

October 21, 2020

Mr. Scott M. Behiel, Executive Director
Habitat for Humanity Calaveras
P.O. Box 1469
536 N. Main Street
Angels Camp, CA 95222

Subject: *Habitat for Humanity Calaveras – Angels Camp Project Air Quality Analysis*

Dear Mr. Behiel:

On behalf of KD Anderson & Associates (KDA), I am pleased to submit this letter report presenting the results of air quality analysis of the Habitat for Humanity Calaveras - Angels Camp Project. This letter report presents a description of the project, the methods used in the air quality analysis, and the results of the analysis.

PROJECT DESCRIPTION

The Habitat for Humanity Calaveras proposes to construct a 107-unit affordable housing subdivision (Proposed Project) in Angels Camp, Calaveras County. The project site is located on the south side of Copello Road, south of State Route (SR) 49, approximately 0.6 miles west-northwest of the intersection of SR 49 and SR 4. The enclosed **Figure 1** is a vicinity map, showing the location of the project site.

The Proposed Project would involve 65 single family homes, and 42 condominiums. The enclosed **Figure 2** shows a site plan for the project.

Construction of the Proposed Project would occur in phases. For the air quality analysis presented in this report, construction is assumed to begin in late 2021. Homes would be occupied as construction of each phase is completed. Construction is assumed to be completed in late 2027, leading to all units being occupied in early 2028. The enclosed **Table 1** shows the phasing of construction and occupancy assumed in the air quality analysis.

SIGNIFICANCE THRESHOLDS

Implementation of the Habitat for Humanity Calaveras - Angels Camp Project would result in short-term construction activity, and long-term operational activity associated with occupancy of the units. Both construction and operational activity would generate air pollutant emissions.

Construction activities such as grading, excavation and travel on unpaved surfaces would generate dust, and can lead to elevated concentrations of inhalable particulate matter smaller than 10 microns in diameter (PM₁₀). The operation of construction equipment results in exhaust emissions, which include emissions associated with global climate change, referred to as “greenhouse gas” (GHG) emissions. A substantial portion of construction equipment is powered by diesel engines, which produce relatively high levels of nitrogen oxide (NO_x) emissions. The use of architectural coatings (i.e., paint) releases volatile organic compounds (VOC), which include reactive organic gas (ROG).

Long-term operational activity associated with occupancy of the units would result in vehicle travel by the residents, area source emissions (e.g., landscaping equipment and household products). Operational activity would also result in indirect emissions due to energy and water use, and the generation of waste products.

Ozone Precursor, Particulate Matter, and Carbon Monoxide Emissions

The following describes significance thresholds applied in the air quality analysis presented in this letter report. In addition to describing significance thresholds applied in the analysis of short-term construction-related emissions, the following also describes significance thresholds applied in the analysis of long-term operational emissions.

The Calaveras County Air Pollution Control District (APCD) does not have adopted or recommend significance thresholds for criteria pollutants. However, criteria pollutant emission significance thresholds are presented in the adopted *Angels Camp 2020 General Plan* (City of Angels Camp 2009). In this letter report, therefore, thresholds used to determine the significance of impacts associated with ozone precursors, PM₁₀, and CO emissions are from the *Angels Camp 2020 General Plan*.

The *Angels Camp 2020 General Plan* policy 9.A.q is to “establish a list of project thresholds with the potential to generate a significant adverse impact pursuant to CEQA.” The policy refers to sample thresholds presented in Appendix 9A of the General Plan. City of Angels Camp staff provided clarification on the interpretation and applicability of the thresholds presented in Appendix 9A of the General Plan (Hanham pers. comm., and Augustine pers. comm.). **Table 2** shows the threshold amounts for ROG, NO_x, PM₁₀, and CO emissions. Project-related emissions exceeding the values shown in **Table 2** will be considered a significant impact; values equal to or less than those shown in **Table 2** will be considered a less-than-significant impact.

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Greenhouse Gas Emissions

Neither the Calaveras County APCD nor the City of Angels Camp have adopted quantitative significance thresholds for GHG emissions. Therefore, the threshold used in this letter report is based on a threshold developed by the California Air Pollution Control Officers Association (CAPCOA). The CAPCOA document *CEQA & Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (California Air Pollution Control Officers Association 2008) presents a 900 metric ton per year (MT/yr) of carbon dioxide equivalent (CO₂e) screening threshold. The CAPCOA threshold is considered a conservative threshold set at a level to “capture” or define 90 percent of land use development projects as significant. The CAPCOA document notes,

“A single quantitative threshold was developed in order to ensure capture of 90 percent or more of likely future discretionary developments. The objective was to set the emission threshold low enough to capture a substantial fraction of future residential and nonresidential development that will be constructed to accommodate future statewide population and job growth, while setting the emission threshold high enough to exclude small development projects that will contribute a relatively small fraction of the cumulative statewide GHG emissions.”

In this letter report, if the Proposed Project would generate more than 900 MT/yr of CO₂e, the project is considered to have a significant impact on global climate change. If the project would generate 900 MT/yr of CO₂e or less, the project is considered to have a less-than-significant impact on global climate change. The 900 MT/yr of CO₂e threshold is applied in this letter report to both construction-related emissions and operational GHG emissions. (Hanham pers. comm. and Augustine pers. comm.).

METHODOLOGY

Short-term construction-related and long-term operational emissions associated with the Habitat for Humanity Calaveras - Angels Camp Project were estimated using the CalEEMod emissions modeling program (California Air Pollution Control Officers Association 2016). CalEEMod is a land use emissions computer model designed to provide a platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

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More detailed information on the CalEEMod model is available at the internet website <http://caleemod.com/>. Output files from the CalEEMod model, as applied to the Habitat for Humanity Calaveras - Angels Camp Project, are presented in the technical appendix of this letter report.

The CalEEMod emissions model contains default data characterizing the construction and operation of land use development projects, such as the Proposed Project. The CalEEMod default values were used except where:

- project-specific data are available,
- data specific to the location of the project site, and
- updated technical data are available.

Project-specific data included the size of the project site and the construction schedule (Behiel pers. comm.).

Data specific to the location of the project site included use of CO₂e energy intensity factors (The Climate Registry 2020).

Updated technical data included use of vehicle trip generation rates from the Institute of Transportation Engineers (ITE) document *Trip Generation Manual 10th Edition* (Institute of Transportation Engineers 2017).

AIR QUALITY ANALYSIS RESULTS

The following describes the results of the air quality analysis and the significance of air quality impacts of the Habitat for Humanity Calaveras - Angels Camp Project.

Criteria Pollutant Emissions

Both construction and operation of the Proposed Project would result in the generation of criteria pollutant emissions. The enclosed **Table 3** shows daily project-related criteria pollutant emissions. As construction of the project is initiated, emissions would be limited to construction-related pollutants. In the long-term, after construction of the project is completed, emissions would be limited to operational pollutants. As shown in **Table 3**, because construction of the Proposed Project would occur in phases, both construction-related and operational pollutants would be generated during the years 2023 through 2027.

None of the values shown in **Table 3** would exceed the significance thresholds presented in **Table 2**. Therefore, this impact is considered less than significant, and no mitigation measures are required.

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Greenhouse Gas Emissions

Both construction and operation of the Habitat for Humanity Calaveras - Angels Camp Project would result in the generation of GHG emissions. The enclosed **Table 4** shows annual project-related GHG emissions.

None of the values shown in **Table 4** would exceed the 900 MT/yr of CO₂e significance thresholds. Therefore, this impact is considered less than significant, and no mitigation measures are required.

CLOSING

Thank you for providing KDA with this opportunity to provide Habitat for Humanity Calaveras with air quality analysis services on the Angels Camp Project. Please let me know if you have any questions about this letter report.

Sincerely,

KD Anderson & Associates, Inc.



Wayne Shijo
Project Manager

enclosures

KDA

Bibliography

Publications Cited

Angels Camp, City of. 2009. Angels Camp 2020 General Plan. Angels Camp, CA.

California Air Pollution Control Officers Association. 2008. CEQA & Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. Sacramento, CA.

California Air Pollution Control Officers Association. 2016. CalEEMod – California Emissions Estimator Model User’s Guide – Version 2016.3.1. Sacramento, CA.

California Energy Commission. 2016. 2016 Building Energy Efficiency Standards - Frequently Asked Questions. Sacramento, CA.

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Institute of Transportation Engineers. 2017. Trip Generation Manual, 10th Edition. Washington, D.C.

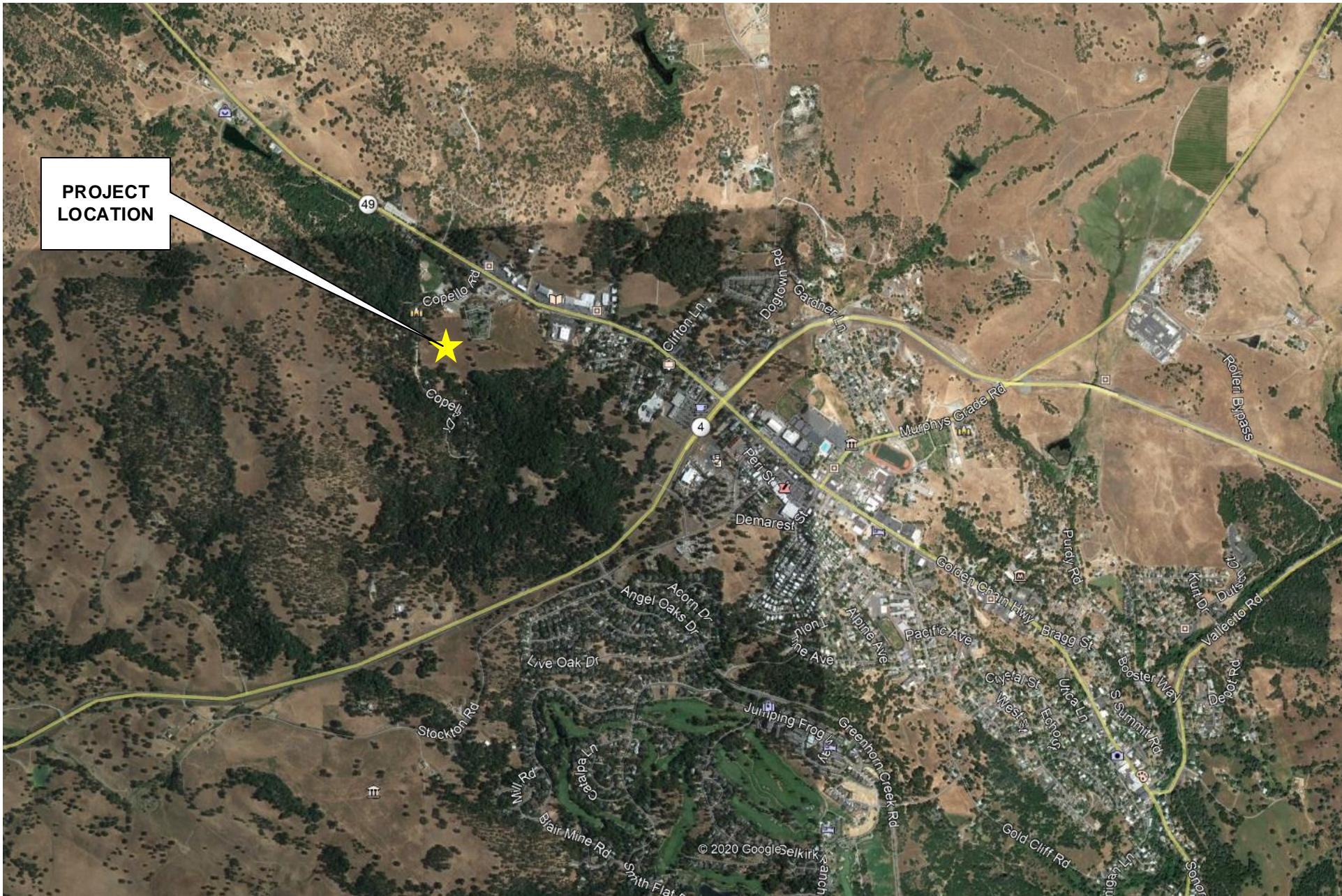
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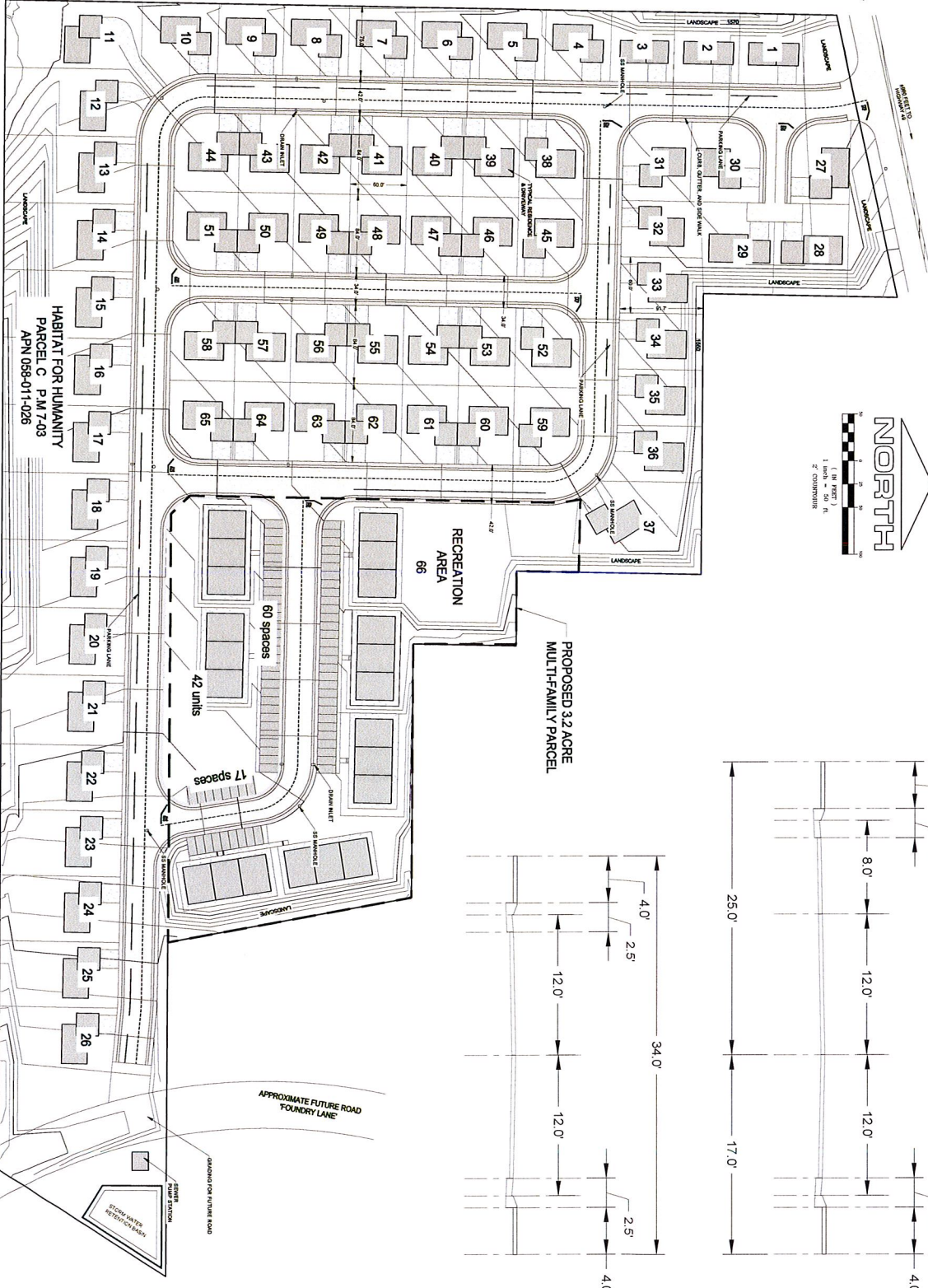
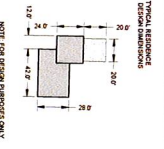
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Behiel, Scott M. Executive Director. Habitat for Humanity. May 29 and October 2, 2020 E-mail messages to Ken Anderson, KD Anderson & Associates.

Hanham, David. Director of Planning & Building. City of Angels Camp. July 8, 2013 E-mail message to Wayne Shijo, KD Anderson & Associates.



VICINITY MAP



HABITAT FOR HUMANITY
PARCEL C P.M.7-03
APN 056-011-026

PROPOSED 3.2 ACRE
MULTI-FAMILY PARCEL

PRELIMINARY SITE PLAN

100 SOUTH STEWART STREET, SONOMA, CALIFORNIA 95070 | 209.532.5173 F. 209.532.5220

OWNER INFORMATION:
HABITAT FOR HUMANITY
CALAVERAS
P.O. BOX 1489
ANGELS CAMP, CA 95222
PH (209) 889-2848

SITE INFORMATION:
APN 056-011-026-000
COPPELLO RD
ANGELS CAMP, CA 95222

A Site Plan for
Habitat for Humanity Calaveras
Copello Road
Angels Camp, Ca. 95222

ENGINEER OF RECORD:
 P. Skirrah
12512
STATE OF CALIFORNIA
NOVEMBER 2024

ISSUE DATE: 05.12.20
DRAWN BY: ZNS
CHECKED BY: RC
SCALE: 1/4"=1'-0"
DRAWING: P_Skrrh
PROJECT NO: 19-10107

SHEET 2 OF X

Figure 2. Site Plan

**Table 1. Habitat for Humanity Calaveras - Angels Camp Project
Phasing of Construction and Occupancy**

Year *	Duration of Construction Activity **	Construction Activity	Occupied Units
Late 2021	12 weeks	Site preparation and grading of entire site. Paving of internal roadways.	None
2022	46 weeks	Building construction and architectural coating of 17 SFDUs.	None
2023	46 weeks	Building construction and architectural coating of 16 SFDUs.	17 SFDUs
2024	46 weeks	Building construction and architectural coating of 16 SFDUs.	33 SFDUs
2025	46 weeks	Building construction and architectural coating of 16 SFDUs.	49 SFDUs
2026	42 weeks	Building construction and architectural coating of 21 MFDUs.	65 SFDUs
2027	42 weeks	Building construction and architectural coating of 21 MFDUs.	65 SFDUs and 21 MFDUs
2028	None	None	65 SFDUs and 42 MFDUs

Notes: * Construction schedule from Behiel pers. comm.
 ** Duration periods are CalEEMod default values.
 "SFDU" = Single-Family Dwelling Unit.
 "MFDU" = Multiple-Family Dwelling Unit.

**Table 2. Air Quality Significance Thresholds
for Criteria Pollutants**

Type of Pollutant Emissions	Amount of Pollutant Emissions in Pounds per Day
Ozone Precursors (the sum of Reactive Organic Gases [ROG] and Nitrogen Oxides [NO _x])	274
Inhalable Particulate Matter (PM ₁₀)	383
Carbon Monoxide (CO)	550
<hr/> <p>Note: These thresholds are applied to both construction-related and operational emissions. Sources: City of Angels Camp 2009, Hanham pers. comm., and Augustine pers. comm.</p>	

**Table 3 - Habitat for Humanity Calaveras - Angels Camp Project
Criteria Pollutant Emissions**

Year	Source and Criteria	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Sum of ROG and NO_x	Carbon Monoxide (CO)	Inhalable Particulate Matter (PM₁₀)
Significance Threshold		Sum of ROG and NO _x = 274			550	383
2021	Construction	4.3916	46.5283	50.9199	32.1560	20.2600
	Operational	0.0000	0.0000	0.0000	0.0000	0.0000
	Total	<u>4.3916</u>	<u>46.5283</u>	<u>50.9199</u>	<u>32.1560</u>	<u>20.2600</u>
	Significant Impact?			No	No	No
2022	Construction	95.9499	14.8692	110.8191	14.7578	0.7661
	Operational	0.0000	0.0000	0.0000	0.0000	0.0000
	Total	<u>95.9499</u>	<u>14.8692</u>	<u>110.8191</u>	<u>14.7578</u>	<u>0.7661</u>
	Significant Impact?			No	No	No
2023	Construction	90.3049	13.8450	104.1499	14.5751	0.6773
	Operational	1.4831	0.6054	2.0885	5.7850	0.9709
	Total	<u>91.7880</u>	<u>14.4504</u>	<u>106.2384</u>	<u>20.3601</u>	<u>1.6482</u>
	Significant Impact?			No	No	No
2024	Construction	90.2934	13.0369	103.3303	14.4254	0.6016
	Operational	2.7351	1.0852	3.8203	10.5218	1.8840
	Total	<u>93.0285</u>	<u>14.1221</u>	<u>107.1506</u>	<u>24.9472</u>	<u>2.4856</u>
	Significant Impact?			No	No	No

**Table 3 (Continued) - Habitat for Humanity Calaveras - Angels Camp Project
Criteria Pollutant Emissions**

Year	Source and Criteria	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Sum of ROG and NO_x	Carbon Monoxide (CO)	Inhalable Particulate Matter (PM₁₀)
2025	Construction	90.2830	12.2299	102.5129	14.3061	0.5335
	Operational	3.9533	1.5025	5.4558	14.8253	2.7969
	Total	94.2363	13.7324	107.9687	29.1314	3.3304
	Significant Impact?			No	No	No
2026	Construction	65.8938	10.6472	76.5410	13.0606	0.5304
	Operational	5.1363	1.8660	7.0023	18.7508	3.7092
	Total	71.0301	12.5132	83.5433	31.8114	4.2396
	Significant Impact?			No	No	No
2027	Construction	65.8924	10.6384	76.5308	13.0108	0.5304
	Operational	6.1021	2.2377	8.3398	23.1019	4.7316
	Total	71.9945	12.8761	84.8706	36.1127	5.2620
	Significant Impact?			No	No	No
2028	Construction	0.0000	0.0000	0.0000	0.0000	0.0000
	Operational	7.0331	2.5619	9.5950	27.1171	5.7529
	Total	7.0331	2.5619	9.5950	27.1171	5.7529
	Significant Impact?			No	No	No
<hr/> Notes: All values are in pounds per day. Values shown are the highest of summer and winter periods. Source: CalEEMod emissions model.						

**Table 4 - Habitat for Humanity Calaveras - Angels Camp Project -
Greenhouse Gas Emissions**

Year	Construction	Operational					TOTAL
		Area	Energy	Mobile	Waste	Water	
2021	123.1972	0.0000	0.0000	0.0000	0.0000	0.0000	123.1972
						Significant Impact?	No
2022	241.0595	0.0000	0.0000	0.0000	0.0000	0.0000	241.0595
						Significant Impact?	No
2023	240.8055	0.2112	17.7241	131.5683	6.1605	2.3068	398.7764
						Significant Impact?	No
2024	240.6233	0.4099	34.4056	246.1037	11.8182	4.4778	537.8385
						Significant Impact?	No
2025	240.4544	0.6086	51.0871	351.8771	17.6016	6.6489	668.2777
						Significant Impact?	No
2026	197.5205	0.8073	67.7686	450.6420	23.3849	8.8200	748.9433
						Significant Impact?	No
2027	197.2090	1.0681	81.5445	546.2727	28.2430	11.6695	866.0068
						Significant Impact?	No
2028	0.0000	1.3289	95.3203	636.9984	33.1010	14.5190	781.2676
						Significant Impact?	No

Note: All values are in metric tons of carbon dioxide equivalent (MT CO₂e) per year.
Significance threshold = 900 MT CO₂e per year.

Source: CalEEMod emissions model.

Technical Appendix
Presented in Separate Electronic File