APPENDIX D

Energy Memo

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February 13, 2025

Christina Willis, President
Willis Environmental Planning
238 Sychar Road
San Diego, CA 92114

SUBJECT: Energy Calculation Memorandum for the McCabe Ranch II Specific Plan Project

Dear Ms. Willis;

Birdseye Planning Group (BPG) is pleased to submit this memorandum quantifying energy demand associated with the proposed McCabe Ranch II Specific Plan project near the City of El Centro in unincorporated Imperial County, California. The information contained herein will assist with the preparation of the Energy section of the Environmental Impact Report.

Project Description

McCabe Ranch Realty, LLC (Applicant) is seeking to process a Subdivision Tentative Map, referred to as the McCabe Ranch II Tract Map 994, for an approximately 351.2-acre portion of the McCabe Ranch II Specific Plan Area to accommodate the phased development of 1,610 residential units (single- and multiple-family units), a 13-acre elementary school site for the McCabe Union School District, parks, roadways, associated utilities, drainage and storm water treatment improvements. Development of the proposed McCabe Ranch II Tract Map 994 is proposed to occur in phases over a 14-year period between 2025 and 2039. Development within that portion of the McCabe Ranch II Specific Plan area outside of Tract Map 994, may develop prior to, concurrently with, or subsequent to the Tract Map 994 and is denoted as Phase 4. The development phasing for McCabe Ranch II Tract Map 994, and for the Phase 4 area differs from that identified in the adopted McCabe Ranch II Specific Plan. For this reason, an amendment to the McCabe Ranch II Specific Plan is also proposed.

Sewer, water, park maintenance, and landscape and lighting maintenance services would be provided by the Heber Public Utility District (HPUD). However, for services to be provided, the Specific Plan Area must be annexed into the HPUD. The Project also includes a Development Agreement with the County of Imperial related to the 351.2-ac portion controlled by McCabe Ranch Realty LLC pursuant to Imperial County Land Use Ordinance Title 9, Division 23. The annexation and Development Agreement will also be addressed in the Supplemental EIR.

Energy Demand

The following tables show estimated gasoline demand for construction workers (Table 1) and construction equipment (Table 2) for each of the four phases. All fuel calculations are based on the total Carbon Dioxide Equivalent (CO2e) value calculated for each construction phase and vehicle miles traveled (VMT) using the California Emission Estimator Model (CalEEMod) version 2022.1. Data are reported in annual metric tons of CO2e for the duration of each construction phase. Metric tons are converted to kilogram CO2e and then divided by a conversion factor used by the U.S. Environmental Protection Agency to estimate gallons of gasoline (8.87) and diesel fuel (10.18) consumed based on carbon emissions.

Table 1 shows the gasoline demand for construction workers by project phase. Table 2 shows the diesel fuel demand for equipment operation. For the purpose of determining fuel demand, it was assumed that all worker vehicles would be gasoline fueled and all construction equipment would diesel fueled.

Table 1
Construction Worker Gasoline Demand

	CO2E MT	Kg CO2e	Gallons
Phase I			
Site Preparation – 2025	6.75	6,750	761
Grading – 2025	3.3	3,300	372
Grading - 2026	9.4	9,400	1,060
Building Construction - 2026	224	224,000	25,254
Building Construction - 2027	193.6	193,600	21,828
Paving - 2027	2.2	2,200	248
Architectural Coating - 2027	7.4	7,400	834
Phase I Total	**447**	**447,000**	**50,357**
Phase II			
Site Preparation – 2028	10.6	10,600	1,195
Grading – 2028	13.4	13,400	1,511
Building Construction – 2028	138.4	138,400	15,603
Building Construction – 2029	749	749,000	84,442
Building Construction – 2030	399	399,000	44,983
Paving – 2030	1.9	1,900	214
Architectural Coating - 2030	71.6	71,600	8,072
Phase II Total	**1,384**	**1,384,000**	**156,020**
Phase III			
Site Preparation – 2031	10.1	10,100	1,139
Grading – 2031	12.7	12,700	1,432
Building Construction – 2031	152.5	152,500	17,193
Building Construction – 2032	780	780,000	87,937
Building Construction – 2033	405	405,000	45,660
Paving – 2033	1.9	1,900	214
Architectural Coating - 2033	74.2	74,200	8,365
Phase III Total	**1,436**	**1,436,000**	**161,940**
Phase IV			
Site Preparation – 2034	9.7	9,700	1,093

Grading – 2034	16.6	16,600	1,871
Building Construction – 2034	50.3	50,300	5,671
Building Construction – 2035	1,118	1,118,000	126,042
Building Construction – 2036	1,104	1,104,000	124,464
Building Construction – 2037	362	362,000	40,812
Paving – 2037	4.9	4,900	552
Architectural Coating - 2036	11.2	11,200	1,263
Architectural Coating - 2037	135	135,000	15,220
Phase IV Total	**2,812**	**2,812,000**	**316,988**
Combined Total	**6,079**	**6,079,000**	**685,305**

Table 2
Construction Equipment Diesel Demand

	CO2E MT	Kg CO2e	Gallons
Phase I			
Site Preparation – 2025	145	145,000	14,244
Grading - 2025	77	77,000	7,564
Grading - 2026	223	223,000	21,906
Building Construction - 2026	203	203,000	19,941
Building Construction - 2027	178	178,000	17,485
Paving - 2027	16.5	16,500	1,620
Architectural Coating - 2027	7.4	7,400	727
Phase I Total	**850**	**850,000**	**83,487**
Phase II			
Site Preparation – 2028	241	241,000	23,674
Grading – 2028	330	330,000	32,417
Building Construction – 2028	51.4	51,400	5,049
Building Construction – 2029	284	284,000	27,898
Building Construction – 2030	155	155,000	15,226
Paving – 2030	15.1	15,100	1,483
Architectural Coating - 2030	11.8	11,800	1,159
Phase II Total	**1,088**	**1,088,000**	**106,905**
Phase III			
Site Preparation – 2031	241	241,000	23,674
Grading – 2031	330	330,000	32,417
Building Construction – 2031	54.5	54,500	5,354
Building Construction – 2032	285	285,000	27,996
Building Construction – 2033	151	151,000	14,833
Paving – 2033	15.8	15,800	1,552
Architectural Coating - 2033	11	11,000	1,081
Phase III Total	**1,088**	**1,088,000**	**106,907**
Phase IV			
Site Preparation – 2034	241	241,000	23,674
Grading – 2034	450	450,000	44,204
Building Construction – 2034	12.5	12,500	1,228
Building Construction – 2035	284	284,000	27,898
Building Construction – 2036	285	285,000	27,996
Building Construction – 2037	94.3	94,300	9,263
Paving – 2037	41.9	41,900	4,116
Architectural Coating - 2036	0.0	0.0	0.0
Architectural Coating - 2037	15.8	15,800	1,552
Phase IV Total	**1,425**	**1,425,000**	**139,931**

Combined Total	**4,451**	**4,451,000**	**437,230**

Table 3 shows the estimated electricity and natural gas demand for each phase. Combined demand for all phases would be 34,226,080 kWh of electricity and 53,176,043 BTUs of natural gas.

Table 3
Estimated Electricity and Natural Gas Demand

	Kilowatt hours (kWh)	British Thermal Units (BTUs)
Phase I	2,932,523	11,167,195
Phase II	6,264,813	4,087,958
Phase III	5,640,101	17,990,278
Phase IV	19,388,643	19,930,612
Total	**34,226,080**	**53,176,043**

Table 4 shows the estimated fuel demand associated with the operation of each phase based on the estimated mobile source GHG emissions. The estimates assume all vehicles would be fueled using gasoline. Total combined annual fuel demand would be 2,015,557 gallons.

Table 4
Estimated Gasoline Demand

	Estimated Annual CO_2E Emissions	Estimated Gasoline Demand (Gallons Annually)
Phase I	2,144	241,713
Phase II	4,372	492,897
Phase III	3,621	408,230
Phase IV	7,741	872,717
Total	**17,878**	**2,015,557**

These data are provided for reporting purposes only as CEQA has no quantifiable thresholds for energy demand. Please let me know if you have questions. You can reach me via e-mail at 760-712-2199 or via e-mail ryan@birdseyeplanninggroup.com.

Regards,

Ryan Birdseye
Principal