APPENDIX B

Traffic Study

CANYON LANE
EMERALD LAKE HILLS
UNINCORPORATED SAN MATEO COUNTY, CALIFORNIA

November 22, 2016
Revised May 22, 2017

PROJECT DESCRIPTION

Canyon Lane is presently a paper street located in the Emerald Lake Hills area of unincorporated San Mateo County adjacent to the City of Redwood City. See Location Map, Figure 1, page 2. Construction of the street will open up a number of vacant parcels to development. Twelve parcels could be developed with single family detached housing. The realigned street will connect to Glenwood Avenue and extend westerly 880 feet into the undeveloped area. See Site Plan, Figure 2, page 3.

The first step in the development will be the installation of an eight inch water main to provide water and fire protection to the abutting parcels. Following the water main installation, grading for the street and installation of drainage works will be done and then the street will then be paved. It is estimated that all this work can be done in 2017.

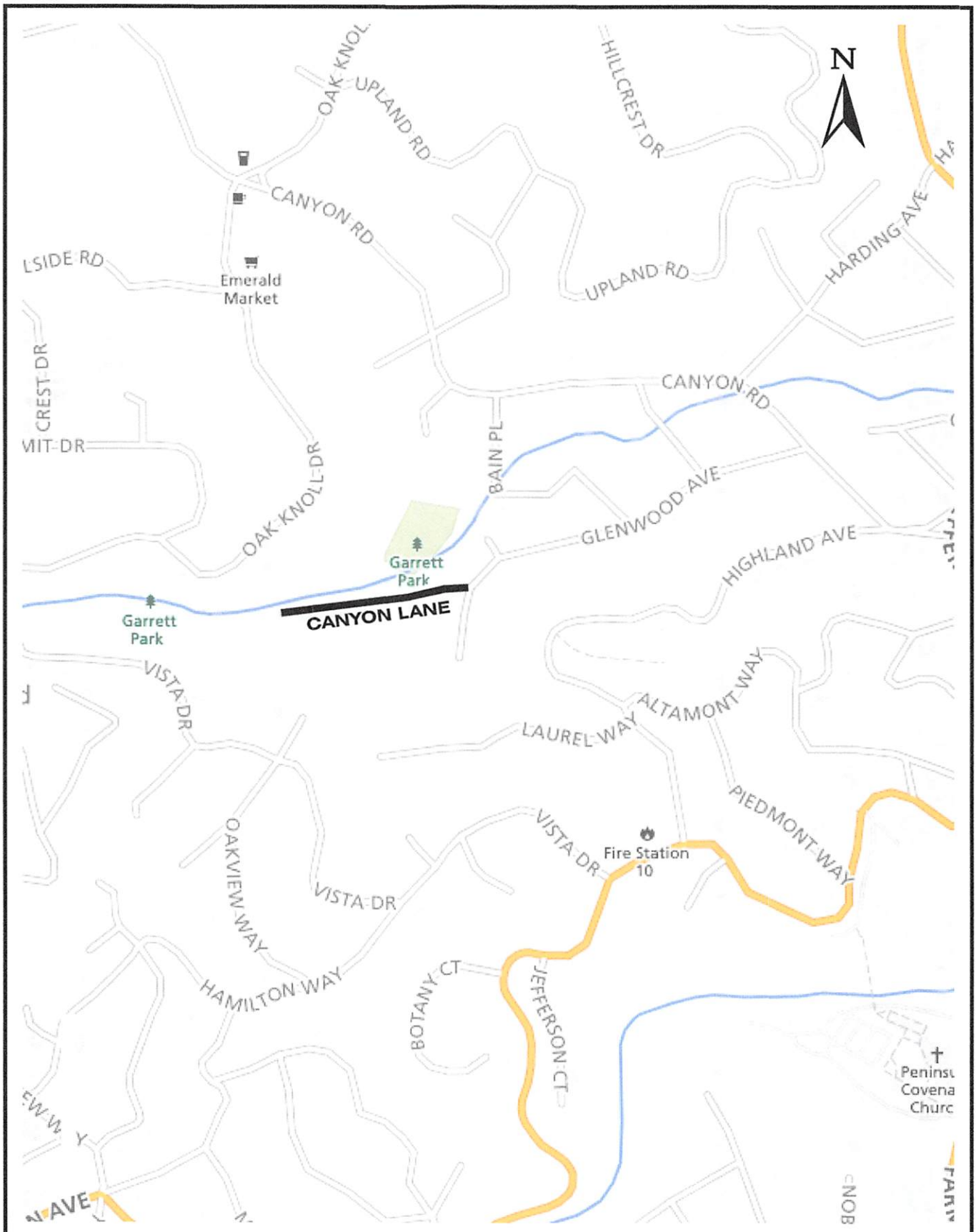
Development of the 12 individual parcels will likely be done over many years as they are presently owned by four separate owners. Development of the parcels will occur at such time when the individual owners deem appropriate and desirable. The site is located next to Garrett Park so vehicular access to the parcels will be controlled by an electric gate controlled by the owners of the parcels to preclude the public from parking in the site.

PROJECT TRAFFIC IMPACTS

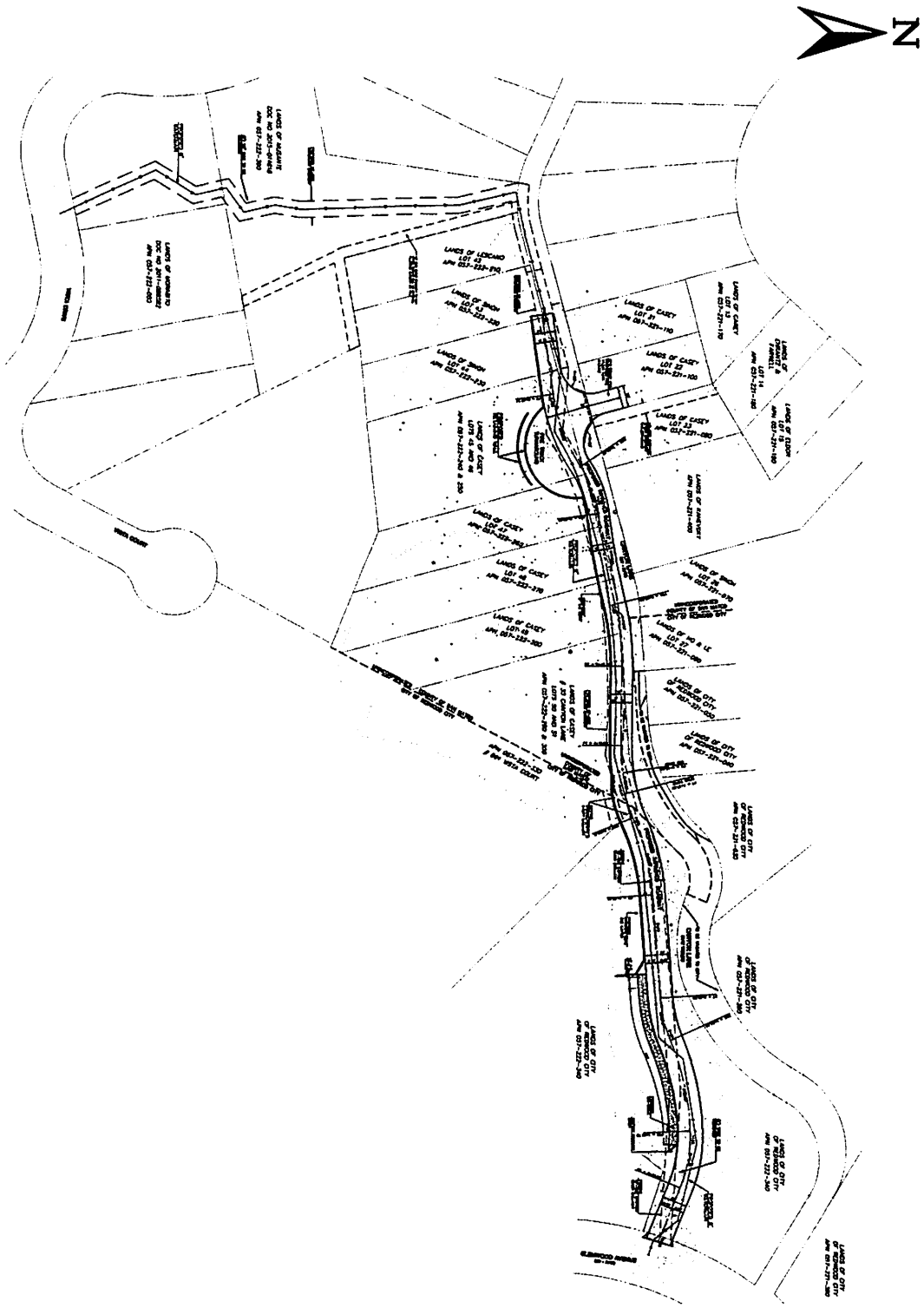
Traffic counts were taken on Glenwood Avenue in two locations in November, 2016, the first near Garrett Park and the second near Canyon Road. Figure 3, Glenwood Avenue Traffic Volumes, page 4, shows the change in traffic as a result of full development of the 12 parcels on Canyon Lane. A measure of the impact of traffic on residential streets is by use of the TIRE Index. An explanation of the TIRE Index is provided in the Appendix. A change in the TIRE Index by 0.1 or more indicates a visibly recognizable change in traffic. The changes in TIRE Index were calculated to be 0.27 on Glenwood Avenue near Garrett Park and 0.10 near Canyon Road. If these changes were to occur in a relatively short period of time, say within a year or so, then it could be taken as an impact on the traffic flow on Glenwood Avenue. However, because the development of the 12 parcels will likely occur over many years, possibly upwards of 10 years, this change in traffic will not be readily noticeable, and, therefore, not an impact.

PARKING

Each single family detached dwelling unit will have a 2-car garage and a driveway capable of accommodating two additional vehicles. There will also be an area on Canyon Lane near the intersection of Canyon Lane & Glenwood Avenue that could accommodate parking up to seven



LOCATION MAP
FIGURE 1



SITE PLAN
FIGURE 2

KEY

EXISTING	140	2.15
FUTURE	260	2.42
CHANGE		0.27

TIRE Index

Daily traffic volume

GLENWOOD AVENUE
WEEKDAY TRAFFIC VOLUMES
FIGURE 3

vehicles. The San Mateo County Zoning Regulations Section. 6119 require one parking space for dwellings with 0-1 bedrooms and two spaces for dwellings with two or more bedrooms.

ROADWAY AND PEDESTRIANS

The Canyon Lane roadway will be 23 feet wide for approximately 450 feet and transitioning to 20 feet wide for the remaining 430 feet. Near the end of the roadway there will be a turn around area for fire trucks. There will not be any sidewalks along Canyon Lane. Pedestrians will be able to walk in the roadway to access Glenwood Avenue. Presently there are no continuous sidewalks on either side of Glenwood Avenue from the end of the street to Bain Place. From Bain Place easterly to Canyon Road there are sidewalks on both sides of Glenwood Avenue.

CONCLUSIONS

1) **Traffic**. The TIRE Index is a measure of immediate traffic impact. While the Index shows an impact on Glenwood Avenue, the development of the lots on Canyon Lane will be over a long period of time, possibly 10 years or more, so the impact of additional traffic on Glenwood Avenue will not be readily noticed, and, therefore, not an impact.

2) **Parking.** Each single family dwelling lot will be capable of accommodating four or more vehicles, more than the Zoning Regulations require. Additionally there will be parking for up to seven vehicles on Canyon Lane near the intersection with Glenwood Avenue. The proposed parking supply exceeds the minimum requirements and is, therefore, appropriate to meet expected parking demands.

3) **Roadway & Pedestrians.** The proposed roadway width, 20-23 feet, is appropriate to meet the requirements for public safety vehicles and general vehicular traffic. While there are no sidewalks proposed on Canyon Lane, given the low volume of projected traffic on the roadway, the occasional pedestrian traffic can easily and safely use the roadway to access Glenwood Avenue, a street that does not have continuous sidewalks west of Bain Place.

Richard K Hopper

Richard K. Hopper, P.E.
Principal

APPENDIX

TRAFFIC COUNTS PLUS

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CITY OF REDWOOD CITY
GLENWOOD AV. btwn CANYON RD. & BREEZE PL.

Site Code: 1WB
glenwood 1

Start Time	17-Nov-16 Thu	WB A.M.	WB P.M.	Hour Totals A.M.	Hour Totals P.M.	EB A.M.	EB P.M.	Hour Totals A.M.	Hour Totals P.M.	Both Dir. Total
12:00		0	4			0	2			6
12:15		0	3			1	2			6
12:30		0	5			0	5			10
12:45		0	1	0	13	0	1	1	10	2
01:00		0	5			0	11			16
01:15		0	3			0	5			8
01:30		0	5			0	5			10
01:45		0	3	0	16	0	5	0	26	8
02:00		0	6			0	2			8
02:15		0	5			0	8			13
02:30		0	8			0	4			12
02:45		0	4	0	23	0	4	0	18	8
03:00		0	***2***			0	5			7
03:15		0	***10***			0	7			17
03:30		0	***7***			0	5			12
03:45		0	***7***	0	26	0	***5***	0	22	12
04:00		1	2			0	***7***			10
04:15		0	4			0	***6***			10
04:30		0	5			0	***10***			15
04:45		0	8	1	19	0	4	0	27	12
05:00		0	2			0	1			3
05:15		0	5			2	6			13
05:30		0	4			2	4			10
05:45		1	10	1	21	2	2	6	13	15
06:00		0	3			1	1			5
06:15		0	5			1	3			9
06:30		1	2			0	1			4
06:45		0	5	1	15	1	3	3	8	9
07:00		0	2			2	0			4
07:15		1	3			***7***	2			13
07:30		1	3			***6***	2			12
07:45		1	2	3	10	***8***	2	23	6	***13***
08:00		4	0			***9***	1			***14***
08:15		***6***	2			6	1			***15***
08:30		***7***	4			6	0			***17***
08:45		***1***	0	18	6	3	2	24	4	6
09:00		***6***	6			7	1			20
09:15		2	1			3	0			6
09:30		5	2			5	0			12
09:45		7	0	20	9	3	0	18	1	10
10:00		3	1			3	0			7
10:15		3	3			8	1			15
10:30		2	0			5	0			7
10:45		6	1	14	5	5	0	21	1	12
11:00		5	1			4	0			10
11:15		2	0			2	0			4
11:30		2	0			5	0			7
11:45		3	0	12	1	5	0	16	0	8
Total		70	164			112	136			482
Day Total		234				248				
Percent		29.9%	70.1%			45.2%	54.8%			
Peak		08:15	03:00			07:15	03:45			07:45
Vol.		20	26			30	28			59
P.H.F.		0.714	0.650			0.833	0.700			0.868

TRAFFIC COUNTS PLUS

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CITY OF REDWOOD CITY
GLENWOOD AV. E/O CANYON LN.

Site Code: 2EB
glenwood 2

Start Time	17-Nov-16 Thu	EB A.M.	EB P.M.	Hour Totals A.M.	Hour Totals P.M.	WB A.M.	WB P.M.	Hour Totals A.M.	Hour Totals P.M.	Both Dir. Total
12:00		0	0			0	1			1
12:15		0	1			0	2			3
12:30		0	1			0	3			4
12:45		0	0	0	2	0	1	0	7	1
01:00		0	2			0	1			3
01:15		0	1			0	0			1
01:30		0	2			0	0			2
01:45		0	1	0	6	0	0	0	1	1
02:00		0	0			0	2			2
02:15		0	2			0	3			5
02:30		0	4			0	1			5
02:45		0	1	0	7	0	1	0	7	2
03:00		0	1			0	1			2
03:15		0	1			0	1			2
03:30		0	1			0	1			2
03:45		0	2	0	5	0	2	0	5	4
04:00		0	2			0	0			2
04:15		0	1			0	***2***			3
04:30		0	***3***			0	***2***			5
04:45		0	***0***	0	6	0	***3***	0	7	3
05:00		1	***2***			0	***3***			6
05:15		1	***4***			0	0			5
05:30		1	1			0	1			3
05:45		0	0	3	7	0	4	0	8	4
06:00		0	0			0	2			2
06:15		1	1			1	1			4
06:30		0	0			0	1			1
06:45		0	1	1	2	0	1	1	5	2
07:00		0	0			0	1			1
07:15		2	0			0	0			2
07:30		0	0			0	1			1
07:45		2	1	4	1	0	0	0	2	3
08:00		4	0			1	0			5
08:15		2	0			1	0			3
08:30		1	0			1	0			2
08:45		1	0	8	0	0	0	3	0	1
09:00		1	1			1	1			4
09:15		2	0			0	0			2
09:30		2	0			1	0			3
09:45		1	0	6	1	2	0	4	1	3
10:00		0	0			1	0			1
10:15		***5***	1			1	2			***9***
10:30		***3***	0			0	0			***3***
10:45		***2***	0	10	1	***2***	0	4	2	***4***
11:00		***7***	0			***1***	0			***8***
11:15		0	0			***1***	0			1
11:30		0	0			***2***	0			2
11:45		0	0	7	0	1	1	5	1	2
Total		39	38			17	46			140
Day Total		77				63				
Percent		50.6%	49.4%			27.0%	73.0%			
Peak		10:15	04:30			10:45	04:15			10:15
Vol.		17	9			6	10			24
P.H.F.		0.607	0.563			0.750	0.833			0.667

TIRE INDEX

A way to determine the impact of a project's traffic on the surrounding street system is by use of the TIRE (**T**raffic **I**nfusion on **R**esidential **E**nvironment) index.[1] This index is based on the idea that increases in traffic volume have a greater impact on the residential environment on a lower volume street than along a street with a much higher level of baseline traffic. The TIRE index is a representation of the effects of traffic on safety, pedestrians, bicyclists, children playing near the street and the ability to freely maneuver into and out of driveways. A change in the TIRE index of 0.1 or more would be a noticeable increase in traffic on the street, and, therefore, an impact upon the residential environment. The five levels of the TIRE index are shown in Table _ below.

TABLE _
TIRE INDEX LEVELS

TIRE INDEX	DAILY TRAFFIC VOLUME	RESIDENTIAL ENVIRONMENT
0	1	
		A cul-de-sac street with one home.
1	10	
		A cul-de-sac street with 2-15 homes.
2	100	
		A 2-lane minor street.
3	1000	
		A 2-lane collector or arterial street.
4	10000	
		A 2 to 6-lane arterial street.
5	100000	

[1] Goodrich, D.K. and Donald Appleyard, University of California, Berkeley