KIER & WRIGHT
Civil Engineers & Surveyors, Inc.

June 29, 2017

Jerry Liang
SVP Investments and Development
Sunrise Senior Living
Email: Jerry.Liang@sunriseseniorliving.com

RE: **Sunrise Senior Living Project – 2915 El Camino Real, Redwood City**
Review of Wastewater and Water Impacts - San Mateo County North Fair Oaks Community Plan EIR

Dear Mr. Liang:

Pursuant to the entitlement of the Sunrise Senior Living project, a proposed 3-story, 90 unit assisted living facility with a building area of 78,883 sf, Kier & Wright reviewed the water impacts as a requirement of the San Mateo County North Fair Oaks Community Plan Environmental Impact Report (EIR) dated August 5, 2011, Section 15. Kier & Wright has made certain determinations based on project specific factors and will describe below how this project contributes to waste water generation in the affected area, water supply assumptions and any impacts to the West Bay Sanitary District.

I. Waste Water Generation:

Based upon number of units proposed above, we assumed the following:

Assumptions for Proposed Sunrise Senior Living Facility:

- 90 Units
- 130 Tenants/Employees

According to Table H 201.1(2) Estimated Waste/Sewage Flow Rates of the 2016 California Plumbing Code, the usage per person for a Nursing Home or Rest Home is 125 gallons per day (gpd). Therefore, the total estimated wastewater usage for this project is 16,250 gpd.

Existing on the site currently are a restaurant and single-family residence. For the restaurant, we calculated the current or existing water usage based on the same table (Table H 201.1(2) Estimated Waste/Sewage Flow Rates of the 2016 California Plumbing Code) referenced above. Below is a list of assumptions made to calculate the existing wastewater usage.

Assumptions for Existing Restaurant:

- 20 employees
- 400 customers/day
- 400 meals/day
- 100 customers visiting the cocktail lounge per day

Assumptions for Existing Single-Family Residence:

The Fair Oaks Sewer Maintenance District Sewer Master Plan conducted a Capacity Analysis Study on the sewer system. To estimate the usage for residential parcels in Redwood City, the study used a flow rate of 160 gpd per equivalent residential unit. This estimate was based on comparison with wastewater flow rates from flow meter data during model calibration. Additionally, a standard rate of 160 gpd per parcel was assumed for the potential future

connections. Therefore, we used this rate when estimating the existing flow of the single-family residential unit.

Based on these assumptions, the existing usage was calculated to be approximately 7,160 gpd. Therefore, the net increase is estimated to be 9,090 gpd (16,250 – 7,160 = 9,090).

Per Table 15.2 of the NFO EIR, the Waste Water Generation for the entire 'El Camino Real/5th Avenue Area' is 101,200 gpd. The proposed development will generate an estimated 9% total net increase of wastewater demand. However, Kier & Wright is not privy to the consumption of the remaining users in the area and can only assert what is known based on the estimates and assumptions above for this project.

Please see our TABLE A below for our calculations.

TABLE A-Existing and Proposed Wastewater Usage Assumptions and Calculations

Type of Occupancy (from Table H 201.1(2) of 2016 CPC)	GPD (gallons per day) (from Table H 2.1.1(2) of 2016 CPC)	Assumptions	Total GPD
Existing Conditions			
(15) Restaurants - cafeterias	20 per employee	20 employees	400
Toilet	7 per customer	400 customers	2,800
Kitchen Waste	6 per meal	400 meals	2,400
Add for garbage disposal	1 per meal	400 meals	400
Add for cocktail lounge	2 per customer	100 customers	200
Kitchen Waste - disposal service	2 per meal	400 meals	800
		Sub-Total	**7,000**
			160 (single-family residential unit)
		TOTAL	**7,160**
Proposed Conditions			
(10) Institutions (Resident) Nursing/Rest Home	125 per person	130 people	**16,250**
		NET INCREASE	**9,090 GPD**

II. Water Supply Demand

Kier & Wright based the water supply assumptions on the same TABLE A as shown above, and further included the preliminary water usage calculations for irrigation as provided for by the landscape architect for this project in EXHIBIT A attached (based on Model Water Efficient Landscape Ordinance AB 1881). Using their figures (165,161 gallons per year / 365 days = 452

gpd) and our assumptions above, the total estimated water usage is 452 gpd + 9,090 gpd = **9,542 gpd**.

Per Table 15.1 of the NFO EIR, the Water Demand for the entire 'El Camino Real/5th Avenue Area' is 106,490 gpd. Therefore, this proposed development will generate a 9% total net increase of water demand. However, Kier & Wright is not privy to the consumption of the remaining users in the area and can only assert what is known based on the estimates and assumptions above for this project.

Furthermore, please find for reference the Will Serve letter attached as Exhibit B, as provided by the California Water Service – Bear Gulch District for further confirmation that water service will be provided to the project.

III. Impact on West Bay Sanitary District

Kier and Wright has determined that this project is not located within the West Bay Sanitary District jurisdiction and therefore does not create any negative impacts. This project is being served by the Fair Oaks Sewer Maintenance District, under the County of San Mateo jurisdiction.

If you have any questions regarding the information provided above, please do not hesitate to contact me at (925) 245-8788 or ejohnson@kierwright.com.

Sincerely,
KIER & WRIGHT

Elizabeth Johnson
Project Engineer

Enclosures (Exhibits A and B)

Exhibit A

Water calculation worksheet for the Model Water Efficienct Landscape Ordinance AB 1881

Controller "N" H.O.A. maintained landscape

Total Landscape Area (sf)	13,210			KL	Landscape Coefficient				Eto	Referenced Evapotranspiration Rate		
Special Landscape Area (SLA)	13,210			Ks	Species Factor				0.7	ET Adjustment factor		
Historical Eto for project city	46.2			Kd	Density Factor				LA	Total Landscape area		
Turf Rotor Efficiency	0.75			Kmc	Microclimate Factor				0.62	Conversion factor to gallons		
Flood bubbler Irrigation Efficiency (Bubbler)	0.81			IE	Irrigation Efficiency				SLA	Special Landscape Area		
Spray irrigation Efficiency (Spray)	0.75								PR	Precipitation rate		
Drip Irrigation Efficiency (Drip Bubbler/ Drip line)	0.81			MAWA = (ETo)(0.62)[0.55 x LA + 0.45 x SLA]					H	High water use plants		
Stream Spray Efficiency	0.75								M	Medium water use plants		
				ETWU = (ETo)(0.62) [(PFxHA / IE) + SLA]					L	Low water use plants		
Maximum Applied Water Use (MAWA)									VL	Very low water use plants		
	Eto			Conversion	ET AF	LA	(1-ETAF)	SLA				Gallons per year
Total landscape area	46.2			0.62	0.55	13,210	0.45	13,210				378,387
MAXIMUM APPLIED WATER ALLOWANCE												**378,387**

Estimated Total Water Use (ETWU)

Station	Plant type	Hydrozone	Irrigation method	Area (sf)	% of LA	PR	Eto	Ks	Kd	Kmc	KL	IE	Conversion	Gallons per year
1	Shrubs	L	Drip line	7,620	57.7%	.80"	46.2	0.3	1	1	0.3	0.9	0.62	72,756
2	Shrubs	M	Bubbler	1,525	11.5%	.80"	46.2	0.5	1	1	0.5	0.9	0.62	24,268
3	Turf	H	Spray	810	6.1%	.45"	46.2	0.5	1	1	0.5	0.71	0.62	16,339
4	Shrubs	M	Drip line	3,255	24.6%	.80"	46.2	0.5	1	1	0.5	0.9	0.62	51,798
Total area				13,210										
TOTAL WATER APPLIED														165,161
Difference between MAWA & ETWU														**213227**
% ETWU is under MAWA														56%

CALIFORNIA WATER SERVICE
Bear Gulch District 3525 Alameda De Las Pulgas, Suite A, Menlo Park, CA 94025
Tel: (650) 561-9709

County of San Mateo
Planning and Building Division
Fax 650/363-4849
mpayumo@co.sanmateo.ca.us
ATTN: Amery/Madeleine

MPK – Fax: 650-327-5497 Bus: 650-330-6743 Ebrahim E. Sohrabi , P.E.

Address: 2907, 2915 & 2991 EL CAMINO REAL

City: REDWOOD CITY

Assessors parcel number: 054-285-210 060-271-060
254-285-260 060-271-118

☒ This is to certify that water service/meter will be provided for the above structure.*

☐ This is to certify that water service/meter has been provided for the above structure.

This water service will provide:
✓ Domestic Water * PENDING APPROVAL SIZE *
✓ Fire Suppression - SEPARATE SERVICE / * PENDING APPROVAL *

****Backflow Assembly Required on all Fire Sprinkler Systems****
Martin Gonzalez/Katie Vieira @ #650-854-5454 - mgonzalez@calwater.com

_____ Both
_____ Meter Size

***** On 1 ½" meters the standard installation is a 2" copper run from water main to the meter.

L.J. Mathias — Signature

12-13-16 — Date

Lawrence J. Mathias
Customer Service Manager