

January 30, 2020

EPD Solutions, Inc.
 2 Park Plaza, Suite 1120
 Irvine, CA 92614

SUBJECT: CASA LOMA RESIDENTIAL ENERGY TABLES

The following Energy Tables were prepared for the proposed Casa Loma Residential development (Project) which is located on the southeast corner of Lugonia Avenue and Occidental Drive, in the City of Redlands. It is our understanding that the Project proposes consist of consists of 147 multifamily housing dwelling units.

PROJECT CONSTRUCTION POWER COST

Land Use	Power Cost (per 1,000 SF of building per month of construction)	Total Building Size (1,000 SF)	Construction Duration (months)	Project Construction Power Cost
Apartments	\$2.32	149.048	13	\$4,495.29
TOTAL PROJECT CONSTRUCTION COST				\$4,495.29

PROJECT CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Project Construction Electricity Usage (kWh)
Apartments	\$0.10	47,254
TOTAL PROJECT CONSTRUCTION ELECTRICTY USAGE (kWh)		47,254

CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Activity/Duration	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Site Preparation (10 days)	Crawler Tractors	212	4	8	0.43	2,917	1,577
	Rubber Tired Dozers	247	3	8	0.40	2,371	1,282
Grading (20 days)	Crawler Tractors	212	3	8	0.43	2,188	2,365
	Excavators	158	1	8	0.38	480	519
	Graders	187	1	8	0.41	613	663
	Rubber Tired Dozers	247	1	8	0.40	790	854
Building Construction (230 days)	Cranes	231	1	8	0.29	536	6,663
	Crawler Tractors	212	3	8	0.43	2,188	27,200
	Forklifts	89	3	8	0.20	427	5,311
	Generator Sets	84	1	8	0.74	497	6,182
	Welders	46	1	8	0.45	166	2,059
Paving (20 days)	Pavers	130	2	8	0.42	874	944
	Paving Equipment	132	2	8	0.36	760	822
	Rollers	80	2	8	0.38	486	526
Architectural Coating (20 days)	Air Compressors	78	1	8	0.48	300	324
TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)							57,292

CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES

Construction Activity	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
2020 Construction Activities					
Site Preparation (10 days)	18	14.7	2,646	30.39	87
Grading (20 days)	15	14.7	4,410	30.39	145
Building Construction (167 days)	185	14.7	454,157	30.39	14,943
2021 Construction Activities					
Building Construction (63 days)	185	14.7	171,329	31.22	5,488
Paving (20 days)	15	14.7	4,410	31.22	141
Architectural Coating (20 days)	37	14.7	10,878	31.22	348
TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION					21,152

CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (MHD TRUCKS)

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
2020 Vendor Trips					
Building Construction (167 days)	24	6.9	27,079	9.29	2,916
2021 Vendor Trips					
Building Construction (63 days)	24	6.9	10,215	9.45	1,081
TOTAL PROJECT MHD TRUCK TOTAL					3,997

CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (HHD TRUCKS)

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
2020 Vendor Trips					
Building Construction (167 days)	24	6.9	27,079	6.49	4,171
2021 Vendor Trips					
Building Construction (63 days)	24	6.9	10,215	6.60	1,548
2020 Hauling Trips					
Grading (20 days)	3,026	20	1,210,400	6.49	186,438
TOTAL PROJECT HHD TRUCK TOTAL					192,157

PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION

Vehicle Type	Annual Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
LDA	2,013,487	31.22	64,493
LDT1	135,915	26.24	5,180
LDT2	657,732	24.37	26,994
MDV	437,357	19.73	22,171
LHD1	63,079	13.70	4,606
LHD2	19,284	14.13	1,365
MHD	65,451	9.45	6,928
HHD	229,444	6.60	34,779
OBUS	4,935	5.88	840
UBUS	5,884	4.62	1,273
MCY	21,967	38.43	572
SBUS	2,973	7.92	375
MH	3,698	5.83	635
TOTAL	3,661,205		170,209

PROJECT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Natural Gas Demand	kBTU/year
Apartments	1,545,840
Other Asphalt Surfaces	0
Other Non-Asphalt Surfaces	0
Parking Lot	0
<i>TOTAL PROJECT NATURAL GAS DEMAND</i>	<i>1,545,840</i>
Electricity Demand	kWh/year
Apartments	582,986
Other Asphalt Surfaces	0
Other Non-Asphalt Surfaces	0
Parking Lot	11,078
<i>TOTAL PROJECT ELECTRICITY DEMAND</i>	<i>594,064</i>