with loaded shotgun (aged 14); headstone in Union Cemetery reads: In Memory of Our Beloved Son, August F. Finger, 1861-1876, Gone But Not Forgotten

1876 – Mina Finger awarded a medal at the Centennial Exposition for services rendered in Mexican-American War

1876 – August Finger listed in Pacific Coast Business Directory under “Nurseries and Seedsmen” with a location at Adobe Creek (between Mayfield and Mountain View)

1876 – “Ornamental and shade trees. I have a large and good assortment of trees, incl. blue gum, cypress, pines, insignias, and all standard varieties of shade, ornamental and evergreen trees....they can be had at Fred Botsch, at his saloon on Bridge St. in Redwood City. A. Finger”

1877 – August Finger “has been many years engaged in growing trees and shrubs at his nursery on Adobe Creek, near Mayfield. He has on hand a large number of the various standard varieties at his depot on the County Road near the road leading to West Union.”

1877 – August Finger’s ad says he has lost his lease; he is going to relocate to Redwood City; Frederick Botsch (secretary of Turn Verein) “will receive orders or sell the trees of all kinds for A. Finger, and anyone having teams can buy still cheaper at the nursery near Oak Grove.”

1877 – Theodore Finger produces his largest ever grape crop (produced 1400 gallons of wine)

1877 - San Mateo County Map shows purchase of 3rd Finger property; 70 acre lot from WCR Smith (near creek, has wharf and access road to 50 acre lot; WCR Smith owned 229 adjacent acres and ran a successful drug store business; presumably he is the “Mr. Smith” who built the wharf and access road in the first place)

6/21/1878 – “Pacific Nursery. The well known nursery of August Finger situated in Redwood City near the railroad depot on the country road has now opened and is prepared to take orders for plants, bouquets, flowers and dried rose leaves in any quantities at short notice. Orders promptly attended to. August Finger. All respectable parties wishing to spend a pleasant day may do so at these grounds free of charge.”

1880 -- U.S. Census lists Theodore Finger, married to Margaret, with Emma G. (22), Josephine (15), Theodore (13); Augustus Finger, listed as a gardener, has moved from Fremont to Redwood City, married to Amarlia. Otto Finger (August’s son) has married (Margaret); they live in the city of San Clara with daughter Ottili (b. 1875)

1880 – “Nursery August Finger, shade and ornamental trees, cypress, pine, gigantiae Colorado, pepper, eucalyptus, and a variety of others, also roses, vines, shrubs, and plants of many kinds. County road, near Catholic church, Redwood City, All trees sold at uniform price of 5 cents per foot, from 1-10 or more feet in height.”

1881 – Emma Finger marries Fremont Older, later editor of Redwood City Times Gazette; (married 11 years, divorced 1892)

1882 – Theodore and Mina’s adopted son Herman killed while at work in Holbrook, Merrill & Co. in SF (crushed by heavy machinery; survived by wife and 3 or 4 children)

1882 – Herman Finger dies

1884 – Henry J. Finger has returned to Redwood City and has purchased the Pioneer Drugstore

1885 – article about grape culture in San Mateo County includes Theodore Finger

1886 – Henry Finger marries Miss Ella C. Huntley; he is already living in Santa Barbara

1887 – Theodore Finger killed when he is hit by local train

1887 – Notice to Creditors, estate of Simon Theodore Finger, also commonly known as and called Theodore Finger, deceased....Mina Finger, executrix

1887 – Young Theodore Finger is home on a visit after an absence of several years.

1888 –Wellesley Park subdivision map changes Finger Creek to Cordilleras Creek

1889 – *Views in Wellesley Park* published

1890 Great Register– August Ferdinand Finger, aged 84, r. Redwood City

1891 – Henry made member of State Board of Pharmacy

1891 – Mrs. August Finger dies, aged 75, buried at Union Cemetery

1895 – USGS uses Cordilleras Creek as a designated name; locals still call it Finger Creek

1900 - \$50 reward for witness/capture of culprit who committed boathouse damage at Finger's Landing

1902 – Arnold Hess buys and tears down old dance pavilion, uses lumber to build cottage near his residence on 2nd St. (see Boating, Finger's Landing)

1905-1906 SM City and County Directory – Finger, Mina Mrs., r FINGER'S LANE nr County Road

1906 – San Francisco earthquake; real estate on peninsula booms when SF citizens lose homes; many Redwood City properties west of El Camino Real subdivided

1906 – Mina Finger moves to Santa Barbara to live with son Henry; she has lived in Redwood City for 52 years

1906 – Finger Park Tract map; shows 13 acre lot only with total of 49 parcels, well, house and 2 outbuildings

1906 – Finger Park Tract property bought by “Boss” Buckley of SF; sold by Buckley's widow to Mr. and Mrs. Frank E. Crane

1909 – Mina Finger takes part in Redwood City's Golden Jubilee July 4th parade

1913 – Mina Finger dies at son Henry's home in Santa Barbara; funeral in Redwood City, buried at Union Cemetery

1930 – Henry Finger dies; buried in Union Cemetery

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings None

Review Code

Reviewer

Date

Page 1 of 4 *Resource Name or #: (Assigned by recorder) 80 Finger Avenue

P1. Other Identifier:

*P2. Location: **Not for Publication** Unrestricted

*a. County San Mateo and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Palo Alto Date 1953 T 5S; R 4W; 3 of 3 of Sec ;

B.M.

c. Address 80 Finger Avenue City Redwood City Zip 94062

d. UTM: (Give more than one for large and/or linear resources) Zone , mE/ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

APN 052-061-180-7

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

A two-story single-family residence (80 Finger Avenue) and three secondary residences (80a, 80b, 80c) on a single suburban lot located between Finger Avenue and Cordilleras Creek. The main structure is a two-story, side-gabled wood frame and stucco house. The house exhibits some Craftsman features, such as the wide entry porch, but is generally a weak example of the style. The 80a structure is a single-story, hipped-roof building with clapboard siding and a wood shingle roof. 80a contains a single-car garage and an attached one-room cottage with a series of shed additions to the rear (presumably bathroom and kitchen facilities). 80b is a small Craftsman-style bungalow with clapboard siding, wood shingle gabled roof, and a front porch extending the width of the house. The structure at 80c is single-story, with a shingled hipped roof and a carriage-style door as well as a second standard door, and a shed addition to the rear. All four structures are currently occupied as residences.



*P3a. Photograph

*P3b. Resource Attributes: (List attributes and codes) HP2, HP4

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #)

80 Finger Avenue, front façade from driveway

*P6. Date Constructed/Age and Source: Historic
Prehistoric Both 1932 and following

*P7. Owner and Address:

Kirk McGowan
McGowan Development
655 Skyway, Suite 230
San Carlos CA 94070

*P8. Recorded by: (Name, affiliation, and address)
Laura Jones, Ph.D.

Heritage Resources Consultant
976 Elsinore Court Palo Alto CA

*P9. Date Recorded: 12/18/06

*P10. Survey Type: Intensive

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Cultural Resources Evaluation for Properties Located at 50, 80, and 88 Finger Avenue, Redwood City, California. Prepared by Laura Jones and submitted to the City of Redwood City, December 2006.

*Attachments: NONE Location Map Continuation Sheet Building, Structure, and Object Record

Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 6Z Page 2 of 4 *Resource Name
or # (Assigned by recorder) 80 Finger Avenue B1.Historic Name: 80 Finger Avenue
B2.Common Name:
B3. Original Use: single family residence B4. Present Use: same
*B5. Architectural Style: Vernacular/Craftsman eclectic
*B6. Construction History: (Construction date, alterations, and date of alterations)

Original construction 1931-32
Addition to rear ("maid's room") 1935
Other alterations(unspecified) 1965

*B7. Moved? No Yes Unknown Date: _____ Original Location:
*B8. Related Features:

Three secondary structures: one cottage and two garages converted to residential use. Construction dates are unknown for these secondary structures, however, there are residents listed in the Redwood City Directory in the 1950s for 80a and 80b. Photographs of the secondary structures are provided on page 4.

B9a. Architect: Unknown b. Builder: Unknown
*B10. Significance: Theme Single family residential architecture Area San Mateo County

Period of Significance Not applicable Property Type Building Applicable Criteria None
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The property was reviewed against the criteria for listing on the California Register and failed to meet any of the four criteria (see survey report). The main house is a weak example of Craftsman architecture, in a region blessed with many fine examples, and has suffered from loss of historic materials, particularly the use of metal replacement windows and the encapsulation of the brick chimney in a plywood box.

B11. Additional Resource Attributes: (List attributes and codes)

*B12. References:
Cultural Resources Evaluation for Properties Located at 50, 80, and 88 Finger Avenue, Redwood City, California. Prepared by Laura Jones and submitted to the city of Redwood City, December 2006.

B13. Remarks:

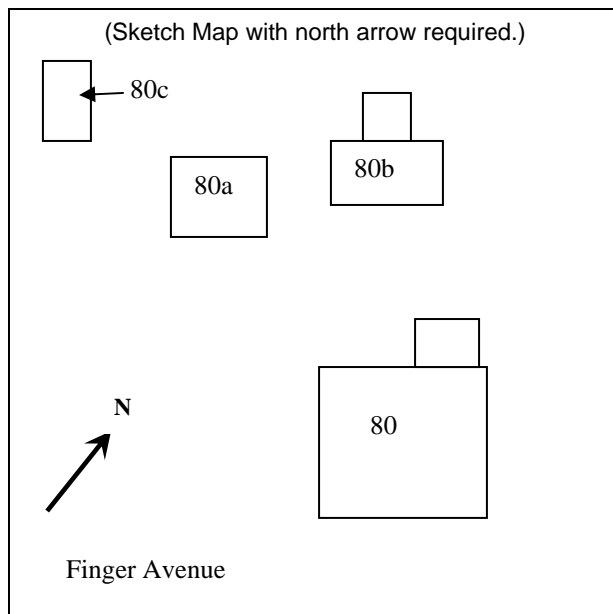
The four structures are of different style and materials and appear to have been built separately. There is not sufficient relationship between them either in association

(This space reserved for official comments.)

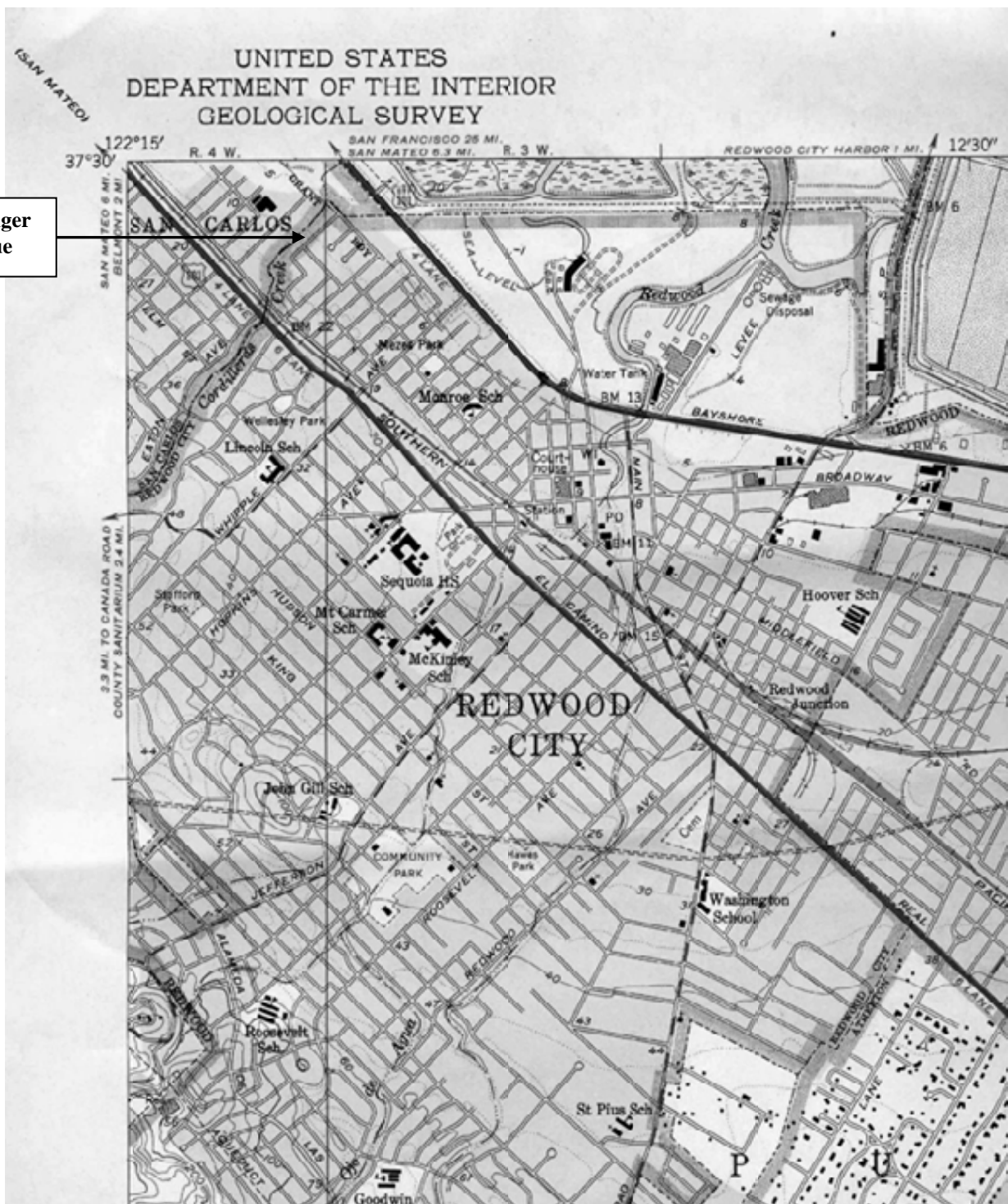
or style to suggest a unified district.

*B14. Evaluator: Laura Jones, Ph.D.

*Date of Evaluation: 12/16/06



80 Finger Avenue



Page 4 of 4

*Resource Name or # (Assigned by recorder) 80 Finger Avenue

*Recorded by: Laura Jones

*Date December 16, 2006

Continuation Update



80a Finger Avenue



80b Finger Avenue



80c Finger Avenue

APPENDIX C

Geotechnical Reports

REPORT

**GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED NINE-LOT SUBDIVISION
50, 80, 88 FINGER AVENUE
APN 052-061-170, 180, & 200
REDWOOD CITY, CALIFORNIA**



For Mr. Kirk McGowan

June 27, 2006



BAY AREA GEOTECHNICAL GROUP

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2005/4/1



BAY AREA GEOTECHNICAL GROUP
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June 27, 2006
BAGG Job No. MCGOW-01-00

Kirk McGowan
655 Skyway, Suite 230
San Carlos, CA 94070

Geotechnical Engineering Investigation
Proposed 9 Lot Subdivision
50, 80, & 88 Finger Avenue
APN 052-061-170, 180, & 200
Redwood City, California

Dear Mr. McGowan:

Transmitted herewith is our geotechnical engineering investigation report for the captioned project in Redwood City, California. The report presents data regarding the current soil conditions at the location of the subject site, and our recommendations for site grading and the design and construction of the building foundations and associated improvements.

Thank you for the opportunity to perform these services. Please do not hesitate to contact us, should you have any questions or comments.

Sincerely,



BAY AREA GEOTECHNICAL GROUP

Jason Van Zwol
Geotechnical Engineer

Distribution: 6 copies addressee

REPORT
GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED NINE-LOT SUBDIVISION
50, 80, & 88 FINGER AVENUE
APN, 052-061-170, 180, & 200
REDWOOD CITY, CALIFORNIA
For Mr. Kirk McGowan

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Plate 3	Regional Geology Map
Plate 4	Regional Fault Map
Plate 5	Unified Soil Classification System
Plate 6	Soil Terminology
Plate 7	Boring Log Notes
Plate 8	Key to Symbols
Plates 9-A through 17-B	Boring Logs
Plate 18	Plasticity Data
Plates 19 and 20	R-Value Test Results

ASFE document titled “Important Information About Your Geotechnical Engineering Report”



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REPORT
GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED NINE-LOT SUBDIVISION
50, 80, & 88 FINGER AVENUE
APN, 052-061-170, 180, & 200
REDWOOD CITY, CALIFORNIA
For Mr. Kirk McGowan

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation performed for the proposed nine-lot subdivision located in Redwood City, California. The attached Plate 1, Vicinity Map, shows the general location of the site, and Plate 2, Site Plan, shows the approximate locations of the current site features, including the existing residences, and the approximate locations of our exploratory borings drilled for this investigation. These services were performed in accordance with the scope of services outlined in our Proposal No. 05-101, dated January 25, 2005.

2.0 PROJECT DESCRIPTION

The proposed project will involve merging three lots and then subdividing the property into a Planned Development. The subdivision will include nine lots and a looped access road. Each lot will be developed with a single family residence of varying size and design. The looped access roadway will be a private street about 22 feet wide, with 7 guest parking stalls, and small landscaped

open space areas. Existing residences, which are not part of the project, are located on opposite sides of the northeastern end of the loop street.

3.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our investigation was to conduct a subsurface exploration program at the site as necessary to develop geotechnical recommendations for the design and construction of the proposed subdivision. On this basis, our report addresses:

- overall project feasibility from a geotechnical point of view,
- existing soil conditions and their potential impact on the project, including thickness of any existing fills, or possible loose, soft, expansive, or creeping soils,
- relative stability of the existing creek banks due to both erosion processes and structural stability, setback distances required from a geotechnical point of view to protect the proposed residences, and alternatives for improving bank stability, if necessary,
- criteria for site grading, including requirements for placement and compaction of fill materials, preparation of pavement subgrades, suitability of the on-site soils for use as engineered fill, and requirements for imported fill materials,
- alternative pavement sections for streets, driveways, and fire access roadways that will provide all-weather driving capabilities,
- criteria for the design of residential foundations, including minimum dimensions, and allowable bearing pressures for both vertical and lateral loads under both static and seismic conditions,
- criteria for design of low retaining walls, including suitable foundations types and lateral soil pressures, and
- general guidelines for providing surface and subsurface drainage on the site.

Specifically, our scope of services consisted of the following tasks:

- Research and review pertinent geotechnical and geological maps and reports relevant to the site area, including local soil conditions, and the geologic and seismic history of the site and vicinity.
- Drill a total of nine exploratory borings with truck-mounted and/or portable drilling equipment to depths on the order of 20 to 25 feet. Four borings were drilled adjacent to the existing creek channel, and five additional borings were scattered throughout the property. The drilling was directed by one of our field engineers, who also maintained a continuous log of the materials encountered, collected soil samples for visual examination and laboratory testing, and measured the depth to groundwater, as encountered. When completed, each boring was sealed with neat cement grout per standard protocol.
- Perform laboratory testing of selected samples of the soils as required to evaluate their engineering characteristics. Tests included direct shear strength testing, Atterberg Limits tests, R-value tests, and moisture/density measurements, as judged appropriate.
- Prepare six copies of a report summarizing our findings and including a site plan showing the approximate location of our borings, the logs of the borings, the results of our laboratory testing, and our conclusions, opinions, and recommendations.

4.0 SITE DESCRIPTION

The subject site is located on the north side of Finger Avenue, roughly 270 feet southwest of El Camino Real in Redwood City. The site is also located on the southeast side of Cordilleras Creek, in the alluvial plains on the perimeter of San Francisco Bay. The irregularly shaped property is relatively flat, and includes about 1.5 acres in three separate properties. The three properties are occupied by existing residences, some with secondary living quarters in the back. It is not known if any of the residences had old septic systems on the site. The landscaping on the site is quite mature, and has large trees scattered over the property, with several located along the stream channel along the rear property line. Portions of the stream bank at the northern edge of the property line contains old retaining walls.

5.0 FIELD EXPLORATION AND LABORATORY TESTING

To address the geotechnical aspects of the subject project, we conducted a subsurface exploration program at the site consisting of nine borings drilled to depths of 24½ to 26 feet with a light truck-mounted drilling rig. Relatively undisturbed ring samples and Standard Penetration Test samples of the subsurface materials were obtained at 3 to 5-foot-intervals, as necessary for visual classification and laboratory testing. Bulk samples of the upper surface soils were also obtained for laboratory testing to aid in pavement design. A laboratory testing program was then designed and conducted on the samples collected from the borings to evaluate the quality and consistency of the subsurface materials.

The graphical representation of the materials encountered in the borings, and the results of laboratory tests as well as explanatory/illustrative data are attached, as follows:

- Plate 5, Unified Soil Classification System, illustrates the general features of the soil classification system used on the boring logs.
- Plate 6, Soil Terminology, lists and describes other soil engineering terms used on the boring logs.
- Plate 7, Boring Log Notes, describes general and specific conditions that apply to the boring logs.
- Plate 8, Key to Symbols, describes various symbols used on the boring logs.
- Plates 9-A through 17-B, Boring Logs, describe the soils encountered, show the depths and blow counts for the samples, and show results of the strength tests, classification tests, and moisture-density data.
- Plate 18, Plasticity Data, graphs and presents the Atterberg Limits of two selected soil samples.
- Plates 19 and 20, R-Value Test Data, plots and presents the R-Value test results from two combined, near-surface, bulk soil samples.

Selected undisturbed samples were tested in direct shear to evaluate the strength characteristics of the foundation soils. Tests were performed at both natural (field) and artificially increased moisture contents and under various surcharge pressures. The moisture content and dry density of

undisturbed samples were also measured to aid in correlating their engineering properties. The results of our laboratory strength tests, moisture-density data, Atterberg Limits, and R-Value tests are summarized on the boring logs, and shown on the plates described above.

6.0 GEOLOGY AND SEISMICITY

The site area is mapped by Brabb (2000) as being near the outer edge of an older alluvial fan and fluvial deposit. The immediate site area, however, is mapped as being underlain by alluvial fan and fluvial deposits of the Holocene Age (Qhaf), described as:

Alluvial fan deposits are brown or tan, medium-dense to dense, gravelly sand or sandy gravel that generally grades upward to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, never reddish, medium-dense sand that fines upward to sandy or silty clay.

Our experience with these geologic units indicates predominantly clayey surficial soils, with low to moderately expansive soils, and with lenses of gravels and sands at depth. The Regional Geology Map, Plate 3, shows the geology of the general site area.

The project site is located within the western portion of the seismically-active San Francisco Bay region. The nearest active fault is the San Andreas fault. It is located approximately 6 kilometers southwest of the project site, and generated an earthquake Magnitude of 7.0+ on the San Francisco peninsula in 1838, and the great San Francisco Earthquake of 1906, a Moment Magnitude of 7.9. The Monte Vista - Shannon fault is also located approximately 6 kilometers south-southwest of the site. Depending on the reference cited, this fault is considered capable of generating an earthquake with a Moment Magnitude ranging from 6.5 to 7.0. The San Gregorio fault is located approximately 20 kilometers west-southwest of the site along the Pacific Coast, and is believed capable of generating an earthquake with a magnitude of about 7.4. The Hayward fault, located approximately 24 kilometers northeast of the site across San Francisco Bay, is also considered capable of generating an earthquake with a Moment Magnitude of 7.3, although it is more likely to cause an earthquake

than either the San Gregorio, or San Andreas faults. The USGS website (2002 data) indicates there is a 10 percent chance in 50 years that the ground surface acceleration will exceed 0.58g at this site.

Other faults in the general vicinity include the Belmont Hill fault, located approximately 750 meters southwest of the site. This fault is not listed in “Maps of Known Active Fault Near-Source Zones in California and Portions of Nevada, to be used with 1997 Uniform Building Code,” implying that for design purposes, it can be considered to be inactive. The distance to the nearest major active faults from the project site, the moment magnitude of scenario earthquakes on each fault, and the expected shaking intensity are listed below (ICBO, 1998).

TABLE 1
SIGNIFICANT EARTHQUAKE SCENARIOS

Fault	Approx. Distance to the Site (kilometers)	Potential Moment Magnitude (MW)	Shaking Intensity¹
San Andreas (Entire)	6.0	7.9 ²	VIII - Very Strong
San Andreas (Peninsula segment)	6.0	7.2 ²	VIII - Very Strong
Monte Vista - Shannon	6.1	6.8 ³	VIII - Strong
Hayward	20.2	7.3 ²	VII - Strong
San Gregorio	23.9	7.4 ²	VII - Strong

¹ Association of Bay Area Governments, 2003.

² Working Group on California Earthquake Probabilities, 2003.

³ Working Group on Northern California Earthquake Potential, 1996.

Online maps prepared by ABAG, 2003, indicate the site area will experience a Modified Mercalli Intensity of VIII, with “Very Strong” shaking and “Moderate” damage as a result of scenario earthquakes on the San Andreas fault, and a Modified Mercalli Intensity of VI, with “Strong” shaking and “Nonstructural” damage as a result of scenario earthquakes along the Monte Vista - Shannon, Hayward, and San Gregorio faults. The Modified Mercalli Intensity Scale is presented in Table 2.

TABLE 2
MODIFIED MERCALLI INTENSITY SCALE
(From ABAG, *On Shaky Ground*, 2003)

MMI Value	Description of Shaking Severity (1998 maps)	Summary Damage Description (1995 maps)	Full Description
I			Not felt. Marginal and long period effects of large earthquakes.
II			Felt by persons at rest, on upper floors, or favorably placed.
III			Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV			Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV wooden walls and frame creak.
V	Light	Pictures Move	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.
VI	Moderate	Objects Fall	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle).
VII	Strong	Nonstructural Damage	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII	Very Strong	Moderate Damage	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX	Violent	Heavy Damage	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters.
X	Very Violent	Extreme Damage	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI			Rails bent greatly. Underground pipelines completely out of service.
XII			Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.

Masonry B: Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.

Masonry C: Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.

Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

Full descriptions are from: Richter, C.F. 1958, *Elementary Seismology*, W.H. Freeman and Co., San Francisco, pp135-149, 650-653.

7.0 GEOTECHNICAL CONDITIONS

7.1 Subsurface Conditions

The borings were drilled at the approximate locations as shown on Plate 2, Site Plan. The materials encountered in the borings were generally consistent with the units mapped on the referenced geology map.

The upper soils generally consisted of medium stiff to very stiff lean clays with varying amounts of sands and gravels. The sand and gravel content generally increased with depth, with some borings encountering medium dense to dense clayey sands and clayey gravels, generally below depths of 10 feet.

For more information regarding the subsurface materials, we refer you to Plates 9-A through 17-B, Boring Logs.

7.2 Groundwater

Free groundwater was encountered during the drilling operation in all of the borings. The groundwater was initially encountered at depths ranging from about 4 to 9 feet, and was measured at depths ranging from 11½ to 16 feet at the end of drilling. Because the water level in the borings were not allowed to stabilize before they were sealed with grout, it must be noted that these water levels may not be representative of the true groundwater table. Nevertheless, based on our observations in the borings, it appears the groundwater table is at, or slightly below the adjacent creek elevation.

It must be remembered that groundwater levels will fluctuate as a result of seasonal changes and perched water will likely develop in the rainy season, particularly within heterogeneous granular soil layers and lenses at depth.

7.3 Potential for Liquefaction

Soil liquefaction is a phenomenon in which saturated (submerged) cohesionless soils can be subject to a temporary loss of strength due to buildup of excess pore pressure, and reduction of soil effective

stress during cyclic loading, such as those produced by the earthquakes. In the process, the soil acquires a mobility sufficient to permit both horizontal and vertical movements, if not confined. Soils most susceptible to liquefaction are loose, clean, saturated, uniformly-graded, fine-grained sands. Silty sands and clayey sands may also be susceptible to liquefaction during strong ground shaking, although to a lesser extent. The loose to medium dense sand layers can also be subjected to seismic compaction, if they are above the water table.

Because of the relatively stiff consistency of the clayey soils underlying the site and lack of any liquefiable granular soil materials within the depths explored, it is our opinion that the site's susceptibility to liquefaction is low. It is also our opinion that liquefaction of any soils deeper than explored by this investigation would have little observable effect at the ground surface.

7.4 Stability of Creek Bank

The relative slope stability of the creek bank was evaluated with the conventional method of limit equilibrium stability analyses. The method calculates factors of safety against sliding using circular arc failure surfaces. The computer program PCSTABL developed by Purdue University in 1988, was used to perform the stability analysis. Our analyses used the Simplified Bishop Method, which is based on vertical equilibrium of the individual slices, into which the soil mass above the failure surface is divided, and on overall moment equilibrium. Side forces are included in the Bishop's analysis by using the simplifying assumption that they act only in a horizontal direction. The factor of safety is computed as the ratio of resisting moments to driving moments about the center of the circular arc failure surface. Various trial failure surfaces are analyzed in this manner until a minimum factor of safety is obtained.

The engineering parameters used in the stability analyses were based on the laboratory test results performed on samples of the various soil types described in the boring logs. As indicated on Boring Log Notes, Plate 7, the tabulated shear strengths are yield point values, or the strengths measured when the material began to deform plastically. Consequently, the values shown on the boring logs are less than the peak shear strengths measured, which, in our opinion, are more appropriate when evaluating the stability of progressive failures, such as in zones of soil creep. It is worth remembering that slope stability, in general, is controlled by the weakest link. That is, the slope will

fail through the weakest soils. For this site, the weakest soils are the wet materials at or below the water level.

We analyzed two cases for static and seismic conditions; one with water level near the creek bed elevation, and one with the water level (both creek level and groundwater level) assumed to be at Elevation 98 feet. Our analyses obtained safety factors of about 1.9 under static conditions, and a pseudo-static yield acceleration (safety factor equal to one) of 0.26g with the extreme water table, and 0.36g with the normal low water table. Based on these results, it is our opinion that the risk of creek bank failure is limited to a major earthquake occurring during a period of extreme high water. Our analyses indicate this failure will be limited to about 25 feet from the *toe* of the creek bank, or edge of the stream bed.

Based on the results of our analyses, it is our opinion that erosion will provide a bigger risk of slope failure than will direct failure due to earthquake shaking. For this reason, we recommend new residential structures adjacent to the creek should be set back from the *toe* of the creek bank by approximately 30 feet. Where structures will be less than 30 feet from the *toe* of the creek bank, they should be supported on a drilled pier and grade beam foundation system designed as recommended later in this report.

8.0 DISCUSSION AND RECOMMENDATIONS

8.1 General

Based on the subsurface exploration conducted at the subject site and the results obtained from our laboratory testing program, it is our opinion that the proposed project is geotechnically feasible, provided the recommendations presented in this report are incorporated into the project design and construction. When the final development plans are available, they should be reviewed by this office prior to construction to confirm that the intent of our recommendations are reflected in the plans, as well as to confirm that our recommendations properly address the proposed project in its final form.

Our field investigation encountered predominantly clayey soils at the surface, grading more granular with depth. The soils were found to be generally medium stiff at the surface and very moist, due to the existing landscape irrigation and/or recent rains. While the granular soils were encountered below the groundwater table, the clayey fines content and/or the consistency of the sands generally preclude any significant liquefaction potential.

Based on our field exploration and laboratory testing, it is our opinion that the proposed residences may be satisfactorily supported on conventional shallow footings. However, structures or portions of structures located within 30 feet of the *toe* of the creek bank should be supported on drilled piers.

The site could experience very strong ground shaking from future earthquakes during the anticipated lifetime of the project. The intensity of the ground shaking will depend on the magnitude of the earthquake, distance to the epicenter, and the response characteristics of the native soils. While it is not possible to totally preclude damage to structures during major earthquakes, adherence to good engineering design and construction practices will help reduce the risk of damage to the proposed residences.

8.2 Site Grading

Site grading will consist of demolition and removal of the existing residences and associated structures, backfilling of the depressions resulting from the removal of slabs and footings, minor cutting and filling to create pads for the proposed residences, installation of new utility trenches, grading and paving for the new loop access road, and minor grading for landscaping.

As used in this report, the term “compact” and its derivatives mean that all on-site soils should be compacted to at least 90 percent of maximum dry density, as determined by ASTM Test Method D1557-01, while at a moisture content that is slightly over optimum. In the slab and pavement subgrades, the upper 6-inches of the subgrade, including any imported fill soils and baserock, should be compacted to at least 95 percent of the maximum dry density.

The following grading procedures should be followed in the building areas and in areas to receive fills and backfills, pavements, concrete slabs, or flatwork:

- After demolition and/or clearing, remove remnants of old foundations, slabs, abandoned underground utilities, septic systems, bushes, trees, roots, and debris from the site surface. Strip and remove any organically-contaminated topsoil and debris from the subgrade. Stockpile the strippings for later disposal at an off-site location, or for later use in landscaping areas only. The depth of stripping is estimated to be approximately 6 inches, but should be verified in the field by the Geotechnical Engineer at the time of construction.
- Scarify the over-excavated surfaces within the exposed subgrades to a depth of 6 inches. Thoroughly moisture-condition and re-compact the scarified surfaces. Further over-excavate as necessary any area still containing weak and/or yielding (pumping) soils, as determined in the field by the Geotechnical Engineer.
- Temporary slopes for the excavations behind new retaining walls for basements, etc., should be no steeper than ¾:1 (horizontal to vertical).
- Place fills on the over-excavated surfaces, in the holes/depressions created by the above actions in uniformly moisture conditioned and compacted lifts not exceeding 8 inches in loose thickness. Rocks or cobbles larger than 4 inches in maximum dimensions should not be allowed to remain within the foundation areas, unless they can be crushed in-place by the construction equipment.
- The end result of grading beneath slabs-on-grade and exterior flatwork should be to achieve a minimum of 12-inch-thick layer of reworked and compacted materials beneath the subgrade.

The on-site soils are generally suitable for use as structural fill, provided they are not contaminated with organics or other debris. Imported fill soils, if required, should be predominantly granular in nature, have a Plasticity Index less than 15, a minimum R-value of 20, a fines content of between 15 and 65 percent, and should be approved by the Geotechnical Engineer before importing to the site. All aspects of site grading, including clearing/stripping, demolition, excavation, and placement of fills or backfills, should be performed under the observation of BAGG's field representatives.

It must be the Contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. The Contractor must also organize his work in such a manner that one of our field representatives can observe and test the grading operations, including clearing, excavation, compaction of fill and backfill, and compaction of subgrades.

8.3 1997 Uniform Building Code Site Characterization

The Structural Engineering Design Provisions in Chapter 16 of the 1997 Uniform Building Code (UBC) introduced substantial changes to earthquake design for new buildings (International Conference of Building Officials, 1997). The new code considers local (near source) seismic effects by using “near-source factors” to account for the fact that recorded near-fault ground motions and lateral load requirements on structures have frequently exceeded those specified in earlier editions of the UBC. Based on our geologic research, including published maps of known active fault zones prepared for the 1997 UBC and the distance to the seismic sources, the seismic design parameters tabulated below are recommended for this site, based on Chapter 16 of the 1997 UBC (same as 2001 California Building Code).

**TABLE 3
PARAMETERS FOR SEISMIC DESIGN**

UBC, 1997	Site Parameter
Figure 16-2, Seismic Zone Map of the U.S.	Zone 4
Table 16-I, Seismic Zone Factor Z	0.4
Table 16-Q, Seismic Coefficient C_a	$0.44N_a$
Table 16-R, Seismic Coefficient C_v	$0.64N_v$
Table 16-J, Soil Profile Type	S_D , Stiff Soil Profile
Closest Distance to Known Seismic Source	6.0 kilometers
Table 16-U, Seismic Source Type	A (San Andreas)
Table 16-S, Near-Source Factor, N_a	1.2
Table 16-T, Near-Source Factor, N_v	1.5

8.4 Foundations

Provided site grading has been performed as recommended above, the proposed residences and associated structures may be adequately supported on conventional shallow footings. Portions of structures located less than 30 feet from the *toe* of the creek bank should be supported on a drilled pier and grade beam foundation system. Recommendations for design of these foundation types are presented in the following paragraphs.

8.4.1 Drilled Piers

Drilled pier and grade beam foundations will provide satisfactory support for support of the new residences. Drilled, cast-in place, reinforced concrete piers should be a minimum of 16 inches in diameter, and derive skin friction support from the underlying firm soil material. The foundation piers should extend at least 10 feet into competent material, as determined by the Geotechnical Engineer in the field. They should also extend a minimum of 10 feet below an imaginary plane rising from the toe of the creek bank (edge of the stream bed) at a gradient of 3:1. Structural considerations may dictate deeper piers. The piers may be designed using an allowable skin friction support of 500 pounds per square foot (psf) excluding the pier length above the 3:1 plane rising from the stream bed, and excluding the upper one foot in all other areas. Dead and uplift loads should be limited to two-thirds of the above skin friction. In addition, the indicated skin friction value for total design loads may be increased by one-third when seismic and other transient loads are included.

Loads between piers should be supported on grade beams that are designed to span between pier locations with the assumption that they obtain no vertical support from soils beneath them. It is recommended that the exterior grade beams be established a minimum of 6 inches into the rough grade of the building pad (lowest adjacent grade or crawl space), and 18 inches below finished exterior grades. Pier and grade beams should be reinforced appropriately and the reinforcement should be properly tied together to enable the entire system to act as a unit. Design of the pier and grade-beam, reinforcement, depth, size, and spacing of the piers will depend on the building loads and should be established by the structural engineer responsible for the foundation design; however, as a minimum, we recommend each pier should be reinforced with at least four (4) No. 5 bars.

The bottom of the drilled pier holes should be cleaned of all loose soil cuttings before placement of reinforcing steel or concrete. There is a good possibility that groundwater will be encountered in the pier excavations. Where encountered, the groundwater should be pumped out immediately before pouring concrete, or the concrete should be tremied into the hole and placed from the bottom up. The tremie pipe should remain 2 feet below the top of the fresh concrete as the pier is poured until all water and sloughage have been displaced from the hole.

8.4.2 Conventional Footings

The new residences and/or portions of structures that are located more than 30 feet from the *toe* of the creek bank may also be satisfactorily supported on conventional shallow footings. Spread footings should be established at least 24 inches below the lowest adjacent exterior grade, and at least 18 inches below crawlspace grade. Within basement areas, the floor slab should be a thickened and reinforced to serve as a mat foundation supporting all interior footings, as well as the perimeter basement walls. Such footings and mat slabs should be designed using allowable bearing pressures of 1,700 pounds per square foot (psf) for dead loads, and 2,500 psf for total design loads. The latter value may be increased by one-third for short-term wind and seismic loads.

All continuous footings should be reinforced to provide structural continuity and to span over local irregularities in soil conditions. As a minimum, we recommend at least two (2) No.4 bars near the top and two (2) No.4 bars near the bottom of continuous footings. Structural considerations may require greater reinforcement.

The bottom of footing excavations should be firm, clean, and free of any loose or yielding soils, and should be observed by this office to verify the suitability of the exposed soils. To the extent possible, footings should be poured in neat excavations without the use of side forms. The soils exposed in the footing excavations should not be allowed to dry out and crack. Any dry or cracked soils should be excavated and replaced with properly compacted fill soils or lean concrete.

8.5 Lateral Design

Lateral resistance may be obtained from passive earth pressures acting on the sides of foundation members which have been poured in neat excavations. The allowable passive resistance to wind or seismic loads can be taken as an equivalent fluid pressure of 300 pounds per cubic foot (pcf) in undisturbed native soils and/or compacted fill soils. However, all passive soil pressures above a 3:1 plane rising from the edge of the creek bed/toe of creek bank should be ignored, for the conservative assumption that the soil has slumped into the creek due to earthquake shaking during extreme high water conditions. In addition, for resisting long-term loads, the passive resistance within the upper 12 inches below final grade should be ignored, unless the foundations are protected by a pavement or concrete slab. For isolated piers (at least 3 diameters apart), the lateral soil pressures can be assumed to act over 1½ times the pier diameter.

A frictional coefficient of 0.30 can be used between the bottom of spread footings and firm soils. Frictional resistance should not be used on the bottom of pier-supported grade beams.

8.6 Settlements

We have estimated that the total post construction, static settlement of the proposed residences due to light building loads typical of residential structures supported on properly constructed conventional shallow foundations will be less than one inch, and settlement of a properly constructed pier and grade beam foundation system is expected to be less than ½ inch. Differential settlements across the new buildings are expected to be on the order one-half of these values.

8.7 Retaining Walls

Retaining walls should be designed to resist lateral earth pressures from adjoining natural materials and backfills. Free standing, below-grade walls supporting native and/or compacted backfill materials should be designed to support an equivalent fluid pressure of 50 pcf. Restrained walls, such as the basement walls where a lateral deflection at the top is not acceptable, should be designed to resist “at-rest” soil pressures taken as an equivalent fluid pressure of 75 pounds per cubic foot (pcf) for level backfill. Basement walls below an elevation of 92.5 feet (creek bed at southwest corner of site) should be assumed to be below the water table and designed to resist soil pressures taken at 90 pcf. The above pressures should be increased by 3 pcf for every 5-degree increase in slope of the backfill surface.

Retaining walls should be supported on foundations designed in accordance with the recommendations presented in the “Foundations” section of this report. The lateral earth pressures should be resisted by passive soil pressures and friction acting on the wall foundations as described under “Lateral Design”.

The above lateral pressures do not include any hydrostatic pressures resulting from groundwater, seepage water, or infiltration of natural rainfall and/or irrigation water behind the walls. Therefore, all walls over 2 feet in height and above Elevation 92.5 feet, should be provided with a drainage blanket behind the wall. Walls extending below Elevation 92.5 should be completely water proofed. Above Elevation 92.5, the drainage blanket should consist of a pre-manufactured drainage panel or a one-foot thick blanket of free-draining gravel or drain rock protected by a suitable filter fabric. A

12-inch cap of relatively impermeable soil should be compacted at the top of the drainage blanket to minimize infiltration of surface water. A perforated pipe should be installed at the base of the drainage blanket to conduct water away from the wall. Drainage from behind the basement walls should be directed to a sump with a pump.

8.8 Slabs-on-Grade and Exterior Flatwork

Concrete slabs and flat work to be constructed at or near the ground surface should be supported on a 12-inch thick layer of reworked on-site soils and/or engineered fill that has been prepared and compacted as recommended under "Site Grading". The subgrade soils should be maintained at slightly above optimum moisture content, and should be approved by the Geotechnical Engineer immediately before the slab is poured.

It is recommended that the exterior slabs, flatwork, and the basement slab should be underlain with at least 4 inches of approved, clean, free draining, angular gravel. In the garage or driveway slabs, the crushed rock should be replaced with a 6-inch layer of Class II Aggregate Base (minimum R-value = 78) compacted to at least 95 percent of maximum dry density.

The base course is intended to serve as a capillary break; however, moisture may accumulate in the base course zone. Therefore, a plastic vapor barrier of at least ten mil thickness should be placed on the base course, if moisture protection is desired and a damp slab is not desirable. To aid in curing the concrete and to protect the membrane during construction, the vapor barrier may be covered with a 2-inch-thick layer of curing sand that should be wetted (not saturated) prior to pouring the slab.

Where new driveway and exterior slabs will be constructed adjacent to the irrigated landscape areas, or where natural runoff will drain toward the pavement area, a vertical curb extending at least 2 to 3 inches below the subgrade level would minimize water intrusion into the subgrade soils and maximize the serviceable life of the driveway slab.

8.9 Flexible Pavements

We understand the project will include construction of a looped access road to all lots. The Engineering Standards for City of Redwood City requires all cul-de-sacs to be designed for a

minimum Traffic Index (TI) of 4.5, and a minimum TI of 5.0 for all residential streets. They also require the minimum pavement section for public streets, private streets, and off-street parking and loading facilities, to be 4 inches of asphaltic concrete over 8 inches Class 2 Aggregate Base.

The two R-value tests for this investigation obtained R-values of 8 and 9 for combined near-surface bulk samples of the on-site soils from Borings 2 through 5, and Borings 6 through 9, respectively. Therefore, our design is based on an R-value of 8 for the subgrade soil and an R-value of 78 for Class 2 Aggregate Base. The pavement design recommendations tabulated below are based on Traffic Indices of 4.5, 5.0, 6.0, and 7.0. We generally recommend a Traffic Index of 6.0 be used where the pavement will be subject to frequent use by vans or light delivery trucks with only occasional heavy truck traffic; however, when the pavement is weighted toward the AC thickness as required by the City (in effect increasing the State-recommended safety factor), a TI on the order of 5.0 may be appropriate for such conditions. A Traffic Index of 4.5 is generally recommended for areas accommodating light automobile parking only.

Table 4
NEW PAVEMENT SECTIONS
(Subgrade R-value = 8)

Pavement Component	TI=4.5		TI=5.0		TI=6.0		TI=7.0				
	7	2½	4	7½	3	4	9	3½	4	10½	4
Asphaltic Concrete (AC)	7	2½	4	7½	3	4	9	3½	4	10½	4
Imported Class II Aggregate Base (R _{Min} =78)	-	9	6	-	9	7	-	12	11	-	15
Total Thickness in Inches	7	11½	10	7½	12	11	9	15½	15	10½	19

The alternative pavement sections presented above were calculated using the design method described in the Caltrans Highway Design Manual (Topic 604, Dec. 20, 2004) with the safety factors included. The method characterizes the subgrade soil conditions with laboratory R-value tests, and characterizes the traffic loading conditions with a Traffic Index. While the three pavement alternatives for each TI are structurally equivalent (based on the Caltrans method of calculation), they may not conform the requirements of the City of Redwood City.

As can be seen in Table 4, the City's minimum pavement section will correspond to a TI of about 5.0 at this site – i.e., a TI of 5.5 and larger will require a pavement section greater than the City's minimum. For comparison, we have also included deep-lift asphalt sections for the new roadway and parking area pavements.

8.10 Utility Trenches

Vertical trenches deeper than 5 feet will require temporary shoring to protect workers in the trench. Where shoring is not used, the sides should be sloped or benched, with a maximum slope of 1:1 (horizontal : vertical). The trench spoils should not be placed closer than 3 feet (or one-half of the trench depth) from the trench sidewalls. All work associated with trenching must conform to the State of California, Division of Industrial Safety requirements. In our opinion, the soils at the upper 10 feet of the site should be classified as "Type B Soil". However, our borings initially encountered free water at depths varying from 4 to 9 feet. CalOSHA defines "soil from which water is freely seeping" as "Type C Soil".

Trench backfill materials and compaction should conform to the following:

- In general, soils used for trench backfill must be free of debris, roots and other organic matter, debris, and rocks or lumps exceeding 3 inches in greatest dimension.
- Compaction should be performed to a minimum of 90% relative compaction in accordance with ASTM D1557-01, at a moisture content that is slightly over optimum. In pavement areas, the upper 12 inches of the backfill (below the pavement subgrade) should be compacted to 95% of the maximum dry density.
- Jetting will not be allowed.

8.11 Drainage

Because of the relatively flat topography of the site, drainage measures to control and collect surface run-off should be considered an integral part of the proposed development. The ground surface adjacent to all sides of the proposed residences and associated structures should be sloped to drain away from the foundations. Unpaved and landscaped areas should slope at least 5 percent to a distance of 5 feet away from the face of the building. Grass-lined drainage swales running parallel to building foundations should slope at least 1 percent, and any area where surface run-off becomes concentrated should be provided with a catch basin that drains to a suitable discharge point.

Surface and subsurface drainage facilities and catchment areas should be checked frequently and cleaned or maintained throughout the project life, as necessary.

8.12 Plan Review

It is recommended that a Geotechnical Engineer (Bay Area Geotechnical Group) be retained to review the final grading, drainage, and foundation plans. This review is to assess suitability of the earthwork and foundation recommendations contained in this report for the project in its final form, as well as to verify the appropriate implementation of our recommendations into the project plans and specifications.

8.13 Observation and Testing

It is recommended that a Geotechnical Engineer (BAGG) be retained to provide observation and testing services during the clearing, grading, excavation, backfilling, and foundation construction phases of work. This is to verify that the work in the field is performed as recommended and in accordance with the approved plans and specifications, and more importantly, to verify that subsurface conditions encountered during construction are similar to those anticipated during the design phase.

9.0 CLOSURE

This report has been prepared in accordance with generally-accepted engineering practices for the strict use of Mr. Kirk McGowan and other professionals associated with the specific project described in this report. The conclusions and recommendations contained in this report are based on subsurface conditions revealed by nine widely-spaced borings. It is not uncommon for unanticipated conditions to be encountered during site grading and/or foundation installation, and it is not possible for all such variations to be found by a field exploration program appropriate for this type of project. The recommendations contained in this report are therefore contingent upon the review of the final development plans by this office, and upon geotechnical observation and testing by BAGG of all pertinent aspects of construction, including clearing, demolition and removal of at grade and below grade structures, including foundations and old utilities and septic systems, site

grading, foundation and basement excavations, placement of fills and backfills, and preparation of subgrades.

Soil conditions and standards of practice change with time. Therefore, if the construction does not commence within 24 months from the date this report is issued, we should be consulted to review and update this report as needed. Additionally, the recommendations of this report are only valid for the proposed development as described herein. If the proposed project is modified, our recommendations should be reviewed and approved or modified by this office in writing.

10.0 REFERENCES

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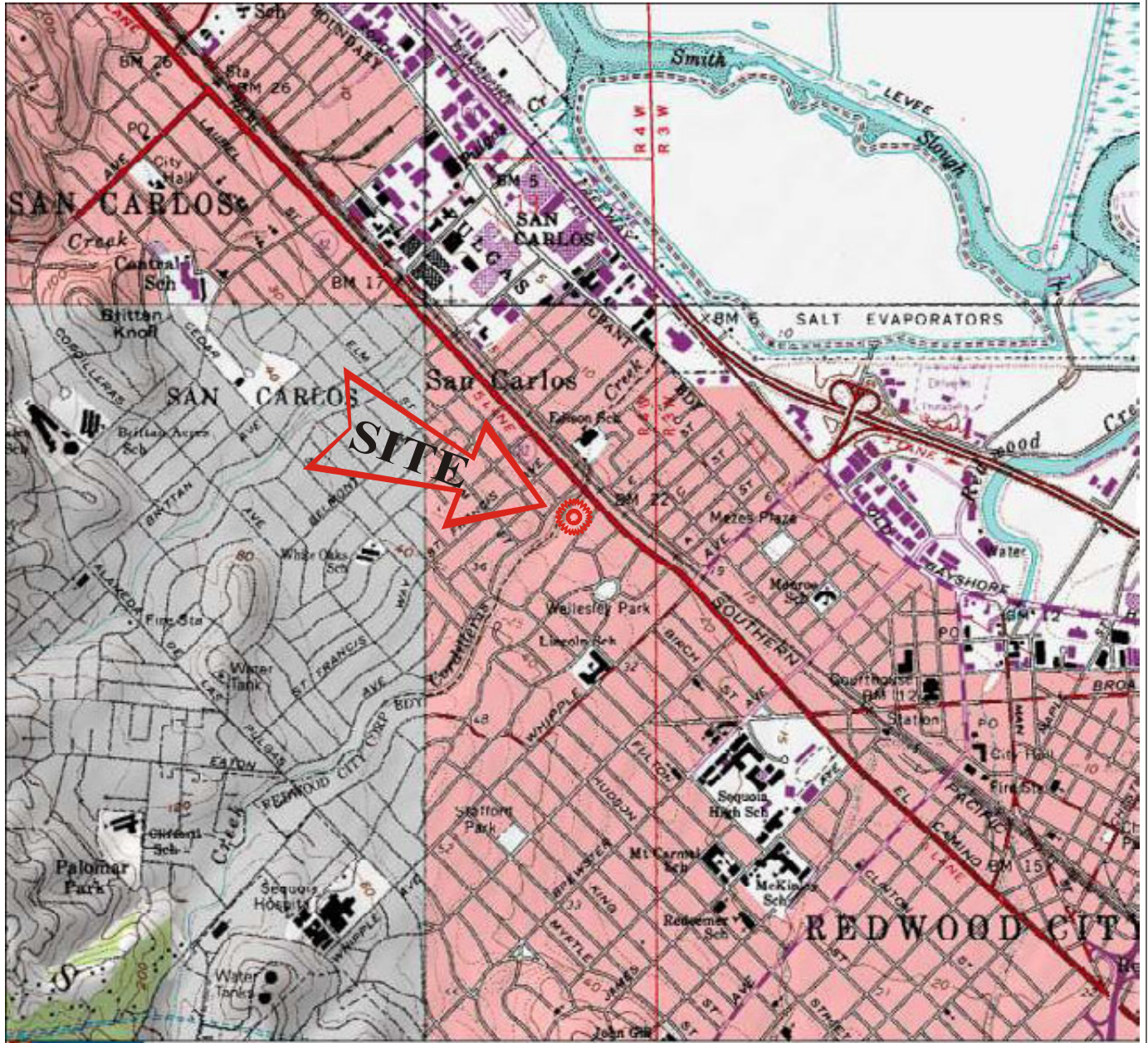
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The following plates are attached and complete this report:

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Regional Geology Map
Plate 4	Regional Fault Map
Plate 5	Unified Soil Classification System
Plate 6	Soil Terminology
Plate 7	Boring Log Notes
Plate 8	Key to Symbols
Plates 9-A through 17-B	Boring Logs
Plate 18	Plasticity Data
Plates 19 and 20	R-Value Test Results

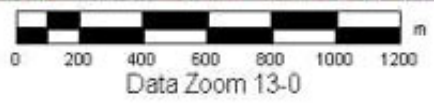
ASFE document titled "Important Information About Your Geotechnical Engineering Report"



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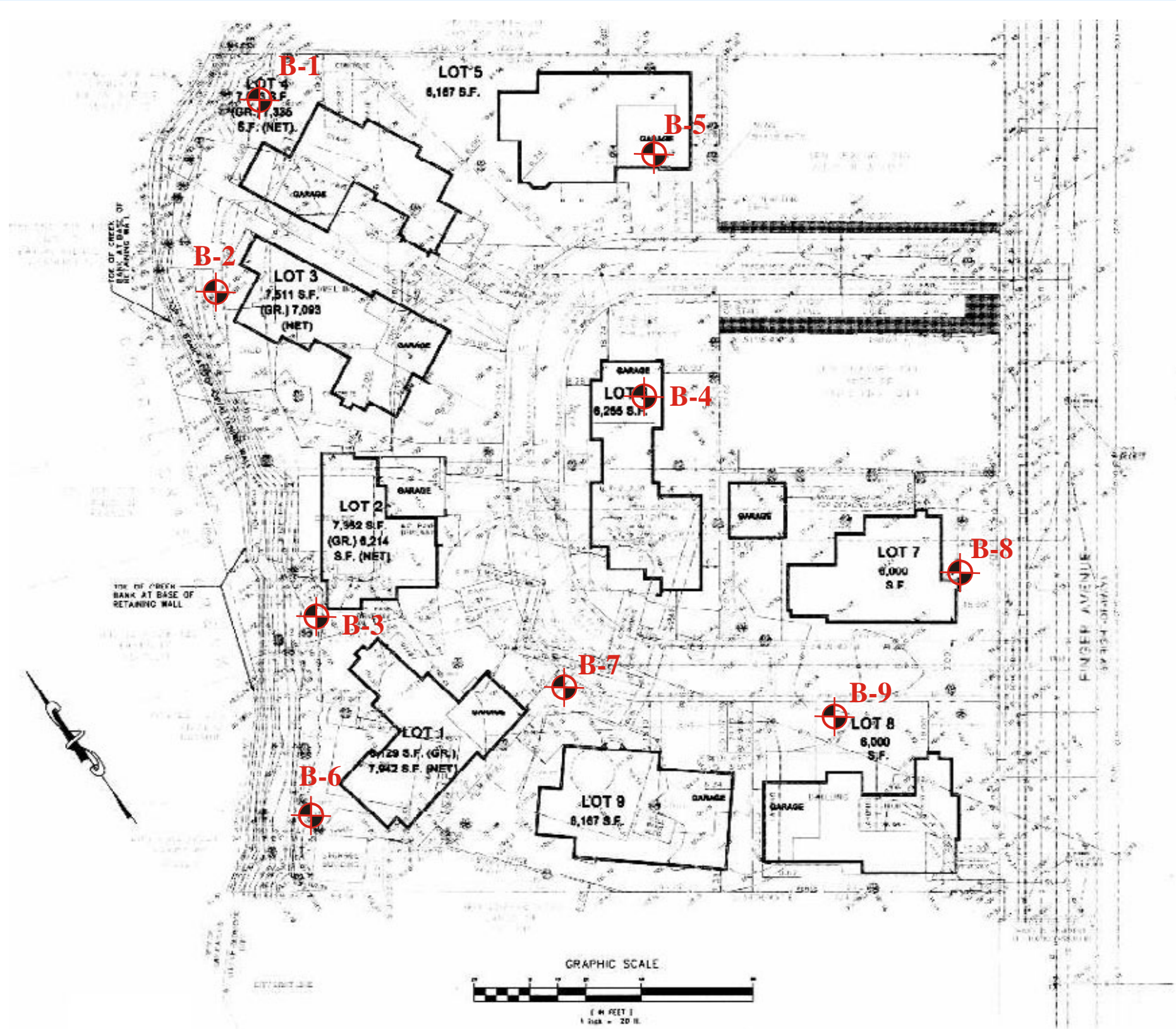


**Proposed Nine-Lot Subdivision
 Finger Avenue
 Redwood City, California**

VICINITY MAP

Date June, 2006	BAGG Job Number MCGOW-01-00	PLATE 1
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 Approximate Boring Location

Base Map: "Vesting Tentative Subdivision Map, Site Plan"
Drawing No. 2313-04
by MacLeod and Associates,
dated 6-19-2006.

PROPOSED NINE-LOT SUBDIVISION
50, 80, & 88 Finger Avenue
APN Nos. 052-061-170, 180, & 200
Redwood City, California



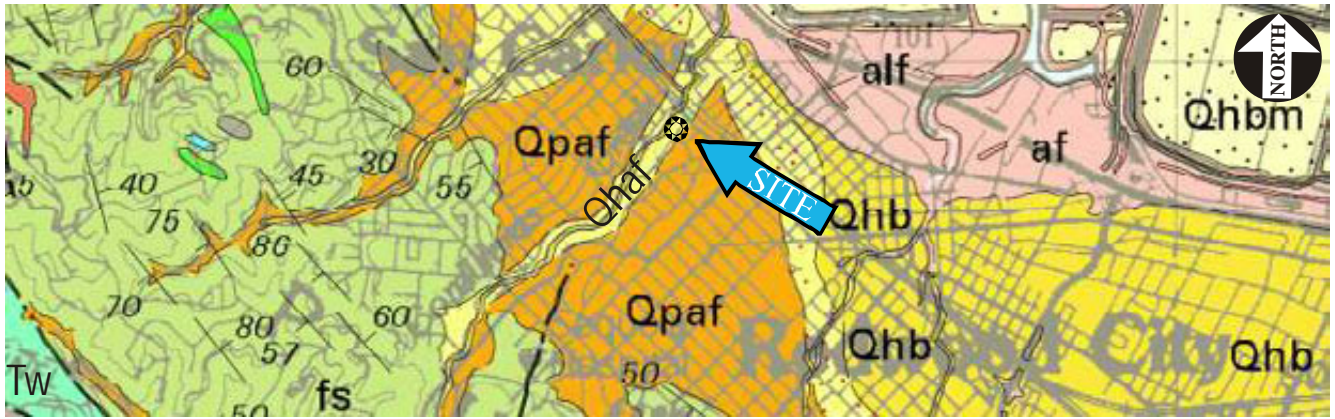
SITE PLAN

JOB Number
MCGOW-01-00

SCALE:
distorted.

DATE
June, 2006

PLATE
2



LEGEND

af Artificial fill (Historic)

alf Artificial levee fill (Historic)

Qhbm Bay mud (Holocene)

Qhb Basin deposits (Holocene)

Qhaf Alluvial fan and fluvial deposits (Holocene)

Alluvial fan deposits are brown or tan, medium-dense to dense, gravelly sand or sandy gravel that generally grades upward to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, never reddish, medium-dense sand that fines upward to sandy or silty clay.

Qpaf Alluvial fan and fluvial deposits (Pleistocene)

Brown, dense, gravelly and clayey sand or clayey gravel that fines upward to sandy clay. These deposits display variable sorting and are located along most stream channels in the county. All unit Qpaf deposits can be related to modern stream courses. They are distinguished from younger alluvial fans and fluvial deposits by higher topographic position, greater degree of dissection, and stronger soil profile development. They are less permeable than Holocene deposits, and locally contain fresh-water mollusks and extinct late Pleistocene vertebrate fossils. They are overlain by Holocene deposits on lower parts of the alluvial plain, and incised by channels that are partly filled with Holocene alluvium on higher parts of the alluvial plain. Maximum thickness is unknown but at least 50 m.

Tw Whiskey Hill Formation (middle and lower Eocene)

Franciscan Complex, (Cretaceous and Jurassic)

fs Sandstone

Reference: Geologic Map and Map Database of the Palo Alto 30' x 60' Quadrangle, California, by E.E. Brabb, R.W. Graymer, and D.L. Jones, Miscellaneous Field Studies Map MF-2332, U.S.G.S., 2000.

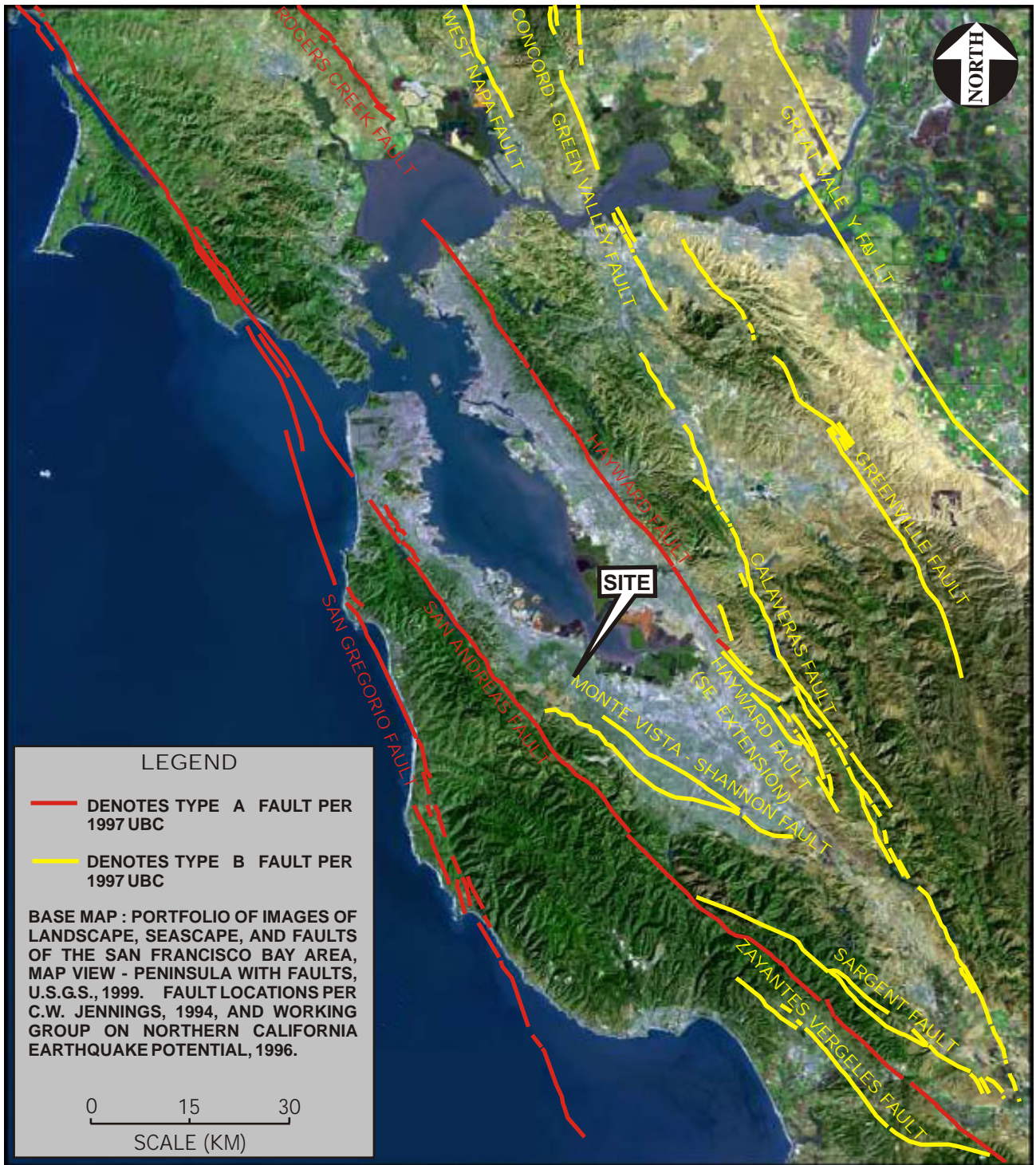
**PROPOSED NINE-LOT SUBDIVISION
50, 80, & 88 FINGER AVENUE
APN 052-061-170, 180, & 200
REDWOOD CITY, CALIFORNIA**

REGIONAL GEOLOGY MAP

JOB NO.
MCGOW-01-00

DATE
June, 2006

PLATE
3



**PROPOSED NINE-LOT SUBDIVISION
50, 80, & 88 FINGER AVENUE
APN 052-061-170, 180, & 200
REDWOOD CITY, CALIFORNIA**

REGIONAL FAULT MAP

JOB NO.
MCGOW-01-00

DATE
June 2006

PLATE
4

COARSE-GRAINED SOILS
LESS THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
GW	Well graded gravel Well graded gravel with sand	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	Poorly graded gravel Poorly graded gravel with sand	
GM	Silty gravel Silty gravel with sand	
GC	Clayey gravel Clayey gravel with sand	
SW	Well graded sand Well graded sand with gravel	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	Poorly graded sand Poorly graded sand with gravel	
SM	Silty sand Silty sand with gravel	
SC	Clayey sand Clayey sand with gravel	

NOTE: Coarse-grained soils receive dual symbols if:
(1) their fines are CL-ML (e.g. SC-SM or GC-GM) or
(2) they contain 5-12% fines (e.g. SW-SM, GP-GC, etc.)

FINE-GRAINED SOILS
MORE THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
CL	Lean clay Sandy lean clay with gravel	SILTS AND CLAYS liquid limit less than 50
ML	Silt Sandy silt with gravel	
OL	Organic clay Sandy organic clay with gravel	
CH	Fat clay Sandy fat clay with gravel	
MH	Elastic silt Sandy elastic silt with gravel	SILTS AND CLAYS liquid limit more than 50
OH	Organic clay Sandy organic clay with gravel	
PT	Peat Highly organic silt	HIGHLY ORGANIC SOIL

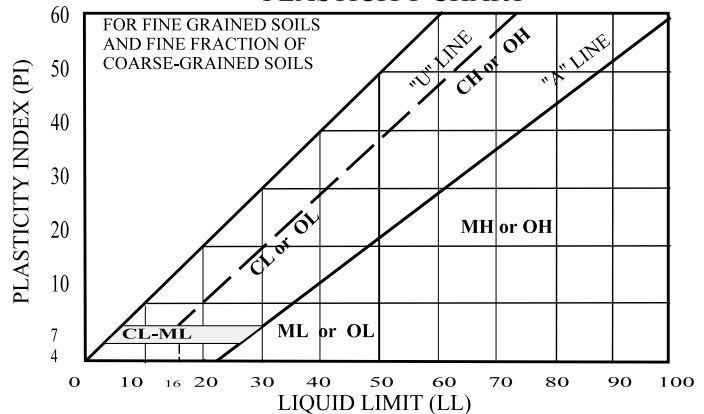
NOTE: Fine-grained soils receive dual symbols if their limits plot in the hatched zone on the Plasticity Chart (CL-ML).

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	¾ in to 3 in.
Fine	No. 4 to ¾ in.
SAND	No. 200 to No. 4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*FINES:	BELOW No. 200

NOTE: Classification is based on the portion of a sample that passes the 3-inch sieve.

PLASTICITY CHART



Reference: ASTM D 2487-98, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

GENERAL NOTES: The tables list 30 out of a possible 110 Group Names, all of which are assigned to unique proportions of constituent soils. Flow charts in ASTM D 2487 aid assignment of the Group Names. Some general rules for fine grained soils are: less than 15% sand or gravel is not mentioned; 15% to 25% sand or gravel is termed "with sand" or "with gravel;" and 30% to 49% sand or gravel is termed "sandy" or "gravelly." Some general rules for coarse-grained soils are: uniformly-graded or gap-graded soils are "Poorly" graded (SP or GP); 15% or more sand or gravel is termed "with sand" or "with gravel;" 15% to 25% clay and silt is termed clayey and silty and any cobbles or boulders are termed "with cobbles" or "with boulders."

SOIL TYPES (Ref 1)

- Boulders:** particles of rock that will not pass a 12-inch screen.
- Cobbles:** particles of rock that will pass a 12-inch screen, but not a 3-inch sieve.
- Gravel:** particles of rock that will pass a 3-inch sieve, but not a #4 sieve.
- Sand:** particles of rock that will pass a #4 sieve, but not a #200 sieve.
- Silt:** soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
- Clay:** soil that will pass a #200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

- Moisture Condition:** an observational term; dry, moist, wet, or saturated.
- Moisture Content:** the weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
- Dry Density:** the pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref 3)

- Liquid Limit:** the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
- Plastic Limit:** the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
- Plasticity Index:** the difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's 2 & 3)

Very Soft	N=0-1*	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by a pencil point

*N=blows per foot in the Standard Penetration Test. In cohesive soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND SILTS) (Ref's 2 & 3)

Very Loose	N=0-4**	RD=0-30	Easily push a 1/2-inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a 1/2-inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a 1/2-inch reinforcing rod
Dense	N=31-50	RD=70-90	Drive a 1/2-inch reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a 1/2-inch reinforcing rod a few inches

**N=Blows per foot in the Standard Penetration Test. In granular soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 2 to get N (Ref 4).

XX

- Ref 1: ASTM Designation: D 2487, **Standard Classification of Soils for Engineering Purposes** (Unified Soil Classification System).
- Ref 2: Terzaghi, Karl, and Peck, Ralph B., **Soil Mechanics in Engineering Practice**, John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, and 347.
- Ref 3: Sowers, George F., **Introductory Soil Mechanics and Foundations: Geotechnical Engineering**, Macmillan Publishing Company, New York, 4th Ed., 1979, pp. 80, 81, and 312.
- Ref 4: Lowe, John III, and Zaccheo, Phillip F., **Subsurface Explorations and Sampling**, Chapter 1 in "Foundation Engineering Handbook," Hsai-Yang Fang, Editor, Van Nostrand Reinhold Company, New York, 2nd Ed, 1991, p. 39.

SOIL TERMINOLOGY



GENERAL NOTES FOR BORING LOGS:

The boring logs are intended for use only in conjunction with the text, and for only the purposes the text outlines for our services. The Plate "Soil Terminology" defines common terms used on the boring logs.

The plate "Unified Soil Classification System," illustrates the method used to classify the soils. The soils were visually classified in the field; the classifications were modified by visual examination of samples in the laboratory, supported, where indicated on the logs, by tests of liquid limit, plasticity index, and/or gradation. In addition to the interpretations for sample classification, there are interpretations of where stratum changes occur between samples, where gradational changes substantively occur, and where minor changes within a stratum are significant enough to log.

There may be variations in subsurface conditions between borings. Soil characteristics change with variations in moisture content, with exchange of ions, with loosening and densifying, and for other reasons. Groundwater levels change with seasons, with pumping, from leaks, and for other reasons. Thus boring logs depict interpretations of subsurface conditions only at the locations indicated, and only on the date(s) noted.

SPECIAL FIELD NOTES FOR THIS REPORT:

1. The nine borings were drilled on February 25th and March 1st, 2005, with a light truck-mounted drilling rig utilizing 4½-inch-diameter (outside) solid stem flight augers. The boring s were sealed with cement and capped with soil immediately after the last soil sample was collected.
2. The boring locations were approximately located by pacing from known points on the site, as shown on Plate 2, Site Plan. The boring elevations were interpolated from the elevations shown on the same Site Plan.
3. The soils' Group Names [e.g. SANDY LEAN CLAY] and Group Symbols [e.g. (CL)] were determined or estimated per ASTM D 2487-00, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System, see Plate 5). Other soil engineering terms used on the boring logs are defined on Plate 6, Soil Terminology.
4. The "Blow Count" Column on the boring logs indicates the number of blows required to drive the sampler below the bottom of the boring, and the blow counts given are for each 6 inches of sampler penetration.
5. Groundwater was encountered during drilling, at the depths and locations as shown on the boring logs.



KEY TO SYMBOLS

Symbol Description

Strata symbols



Lean clay



Clayey gravel



Sandy lean clay



Lean clay with gravel



Clayey sand and gravel



Clayey sand

Misc. Symbols



Water first encountered during drilling



Water level at completion of boring



Boring continues

Soil Samplers



Modified California Sampler:
2.375" ID by 3" OD, split-barrel
sampler driven w/ 140-pound
hammer falling 30" (ASTM D 3550-01)



Standard Penetration Test:
1 3/8" ID by 2" OD, split-spoon
sampler driven with 140-pound
hammer falling 30" (ASTM D 1586-99)

Symbol Description

Line Types



Denotes a sudden, or well
identified strata change



Denotes a gradual, or poorly
identified strata change

Laboratory Tests

DS Denotes direct shear test
performed at field moisture
content (ASTM D2166-00).

DSm Denotes the second half of a
multi-phase direct shear test
performed on a DS sample
(ASTM D2166-00).

DSX Denotes direct shear test
performed on a sample that
had been submerged in water
(ASTM D2166-00).

DSXm Denotes the second half of a
multi-phase direct shear test
performed on a sample that
had been submerged in water

LL Denotes Liquid Limit
per ASTM D4318-00

PI Denotes Plasticity Index
per ASTM D4318-00



BORING LOG

Boring No. B-1
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #50 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 2/25/05
ELEVATION: 100.5
LOGGED BY: BJK
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX DSXm	500 1700	21.8 21.8	400 900	21.4	100	0 3		CL	LEAN CLAY, trace gravel, dark brown, moist, medium stiff, medium plasticity	LL = 36 PI = 15
DS DSm	900 2100	Nat. Nat.	1200 2050	18.4	107	6 9 12			stiff, with few gravels, orange brown light brown	
				10.5	131	15		GC	CLAYEY GRAVEL WITH SAND, orange brown, wet, very dense, gravels fine-grained	
						18		CL	LEAN CLAY, trace gravels, light brown to orange brown with few light gray patches, wet, very stiff, medium plasticity	



BORING LOG

Boring No. B-1
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
								some sand		
									Boring terminated at 25.0 feet. Tremie grouted with neat cement and capped with soil.	



BORING LOG

Boring No. B-2
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #50 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 2/25/05
ELEVATION: 99.5
LOGGED BY: BJK
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX DSXm	400 1600	23.2 23.2	260 750	22.5	99	0		CL	LEAN CLAY, dark brown, moist, medium stiff, medium plasticity	
						3				
DS DSm	1300 2500	Nat. Nat.	500 1280	17.9	110	6			SANDY LEAN CLAY, trace fine gravels, light brown to yellow brown, moist, medium stiff, medium plasticity, with orange brown patches	
						9				
						15			decreasing sand and gravel content, wet	
						18				



BORING LOG

Boring No. B-2
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						21			GRAVELLY LEAN CLAY, yellow brown, wet, hard, medium plasticity	
						24				
						27			Boring terminated at 26.0 feet. Tremie grouted with neat cement and capped with soil.	
						30				
						33				
						36				
						39				



BORING LOG

Boring No. B-3
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #80 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 2/25/05
ELEVATION: 101.7
LOGGED BY: BJK
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX DSXm	320 1500	19.9 19.9	230 620	17.1	101	0 3 6 9 12 15 18		CL	<p>SANDY LEAN CLAY WITH GRAVEL, dark brown, moist, medium stiff, medium plasticity</p> <p>decreasing sand and gravel content</p> <p>with orange brown sand and gravels</p> <p>gravelly</p>	
DS DSm	1300 2500	Nat. Nat.	1100 2080	15.4	117			CL	LEAN CLAY, light brown with light gray specks and patches, wet, hard, medium plasticity	



BORING LOG

Boring No. B-3
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						21			stiff, trace gravels	
						24			Boring terminated at 24.5 feet. Tremie grouted with neat cement and capped with soil.	
						27				
						30				
						33				
						36				
						39				



BORING LOG

Boring No. B-4
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #50 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 2/25/05
ELEVATION: 99.5
LOGGED BY: BJK
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS DSm	320 1500	Nat. Nat.	260 900	15.2	113	0 3		CL	SANDY LEAN CLAY, trace gravel, dark brown with trace orange brown patches, moist, soft to medium stiff, medium plasticity	
DS DSm	600 1800	Nat. Nat.	500 1370	13.6	123	3 6			6" lenses of gravelly & sandy clay	
				15.2	119	6 9			light brown, very stiff	
						9 12		SC/ GC	Alternating layers of CLAYEY GRAVEL & CLAYEY SAND, light brown, wet, medium dense	
						12 15 18			wet	



BORING LOG

Boring No. B-4
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						18				
						21				
						24				
						27			Boring terminated at 25.0 feet. Tremie grouted with neat cement and capped with soil.	
						30				
						33				
						36				
						39				



BORING LOG

Boring No. B-5
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #50 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 2/25/05
ELEVATION: 99.2
LOGGED BY: BJK
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS DSm	550 1800	Nat. Nat.	350 900	14.3	118	0		CL	SANDY LEAN CLAY, dark brown, moist, medium stiff, medium plasticity, trace fine gravels	
						3		CL		
						6		GC	CLAYEY GRAVEL WITH SAND, yellow brown, wet, medium dense	
						9		SC	CLAYEY SAND, brown to yellow brown, wet, medium dense w/ lenses of gravelly sand (SP)	
						15		GC	CLAYEY GRAVEL, yellow brown, wet, medium dense	



BORING LOG

Boring No. B-5
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						17			increasing fines content	
					24	CL		GRAVELLY LEAN CLAY, yellow brown, wet, very stiff, medium plasticity		
					25			Boring terminated at 25.0 feet. Tremie grouted with neat cement and capped with soil.		
						27				
						30				
						33				
						36				
						39				



BORING LOG

Boring No. B-6
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #80 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 3/01/05
ELEVATION: 101.6
LOGGED BY: MT
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX DSXm	350 1600	16.0 16.0	380 900	14.3	113	0 3		CL	SANDY LEAN CLAY, brown, moist, medium stiff, medium plasticity	LL = 25 PI = 12
DS DSm	700 1900	Nat. Nat.	700 1700	9.0	120	6 9 10			dark brown, very stiff to hard	
				11.6	123	12 15		SC	CLAYEY SAND WITH GRAVEL, brown, moist, dense	
						18		CL	LEAN CLAY, with fine sand, brown, wet, very stiff, medium plasticity	



BORING LOG

Boring No. B-6
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						21		CL	GRAVELLY LEAN CLAY, brown, wet, hard, medium plasticity	
					24	<p>Boring terminated at 24.5 feet. Tremie grouted with neat cement and capped with soil.</p>				
						27				
						30				
						33				
						36				
						39				



BORING LOG

Boring No. B-7
Page 1 of 1

JOB NAME: Proposed Nine-Unit Subdivision

CLIENT: Mr. Kirk McGowan

LOCATION: #80 Finger Avenue, Redwood City, CA

DRILLER: North Star Drilling

DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00

DATE DRILLED: 3/01/05

ELEVATION: 100.3

LOGGED BY: MT

CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						42			Boring terminated at 24.5 feet. Tremie grouted with neat cement and capped with soil.	
						45				
						48				
						51				
						54				
						57				
						60				



BORING LOG

Boring No. B-8
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #80 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 3/01/05
ELEVATION: 102.0
LOGGED BY: MT
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS DSm	320 1500	Nat. Nat.	270 950	12.3	110	0 3		CL	LEAN CLAY, with sand and gravel, dark gray brown/black, moist, soft to medium stiff, with roots	sampler hit tree roots
DS DSm	650 1800	Nat. Nat.	800 1800	11.5	115	6 9			dark brown, with fine sands, medium stiff	
						12 15		CL	SANDY LEAN CLAY, with gravel, brown, moist, hard, medium plasticity	
						18		CL	LEAN CLAY, with fine sand, brown, wet, very stiff, medium plasticity	



BORING LOG

Boring No. B-8
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						21		SC	increasing sand content CLAYEY SAND, with gravel, brown, wet, medium dense	39% passing No.200 sieve
					24	Boring terminated at 24.5 feet. Tremie grouted with neat cement and capped with soil.				
						27				
						30				
						33				
						36				
						39				



BORING LOG

Boring No. B-9
Page 1 of 2

JOB NAME: Proposed Nine-Unit Subdivision
CLIENT: Mr. Kirk McGowan
LOCATION: #88 Finger Avenue, Redwood City, CA
DRILLER: North Star Drilling
DRILL METHOD: Mobile B-24 with 4½" continuous flight augers

JOB NO.: MCGOW-01-00
DATE DRILLED: 3/01/05
ELEVATION: 101.0
LOGGED BY: MT
CHECKED BY:

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX DSXm	350 1600	18.8 18.8	200 500	17.6	106	0		CL	LEAN CLAY, dark gray brown, moist, medium stiff, medium plasticity	
						3				
DS DSm	1100 2300	Nat. Nat.	600 1200	13.8	118	6		CL	brown	
						9				
DS DSm	1400 2600	Nat. Nat.	300 800	18.5	113	12		CL	grades to SANDY LEAN CLAY, brown, wet, soft to medium stiff, medium plasticity	
						15				
						18				



BORING LOG

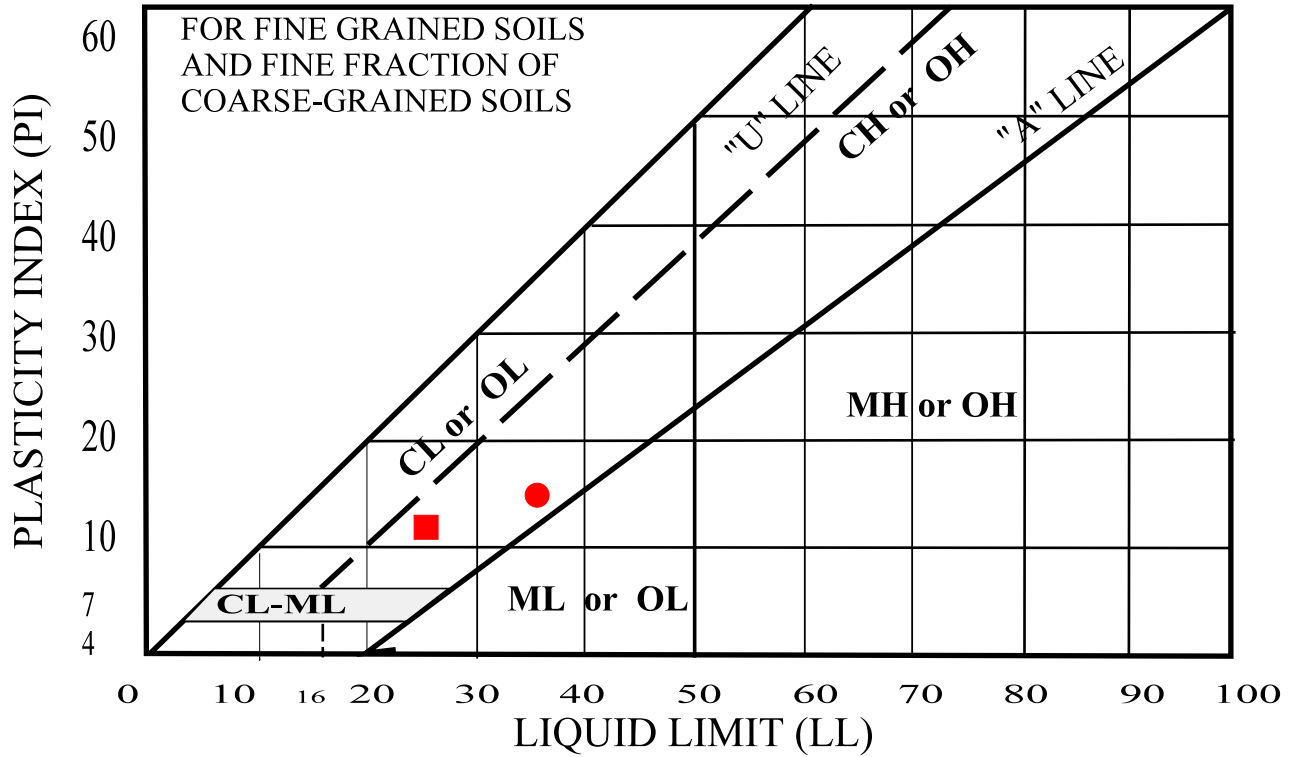
Boring No. B-9
Page 2 of 2

JOB NAME: Proposed Nine-Unit Subdivision

JOB NO.: MCGOW-01-00

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						21		SC	CLAYEY SAND, orange brown, wet, dense	
						24				Boring terminated at 24.5 feet. Tremie grouted with neat cement and capped with soil.
						27				
						30				
						33				
						36				
						39				

PLASTICITY CHART

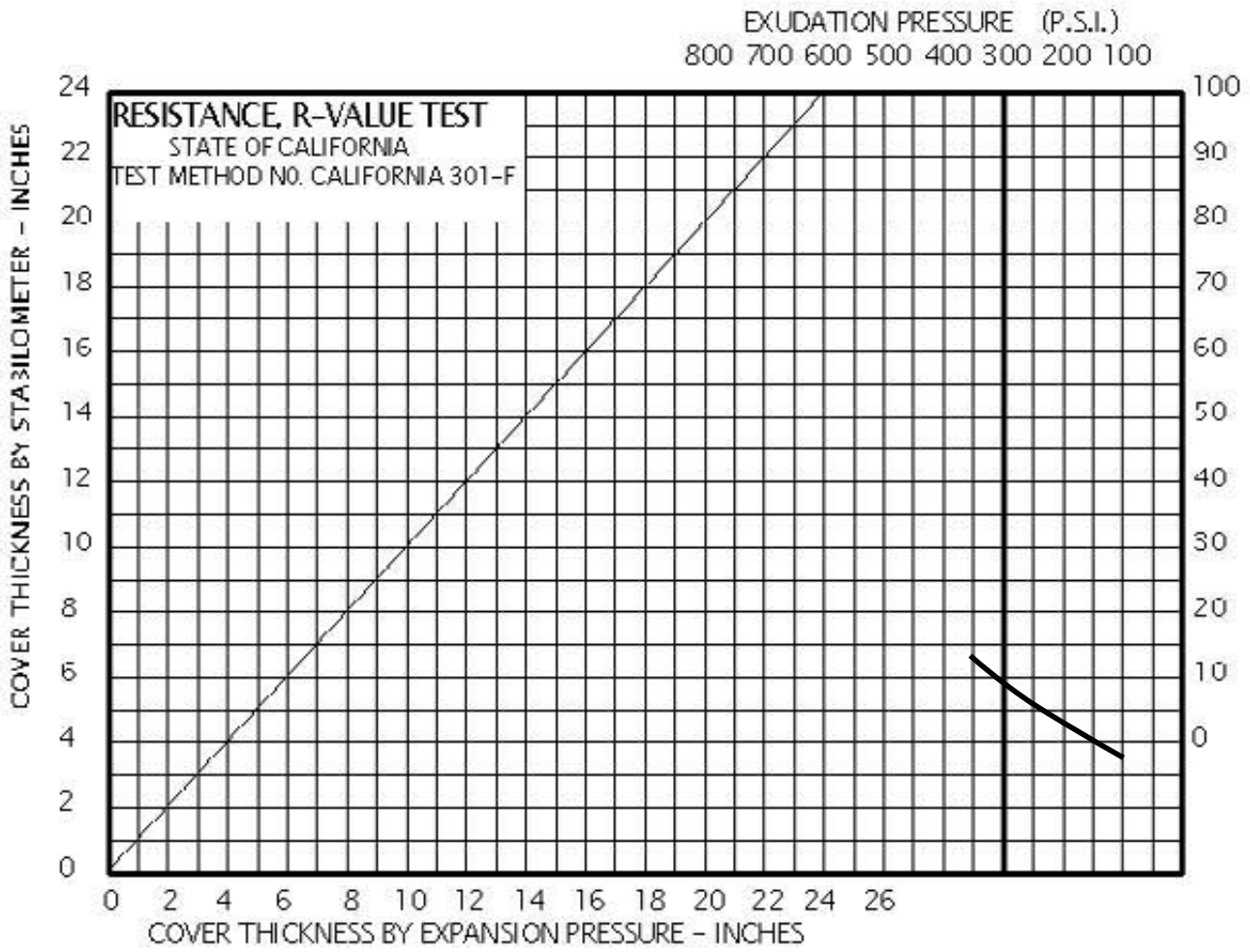


SYMBOL	SAMPLE SOURCE	DEPTH (FEET)	NATURAL WATER CONTENT W[%]	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION
●	B-1	4	21.4	36	21	15	Dark Brown LEAN CLAY (CL)
#	B-6	3½	14.3	25	13	12	Brown SANDY LEAN CLAY (CL)

**PROPOSED NINE-LOT SUBDIVISION
50, 80, 88 FINGER AVENUE
APN 052-061-170, 180, & 200
REDWOOD CITY, CALIFORNIA**

PLASTICITY DATA

Job No. MCGOW-01-00	Date June 2006	Plate 18
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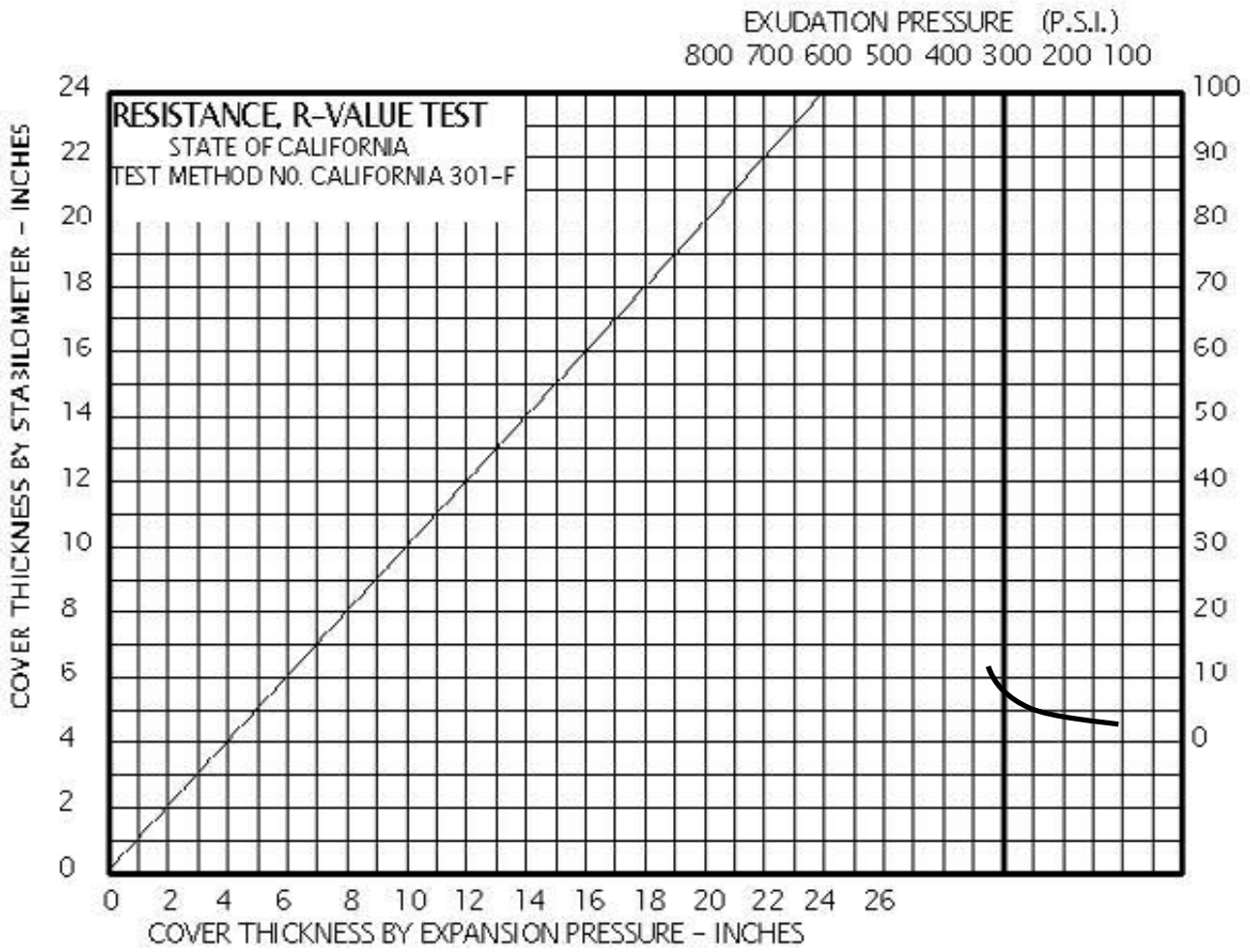
SAMPLE: Recovered from Borings 2 through 5, at 0 to 3 feet
DESCRIPTION: Dark Brown LEAN CLAY
 Black Silty CLAY

SPECIMEN	SPECIMEN	A	A	B	B	C
EXUDATION PRESSURE (P.S.I.)	Exudation Pressure (P.S.I.)	200.0	207	251.0	271	449.0
EXPANSION DIAL (.0001")	Expansion Dial (.0001")	9.0		14.0		20.0
EXPANSION PRESSURE (P.S.F.)	Expansion Pressure (P.S.F.)	45.0	0	76.0	0	94.0
RESISTANCE VALUE, "R"	Resistance Value, "R"	2.0	0	3.00		17.0
% MOISTURE AT TEST	% Moisture at Test	20.7	3	19.0	7	18.9
DRY DENSITY AT TEST (P.C.F.)	Dry Density at Test (P.C.F.)	97.5		100.5		104.3
R VALUE AT 1000 P.S.I. Test	R Value at 1000 P.S.I. Test		17.9		16.6	15.3
EXUDATION PRESSURE	Exudation Pressure		1008.2	(5.0)	111.3	114.1

"R" Value at 300 P.S.I. Exudation Pressure = 8

PROPOSED NINE-LOT SUBDIVISION 50, 80, & 88 FINGER AVENUE APN 052-061-170, 180, & 200 REDWOOD CITY, CALIFORNIA	R-VALUE TEST RESULTS		
	JOB NO. MCGOW-01-00	DATE June 2005	PLATE 19





SAMPLE: Recovered from Borings 6 through 9, at 0 to 3 feet
 DESCRIPTION: Dark Brown LEAN CLAY

SPECIMEN	SPECIMEN	A	A	B	B	C
EXUDATION PRESSURE (P.S.I.)	Exudation Pressure (P.S.I.)	200.0	195	251.0	255	449.0
EXPANSION DIAL (.0001")	Expansion Dial (.0001")	9.0		14.0		20.0
EXPANSION PRESSURE (P.S.F.)	Expansion Pressure (P.S.F.)	45.0	0	76.0	0	94.0
RESISTANCE VALUE, "R"	Resistance Value, "R"	2.0	0	3.00		14.0
% MOISTURE AT TEST	% Moisture at Test	20.7	3	19.0	5	18.9
DRY DENSITY AT TEST (P.C.F.)	Dry Density at Test (P.C.F.)	97.5		100.5		104.3
R VALUE AT 300 P.S.I. TEST	R Value at 300 P.S.I. Test		16.1		14.8	13.4
EXUDATION PRESSURE	Exudation Pressure		112.2	(5.0)	115.9	120.4

"R" Value at 300 P.S.I. Exudation Pressure = 9

PROPOSED NINE-LOT SUBDIVISION 50, 80, 88 FINGER AVENUE APN 052-061-170, 180, & 200 REDWOOD CITY, CALIFORNIA	R-VALUE TEST RESULTS		
	JOB NO.	DATE	PLATE
	MCGOW-01-00	June 2006	20



**BAGG Engineers, Geotechnical Review, Proposed Residential
Subdivision Finger Avenue, July 18, 2008**



• Geotechnical • Geoenvironmental • Special Inspection

July 18, 2008

Kirk McGowan
655 Skyway Road, Suite 230
San Carlos, CA 94070

Attention: Mr. Kirk McGowan

Geotechnical Review
Proposed Residential Subdivision
Finger Avenue
Redwood City, California
BAGG Job No. MCGOW-01-00

Gentlemen:

At your request, we have revisited the site and reviewed the plans and our geotechnical report dated June 27, 2006 for the proposed nine lot subdivision on Finger Avenue in Redwood City, California. The purpose of our review was to check that the condition in the Cordilleras Creek channel and creek bank along the west edge of the site are in the same condition as previously reported, and that the recommendations contained in our geotechnical report are still valid.

Following our project meeting on July 16th, we walked the urban stream channel from the El Camino Real overcrossing to the south property line of the site. With the exception of a small pool of water at the end of a San Carlos City storm drain pipe, the stream channel was dry and littered with various types of urban debris. While creek channels are dynamic and can change with seasonal water flows, we observed that the gravel bed in stream channel appeared to be near the same elevation as when we first observed the creek channel in 2006. We also observed that the creek banks remain well vegetated with no signs of recent erosion and that the creek banks appear to be in the same condition as when we first performed our geotechnical investigation for the site some two years ago.

Based on the slope stability study we performed on the subdivision creek bank, we originally recommended a minimum setback for residential structures of 30 feet from the base of the creek slope. We defined the base of slope the creek slope as the edge of the lowest point in the creek channel. Our study found that stability would be achieved at the 30 foot setback under saturated soil conditions, during a credible seismic event.

Our engineering study showed that if structures were placed within the 30 foot setback, the structures could be supported on drilled pier foundations that would derive their load bearing capacity from a depth that does not require support from the creek slope. The drilled pier foundations would also protect the structures from loss of soil support if erosion of the creek channel were to occur. Our review of the proposed site layout shows, that proposed residential units 1 and 4 are near the engineered set back and that a portion of units 2 and 3 are within the setback. It is our understanding, that as an extra measure of precaution, all four residential units nearest the creek will be supported on drilled pier foundations.

Based on our recent site visit, our review of the geotechnical report and the proposed development plans, it is our opinion that the recommendations contained in our original geotechnical report are still valid and that the proposed development plans meets and exceeds the engineered recommendations contained in the our geotechnical report.

Thank you for the opportunity to provide geotechnical services on this project. Please do not hesitate to contact us, should you have any questions or comments.

Sincerely,

BAGG Engineers

Alan O'Driscoll
Geologist

Jason Van Zwol
Geotechnical Engineer

January 29, 2009

Kirk McGowan
655 Skyway Road, Suite 230
San Carlos, CA 94070

Attention: Mr. Kirk McGowan

Geotechnical & Geologic
Review Proposed Residential
Subdivision
Finger Avenue
Redwood City, California
BAGG Job No. MCGOW-01-00

Gentlemen:

At your request we have conducted a third study of Cordilleras Creek which borders the West side of the proposed nine lot residential subdivision on Finger Avenue in Redwood City, California. This evaluation addresses specific comments, about the creek channel, made by GEOINSITE, Inc, dated December 23, 2008 who was hired by a local neighbor. Although the observations and interpretations made by the reviewer are not consistent with those made by our Senior Geotechnical Engineer and Engineering Geologist, the conclusion of the reviewer that "foundation piers can be designed to mitigate the impacts of future creek bank instability on the new residential structures," is consistent with the recommendations made by BAGG Engineers in our original geotechnical report. Therefore, we do not see any need to change the recommendations contained in our original geotechnical report or, the project plans we have already reviewed, or recommend additional measures that may have impacts on Cordilleras Creek.

BACKGROUND

On June 27, 2006, we completed a geotechnical report for the proposed nine lot residential subdivision on Finger Avenue in Redwood City, California. The report included foundation recommendations for residences that are to be located along Cordilleras Creek.

On July 18, 2008, we revisited the site a second time to study any changes in the stream channel since our initial report. We reported then, "that the creek banks remain well vegetated with no signs of recent erosion and that the creek banks appear to be in the same condition as when we first performed our geotechnical investigation for the site some two years ago." Our conclusion was "that the recommendations contained in our original geotechnical report are still valid and that the proposed development plans meets and exceeds the engineered recommendations contained in our geotechnical report."

RESPONSE TO REVIEW COMMENTS

To address the issues brought up in the review letter, our registered Geotechnical Engineer and Certified Engineering Geologist performed a site reconnaissance on January 13 and 20th 2009 and recorded our observations regarding the current condition of Cordilleras Creek. To obtain additional geologic information on Cordilleras Creek, we reviewed stereo paired aerial photographs dating from 1930 to 2005. To gather historic survey information on the Cordilleras Creek boundaries, we also reviewed existing parcel maps, including the Finger Park Tract Survey map dating back to 1905 and existing topographic maps.

Based on our most recent site observations, our review of aerial photographs, survey and topographic maps, we have prepared the following response to the reviewer's comments as follows:

1) The reviewer reports "an apparent creek bank failure on the southeast side of the creek bank, near the northern edge of the proposed development (Lots 3 and 4)." Their interpretation is that the portion of soil adjacent Lots 3 and 4 that extend into the creek is a soil slump, where the soil has moved laterally into the creek. They also interpret a subtle elevation change that extends approximately 35 feet onto Lot 4 as the scarp of a soil slump.

It appears that Cordilleras Creek channel has changed over the years. Over time, the stream channel alignment has become straighter where it borders the Finger Park Tract and the channel has likely become filled in. In the past, filling of creek channels was a common occurrence where creeks flowed through urban areas. To maximize useable space along creek channels, prior grading practice was to fill

in creek channels and line the channels to prevent erosion of the creek banks. With the existing retaining walls evident along both sides of the creek, it is our opinion that large portions of the Cordilleras Creek have been filled. Adjacent to Lots 3 and 4, it appears that additional fill was pushed into the creek decades ago, to accommodate development of the existing structures, where abandoned building foundations and a concrete basement structure still exist as noted in the reviewers report. Based on our interpretation of the aerial photographs, it appears that the recently demolished shed, and possibly a predecessor shed at the same location, adjacent to the creek channel on Lot 4, have been present at that location since at least 1930, which indicates that there has been no significant soil movement or erosion of the creek channel at this location since that time.

It is our opinion that the reviewer's reported soil slump on Lots 3 and 4 is not a soil slump, and that the observed conditions are most likely due to settlement of old fill. It is unlikely that the described soil slump, with a few inches of elevation change noted in the reviewer's report, as the scarp, of a down dropped soil block could have deflected the present volume of soil into creek. Therefore, our interpretation of soil that extends into the creek adjacent to Lots 3 and 4 is existing fill and there is no soil slump or lateral movement of soil into the creek.

Where the reviewer raises the concern that the soil slump extends 35 feet onto Lot 4, it is our opinion that the soil slump does not exist. Since we believe there is minor soil settlement near the corner of the proposed residence, we have recommended a drilled pier foundation to mitigate any soil settlement. Regardless of whether there is soil settlement or a slump, as proposed by the reviewer, the recommendations contained in our original soils report account for this by supporting the homes along the creek on drilled pier foundations which derive support on underlying soils, below the depth of any slump or fill soil. Both the reviewer and BAGG Engineers agree that creek bank stability can be mitigated by the appropriate design of the foundation piers for the proposed residence at this or other locations. If necessary, the house on Lot 4 could be moved forward.

In the same area where the reviewer reports a "soil slump" on lots 3 and 4 there are a number of mature trees. Geologists often use trees to detect soil movement. In cases where trees are sick, leaning or grow with bowed trunks, they can often be use to indicate soil movement. At the location of the proposed "creek bank failure" on Lots 3 and 4, the trees, not affected by recent fire, are healthy,

growing straight and true. The age of the 24 diameter Redwood tree has been estimated by McClenahan Consulting to be 48 to 60 years old. Therefore, it is our opinion that the creek bank in this area has been stable for at least this amount of time, the lifespan of the tree.

2) The reviewer also notes, "The toe of the slope is exposed to stream flow and the reviewer anticipates soil movement due to erosion of the creek channel at Lots 3 and 4."

Our reconnaissance finds little or no erosion in the creek channel in the two and one half years we have been studying the site. In the locations where the reviewer cites "ongoing erosion" in the creek channel, it is our observation, that the creek channel is making localized adjustments in response to more recent man-made alterations to the creek. At the location where the reviewer describes erosion of the creek bank below an existing cottage (storage shed) the creek bank is located above a low retaining wall along the creek. Directly below the shed, this wall shows no sign of erosion or distress. On the opposite side of the creek there is a relatively new retaining wall that appears to have deflected creek flow towards the shed, during times of higher stream flows. In the two and one half years since we have been studying the creek, we have not observed a change in the creek bank below the shed. It is our understanding that this structure is to be removed during the proposed development of the site, so the stability of this noted structure is not a concern. The fact that the existing structures along the edge of the creek bank are over 70 years old and reportedly date back to the 1930's, illustrates our opinion that the creek banks have been stable over time. The setback for the new homes exceeds those of the existing structures, and we see no need to revise our recommendations.

In Figure 1A, the reviewer notes erosion on the San Carlos side of the creek channel opposite of Lots 3 and 4. On the west side of the creek directly opposite the Lots 3 and 4, the creek bank has been lined with concrete sack rip rap. At the time of our visit, the rip rap extended all the way down to the creek bed and no sign of erosion was evident at its base. Immediately downstream however, a storm drain discharges into the creek channel, from the San Carlos side of the creek, with a partially submerged horizontal pipe with a 24 inch stand pipe near the center of the creek. The unprotected creek bank adjacent to the storm drain pipe, downstream of Lots 3 and 4 has eroded locally and is more likely caused by the restricted flow from the pipe blocking the stream channel than the bend in the creek around Lots 3 and 4 as noted.

The presence of sediment build up in the creek channel against the existing basement door of the abandoned basement structure indicates that the sediment is being deposited in the creek channel adjacent Lots 3 and 4, not eroded. Stream materials being deposited in this area is consistent with the need to dredge accumulated sediment from Cordilleras Creek. Dredging of the creek channel at the nearby, culvert crossing under El Camino Real is periodically carried out by the City of Redwood City to keep the creek channel open to the Bay.

3) The reviewer states that proposed grading would have an adverse impact on the reported soil slump: We have previously reviewed the project plans by MacLeod Associates and recently reconfirmed the proposed grades in this area with the project Civil Engineer. Since the proposed grading plan shows minimal cuts and fills of plus or minus one foot, only small amounts of fill soil will be placed to grade the site. Since filling is mostly confined to construction of home sites, grading adjacent to creek slopes will be minimal. Since our findings indicate that the "slumped area" to be existing fill soil, any minor grading in this area would help to consolidate the existing fill.

4) The proposed storm drain outfall might impact slope stability. We have reviewed the storm drain outfall structure designed by MacLeod and Associates and recommended the use of gabion baskets at the outfall location to stabilize the creek bank and provide erosion protection of the creek bank. We have previously used gabion baskets on other outfall projects as they work well and seem to be universally accepted by various agencies where outfall structures are required. If alternate outfall structures are desired we are able to provide alternate design and review.

5) While the reviewer states, "foundation piers can be designed to mitigate the impacts of future creek bank instability on the new residential structures," they also comment that "residential piers, at the top of the creek bank will not mitigate against future erosion, slumping or channel widening caused by creek erosion in the channel." The homes will not be located at the top of the creek bank. The set back will be 15 feet at the closest point.

The reviewer refers to the City setback ordinance 32.12 (F) and states that there is an absolute setback of 25 feet. It is our understanding that the ordinance does allow for development within the setback.

The ordinance does not speak to protecting the development from erosion of the creek or any other issues occurring from the creek. Therefore, the setback of each house has been based on the analysis of local conditions.

Based on our recent and original observations and engineering evaluations of the creek banks, it is our opinion that the recommended 30 foot engineered setback from the toe of the creek slope to residences supported on spread footings is adequate. Our review of the plans indicates that our recommendations have been incorporated into the project as intended. If the need for additional erosion protection can be demonstrated, BAGG Engineers are prepared to provide additional mitigation measures for the homes being proposed along Cordilleras Creek. At this time, we do not see the need for such measures or to encroach on Cordilleras Creek, so our foundation recommendations remain unchanged.

During site grading, field inspections are to be carried out by BAGG Engineers to check that the work is being performed in conformance with the plans and specification for the approved project. We will also be on site to observe installation of the drilled pier foundations to confirm that the soil conditions encountered during construction are consistent with those used for our geotechnical design.

CONCLUSION

In our two and one half years and third study of the Cordilleras Creek channel adjacent to the proposed Finger Avenue subdivision we have not observed erosion or instability of the creek banks. Build up of stream sediment against the abandoned basement door and intermittent dredging of the nearby stream channel by the City of Redwood City indicate that the creek is depositing sediment rather than eroding material. We have reviewed the site and grading plan which exceeds our minimum setback criteria for the proposed homes along the creek.

Where homes are being proposed along the creek bank, to mitigate potential instability and minor erosion, we have recommended drilled pier foundations which derive their support deep, below any fill or unstable soil materials. There is agreement between the reviewer and BAGG Engineers that this is an acceptable recommendation.

On a point by point basis, our registered Geotechnical Engineer and Certified Engineering Geologist have addressed each item brought up by an outside reviewer hired by a neighbor. Based on the findings of our third study, we do not see the need to revise the recommendations made in our initial geotechnical report. We are prepared to revise our recommendations with additional mitigation measures, but do not see any reasonable need to change our recommendation at this time.

LIMITATIONS

This letter has been prepared in accordance with generally accepted geologic and geotechnical practices. No other warranty, either expressed or implied as to the methods, results, conclusions or professional advice is made. It should be recognized that certain limitations are inherent in the evaluation of subsurface conditions and that some conditions may not be detected during an investigation of this type. The analysis and conclusions contained in this report are based on site conditions as they existed at the time of our investigation and by review and interpretation of maps, aerial photographs and reports relevant to the site. Changes in site conditions or information available could result in a change of our conclusions and recommendations.

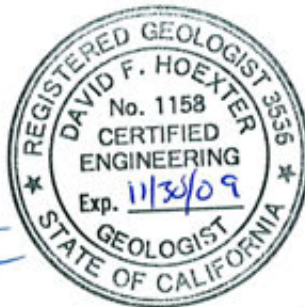
Thank you for the opportunity to provide geotechnical services on this project. Please do not hesitate to contact us, should you have any questions or comments.

Sincerely,

BAGG Engineers



David F. Hoexter
Certified Engineering Geologist



Jason Van Zwol
VP/ Chief Engineer



Alan O'Driscoll
Vice President

APPENDIX D

RKH, Letter dated July 14, 2008



Civil and Transportation Engineering

July 14, 2008

Mr. J.R. Rodine
3148 Marble Ridge Court
Reno, NV 89511-5385

RE: Finger Avenue subdivision, Redwood City

Dear J.R.:

This is in response to your request to comment on the width of the roadway in the proposed Finger Avenue residential subdivision in Redwood City. The proposed private street roadway according to the vesting tentative map dated Sept. 9, 2006, is 22 feet wide including a one foot wide valley gutter on each side of the street. The roadway is widened somewhat at the curves and at the connections to Finger Avenue. There are nine lots proposed for single family detached housing on approximately 1.6 acres of land.

The City of Redwood City has adopted standard specifications and standard detail plans which are applicable to work within public rights of way (Municipal Code §29.92 Compliance with City and State Standard Specifications). Standard Detail A-3, Design Criteria for Private Streets, Alternate "A" crown section, no parking, calls for a 25 ft. wide street, curb to curb, with a 5 ft. sidewalk on one side. This detail while appropriate for the large private street developments in the Redwood Shores area of the city may not be appropriate to other areas of the city.

The width of roadways for residential access is determined by the functions the street must serve and the volume of traffic the street is expected to carry. Is parking allowed? On one side or both sides? What is the required width of the parking lane(s)? Will non-motorized traffic be using the street? Will the street be used for fire and public safety vehicles?

In the case of the proposed subdivision parking bays will be provided off of the street. There will be no parking on the street. The parallel parking bays will be 8' x 22' and the perpendicular bays will be 10' x 18.5'. The driveway on each lot will be able to accommodate two passenger type vehicles in addition to the two vehicles that can be parked in the garage on each lot.

The Redwood City Fire Department has approved the 22 ft. wide private street. The Uniform Fire Code (NFPA 1, 2006) requires only a 20 ft. wide fire lane. With the roadway in compliance with the UFC, what would the appropriate roadway width be to accommodate vehicular and nonvehicular traffic?

Mr. J.R. Rodine
page 2
July 14, 2008

A milestone work was published by the Bucks County Planning Commission in Pennsylvania in 1980 titled *Performance Streets, A Concept and Model Standards for Residential Streets*. In that work a hierarchy of streets was established, the lowest being the residential access street. The work leading up to the publishing of the standards found that wide streets promoted speeding and that narrower streets helped to lower speeds. The standards called for roadways to be 16 feet wide for streets serving very large lots with no on street parking. For smaller lots the roadway standard was 18 feet in width with no on street parking. Cul de sac streets could carry no more than 200 ADT (average daily traffic) and loop streets no more than 400 ADT. For this subdivision, the expected volume of traffic is projected to be 86 ADT. Streets with parking allowed on both sides were to be 26 ft. in width. This subdivision will have no on street parking.

Another widely recognized publication produced by the American Society of Civil Engineers and the Urban Land Institute is *Residential Streets*, the second edition being published in 1990. That publication also defined a hierarchy of streets by function, the lowest being the Access Street. Access streets are to carry no more than 250 ADT. For access streets the recommended roadway width is 22-24 ft. with parking allowed on both sides of the street. The single travel lane is to 10 ft. wide and the parking lanes are to be 6-7 ft. wide.

A third publication to consider is by the Institute of Transportation Engineers titled *Neighborhood Street Design Guideline*, published in 2003. It recommends a roadway width of 24 ft. for medium density residential development (2.0-6.1 DU/AC) with allowance for parking on one side of the street. Without parking the recommended roadway width is 18 ft. (2 feet narrower than the UFC requires).

The City of Redwood City General Plan Circulation Element discusses the concept of slow streets and woonerfs (pp 7-23 through 7-25). A woonerf is an area in a residential development in which pedestrians, motor vehicles, bicycles, and playing children all share the same space. There is no distinction between walkway, parking, and roadway areas. It is a concept developed in the Netherlands. In our area The Islands, a nationally award winning condominium development in Foster City, utilizes the woonerf concept for its roadways and pedestrian areas and the concept has proven to be highly successful.

For this development the 22 ft. wide street is appropriate for its density and size. It will serve as access to vehicular and nonvehicular traffic, keeping vehicle speeds low in keeping with the General Plan concepts. This development will have grasscrete parking bays, paver block driveways, and decorative roadway treatments.

Mr. J.R. Rodine
page 3
July 14, 2008

I trust this analysis of the appropriate width of the private street for the subdivision adequately responds to your request. The combination of grasscrete parking bays, driveway pavers, and decorative roadway treatments will help to promote the woonerf effect to keep traffic speeds low.

Very truly yours,

RKH



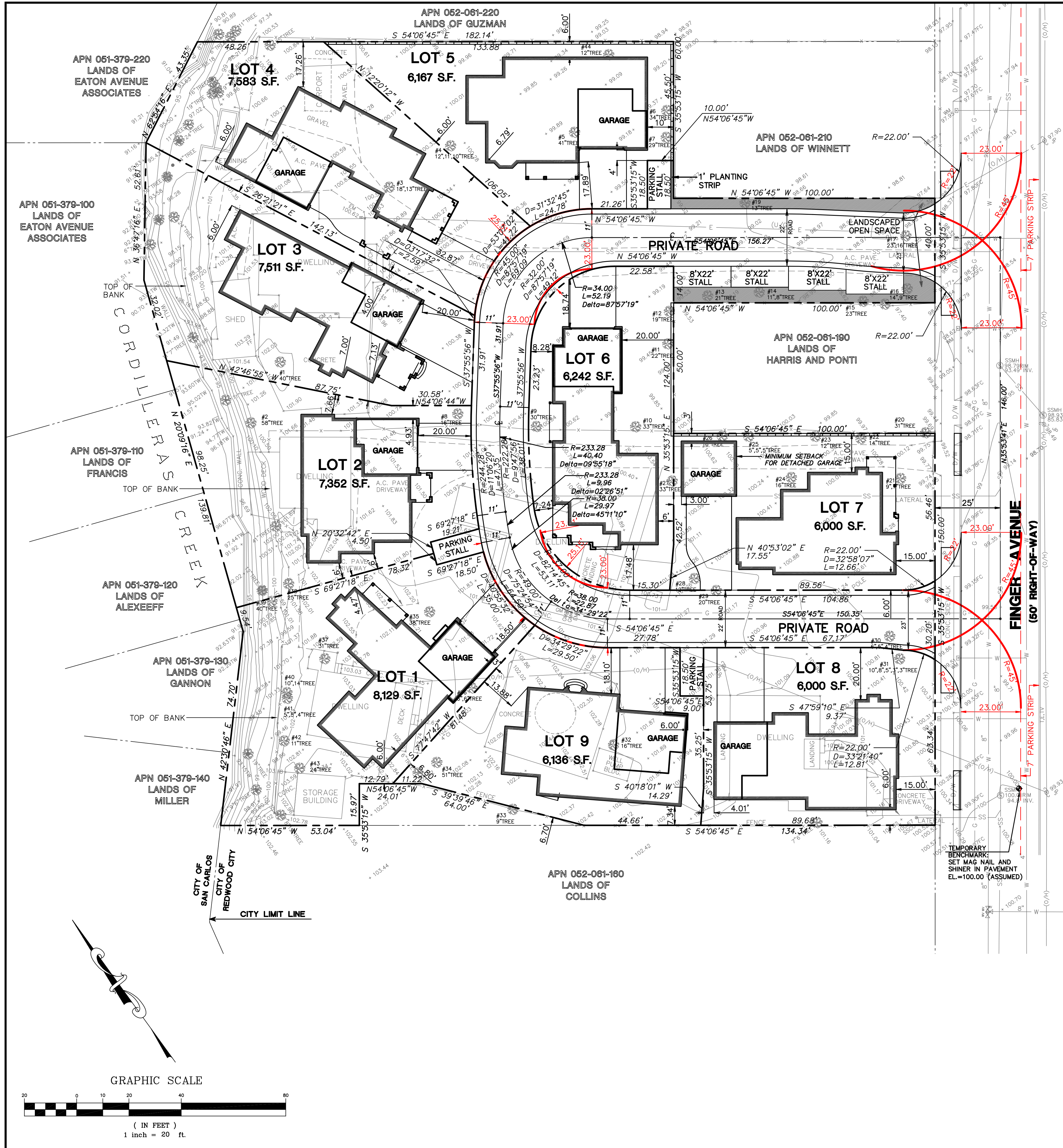
Richard K. Hopper, P.E., PTOE
Principal

cc Dan MacLeod
Kirk McGowan
Robert Lanzone

RKH

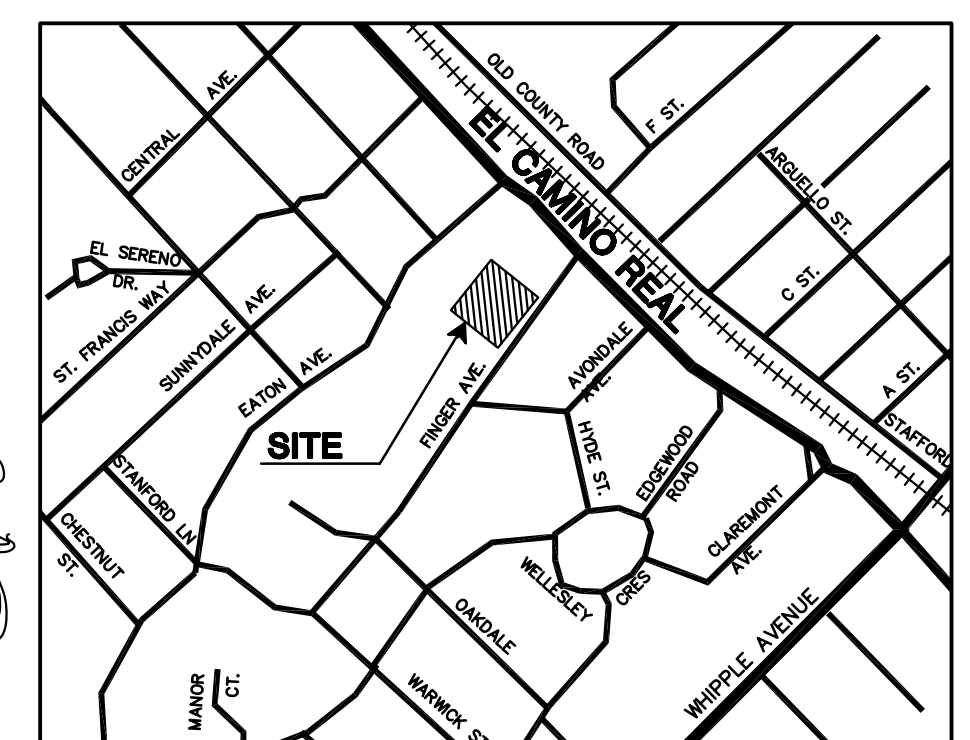
APPENDIX E

Turning Radius Analysis



LEGEND:

- A.C. PAVEMENT ASPHALT CONCRETE PAVEMENT
- C.B. CATCH BASIN
- CONC. CONCRETE
- D/W DRIVEWAY
- FL FLOWLINE
- FF FINISHED FLOOR
- ELEV. ELEVATION
- (O/H) OVERHEAD
- SSMH SANITARY SEWER MANHOLE
- INV. INVERT
- TSB TRAFFIC SIGNAL BOX
- WATER VALVE
- TV CABLE TV LINE
- SS SANITARY SEWER LINE
- W WATER LINE
- G GAS LINE
- E ELECTRIC LINE
- T TELEPHONE LINE
- JT JOINT TRENCH (GAS, TEL. ELEC. & TV)
- TS TOP OF STEP
- BS BOTTOM OF STEP
- FG FINISHED GRADE
- SSCO SANITARY SEWER CLEANOUT
- GM GAS METER
- WM WATER METER
- JP JOINT POLE
- GA GUY ANCHOR
- HP LIGHT POLE
- HYDRANT
- TREE/SIZE
- GROSS



VICINITY MAP:
(NOT TO SCALE)

OWNER AND SUBDIVIDER:

KIRK MCGOWAN
MCGOWAN DEVELOPMENT
655 SKYWAY, SUITE # 230
SAN CARLOS, CA. 94070

CIVIL ENGINEER / LAND SURVEYOR:

DAN MACLEOD
MACLEOD & ASSOCIATES, INC.
965 CENTER STREET
SAN CARLOS, CA. 94070
(650) 593-8580

ASSESSOR'S PARCEL NUMBERS:

052-061-170, 052-061-180 AND 052-061-200

EXISTING AND PROPOSED ZONING:

R1-SINGLE FAMILY RESIDENTIAL

FLOOD ZONE:

ZONE C- AREA OF MINIMAL FLOODING.

UTILITIES:

WATER: CITY OF REDWOOD CITY
SANITARY SEWER: CITY OF REDWOOD CITY
GAS & ELECTRICAL: PG & E
TELEPHONE: SBC COMMUNICATIONS
FIRE: CITY OF REDWOOD CITY

REV.	DESCRIPTION	BY:	DATE:

MACLEOD AND ASSOCIATES
CIVIL ENGINEERING • LAND SURVEYING
965 CENTER STREET • SAN CARLOS, CA 94070 • (650) 593-8580

PREPARED FOR:
MCGOWAN DEVELOPMENT

TURNING RADIUS ANALYSIS FOR DEVELOPMENT AT
50, 80 AND 88 FINGER AVENUE
BEING A SUBDIVISION OF LOTS 9 & 10 AND A PORTION OF LOTS 6, 8 & 11, FINGER PARK TRACT, FILED IN BOOK 4 OF MAPS AT PAGE 35, SAN MATEO COUNTY RECORDS, REDWOOD CITY, SAN MATEO COUNTY, CALIFORNIA

DRAWN BY: AAP
DESIGNED BY: VPG
CHECKED BY: DGM
SCALE: 1" = 20'
DATE: 08/28/06
DRAWING NO: 2313-04
SHEET 1 OF 1

