

Mr. Charles Grace
San Simeon Community Services District
111 Pico Ave.
San Simeon, CA 93452

January 20, 2014

San Simeon Community Services District – Water Usage Calculations

Dear Mr. Grace -

The District retained Phoenix Civil Engineering, Inc. (Phoenix) to review the existing water usage meter readings for the District and develop an Equivalent Dwelling Unit (EDU) that could be used to determine future development impacts to the water/wastewater systems capacity.

An Equivalent Dwelling Unit is defined as any standard service unit determined to be equivalent to one single family dwelling unit. An EDU will consume water equivalent to a single family unit or discharge wastewater at a flow and strength equal to that of an average single family unit. EDUs are frequently used for wastewater flow calculations, but the same concept can be used for water demand values.

For the analysis, three years of water meter usage values were provided by the District. The years that were reviewed were from 2010/2011 to 2012/2013. A total of 327 residential (single family) accounts were provided along with multi-family, commercial, irrigation, hotel and restaurant accounts for that period. The method used to document the meter readings by the District creates a situation where if an account was in use for part of the period and then the account holder vacated the property (relocation, etc.), the account recorded zero values for the remainder of the period under review. Conversely, if an account was opened in the middle of the three year window, the account had no meter readings for the initial period. Both of these situations were eliminated from consideration as the data are considered incomplete. In addition, there were some accounts that from the meter readings were not occupied full time by the resident. The amount of water used by that account was not realistic when expanded to represent a daily potable water demand. For example, one cubic foot is equal to 7.48 gallons. So if an account meter recorded a usage of 2,000 cubic feet per year that would equal 14,960 gallons per year or 41 gallons per day. This is considered an extremely low water usage when factoring in the usage for laundry (typically 5 to 10 gallons per load), toilet use (approximately 2 gallons per flush), (5 to 10 gallons per shower), etc.

Once all of the incomplete or nonstandard single family accounts were removed from the group, a total of 59 single family residential accounts were used to determine the average annual water usage. This group was developed using only meter readings that were complete for all three years and had readings above 2,000 cubic feet. Using this group, it was determined that the average water consumption for a single family residence was 4,050 cubic feet per year or 83 gallons per day. This is an average value and low when compared to other communities, but consistent with the value calculated in the San Simeon CSD Water System Master and Wastewater Collection System Evaluation (Boyle, 2007 p. 12). That report calculated an average demand of 74 gallons per person per dwelling unit. Also provided in that report was that the County of San Luis Obispo estimates the number of residents per unit at 0.7 to 1.4 persons.

If the group was expanded to include other meter reading values that were either incomplete or not representative of a full time resident, the EDU value would be lower. The issue that could potentially be created by a low EDU base value is that future demand on the potable water system would be underestimated.

Using the 4,050 cubic feet value, the next step was to apply that value to each of the other metered type of customers (hotels, commercial, irrigation, etc.). From the tables attached, the EDU values for each metered account are shown. An example calculation would be as follows:

EDU Multifamily Account = 3 Year Average Multifamily Account / Single Family EDU of 4,050. This calculation was repeated for all of the accounts in the other categories. The summary table shows the respective EDU values for each account.

Sincerely,

Jon Turner, PE
Principal Engineer

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Summary Table**

Single Family Dwellings	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG	Adjusted 3 Year Baseline Average
15	2,600	2,300	2,467	2,467
25	6,922	9,740	9,158	9,158
31	2,100	1,900	1,867	1,867
40	2,600	2,600	2,567	2,567
41	3,800	3,600	3,967	3,967
46	1,500	100	1,500	2,200
49	2,400	900	1,800	2,250
58	2,000	2,000	2,267	2,267
59	6,800	7,000	5,467	6,900
66	5,000	0	3,800	5,700
70	5,200	4,700	5,400	5,400
72	4,700	4,700	4,600	4,600
74	3,300	4,400	3,733	3,733
82	2,400	3,000	2,600	2,600
88	5,100	3,200	3,433	2,600
94	1,400	2,800	2,533	3,100
95	4,600	3,400	5,300	4,000
97	2,500	2,500	2,567	2,567
98	3,300	3,800	3,700	3,700
103	2,400	3,400	2,633	2,633
107	3,300	3,000	3,333	3,333
109	3,700	3,400	3,400	3,400
110	4,600	5,000	4,700	4,700
119	3,600	2,800	2,933	2,933
120	6,300	6,000	6,033	6,033
122	5,200	5,400	5,533	5,533
123	4,200	4,000	3,867	3,867
127	5,100	1,600	3,333	4,200
128	2,300	3,200	3,033	3,033
130	2,000	1,500	2,067	2,067
134	2,400	2,100	2,200	2,200
139	5,700	6,800	6,600	6,600
146	2,600	2,000	2,600	2,600
150	1,500	2,700	2,033	2,033
151	5,900	5,300	5,567	5,567
152	2,200	2,600	2,433	2,433
154	3,500	3,600	3,333	3,333
158	2,200	2,100	2,100	2,100
174	3,800	4,400	4,100	4,100
178	3,800	3,600	3,700	3,700

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Summary Table**

Single Family Dwellings	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG	Adjusted 3 Year Baseline Average
187	8,800	8,500	8,667	8,667
188	4,000	4,200	4,200	4,200
189	2,500	1,900	2,000	2,000
197	10,900	5,100	7,467	5,750
200	11,300	9,100	10,433	10,433
201	4,800	4,200	3,933	3,933
204	3,400	2,800	3,167	3,167
209	2,600	2,700	2,600	2,600
240	2,100	2,200	2,133	2,133
243	2,700	2,200	2,433	2,433
250	6,300	6,300	5,533	5,533
257	9,600	7,800	8,767	8,767
269	2,700	2,400	2,567	2,567
271	8,300	7,100	7,533	7,533
272	2,700	1,900	2,333	2,333
287	2,300	1,500	2,167	2,167
288	3,600	3,900	3,467	3,467
294	6,900	6,800	5,467	6,850
298	6,500	6,300	4,767	6,400
total fiscal year end usage	246,522	224,040	231,534	238,974
			Equivalent Dwelling Unit	
(Usage in Cubic Feet)				4,050

Multi-Family Dwellings	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG	Equivalent Dwelling Unit
16	93,000	115,100	69,367	30.6
217	300	300	1,000	0.4
26	56,900	60,200	42,733	18.8
221	300	300	2,333	1.0
27	17,800	15,900	17,300	7.6
28	11,100	10,900	17,300	7.6
29	20,200	20,800	14,200	6.3
30	30,300	17,200	15,867	7.0
37	25,000	20,000	15,367	6.8

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Summary Table**

MOTEL/HOTELS

4	116,500	119,700	109,100	26.9
225	269,800	252,900	270,300	66.7
223	88,800	123,400	92,933	22.9
219	254,800	257,400	238,300	58.8
1	594,200	440,200	546,733	135.0
218	147,600	154,600	136,600	33.7
6	274,900	235,900	238,300	58.8
252	120500	110400	128166.667	31.6
278	392,300	365,000	376,933	93.1
285	93,000	96,700	90,733	22.4
291	158,800	168,600	131,633	32.5
RESTAURANTS				
5	38,000	35,500	36,200	8.9
12	76,700	78,700	76,700	18.9
18	90,200	80,500	80,267	19.8
22	23,800	16,900	23,533	5.8
61	9,400	8,500	9,467	2.3
78	19,400	20,300	19,033	4.7
COMMERCIAL ACCTS				
7	2,800	1,300	2,400	0.6
8	23,000	36,800	29,500	7.3
33	3,100	3,000	3,067	0.8
38	8,600	6,600	7,733	1.9
213	1,400	1,200	1,267	0.3
IRRIGATION ACCTS				
60	18,300	12,200	14,200	3.5
73	320	350	347	0.1
84	800	1,000	767	0.2
124	9,800	7,100	8,567	2.1
126	14,500	15,500	13,267	3.3
131	3,700	3,400	3,400	0.8
133	1,100	1,200	1,200	0.3
160	1,900	2,300	2,133	0.5
171	400	300	367	0.1
177	6,400	6,500	6,867	1.7
194	1,900	3,900	2,700	0.7
289	100	200	150	0.0

Notes:

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Summary Table**

Equivalent Dwelling Unit calculated from data where the usage in the account was relatively consistent over the period analyzed. In cases where one usage value was an outlier from the remaining two, the remaining two were used for calculation. Residential tab shows the accounts that were used in the calculation of Equivalent Dwelling Unit (EDU). EDU calculation for remaining account types were calculated as follows: $\text{Average Usage of account} / \text{average single family residential use} = \text{EDU of the account in question}$. Hotel usage was calculated as a summary of all accounts for the period in question.

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Hotel Accounts**

ACCT #	2010-2011	2011-2012	2012-2013	3 YEAR	Equivalent Dwelling Unit
	Total Usage	Total Usage	Total Usage	BASE LINE AVG.	
4	80,200	99,400	102,200	93,933	
126	9,800	14,500	15,500	13,267	
211	1,100	2,600	2,000	1,900	
	91,100	116,500	119,700	109,100	26.9
225	251,600	234,200	215,600	233,800	
79	36,600	35,600	37,300	36,500	
	288,200	269,800	252,900	270,300	66.7
223	900	3,300	6,200	3,467	
86	65,700	85,500	114,500	88,567	
23	0	0	2,700	900	
	66,600	88,800	123,400	92,933	22.9
219	25,100	33,800	37,800	32,233	
19	177,600	221,000	219,600	206,067	
	202,700	254,800	257,400	238,300	58.8
1	9,300	13,600	12,500	11,800	
85	59,200	66,200	59,200	61,533	
10	217,400	234,300	202,200	217,967	
11	146,600	152,800	152,700	150,700	
215	166,100	119,800	1,900	95,933	
216	7,000	7,200	7,700	7,300	
222	200	300	4,000	1,500	
	605,800	594,200	440,200	546,733	
218	73,100	96,500	112,000	93,867	
14	34,500	51,100	42,600	42,733	
17	0	0	0	0	
	107,600	147,600	154,600	136,600	33.7
6	112,900	143,300	134,600	130,267	
92	3,700	5,000	4,400	4,367	
212	5,400	6,500	5,300	5,733	
228	82,100	120,100	91,600	97,933	
	204,100	274,900	235,900	238,300	58.8
252	1500	1,100	1,800	1,467	
253	5500	700	400	2,200	
254	19900	15,700	18,700	18,100	
255	57200	46,900	44,400	49,500	
256	69500	56,100	45,100	56,900	
	153600	120500	110400	128,167	
278	298400	301,600	280,600	280,600	
279	75100	90,700	84,400	84,400	
	373,500	392,300	365,000	376,933	93.1
285	2600	5,800	6,000	4,800	

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Hotel Accounts**

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Equivalent Dwelling Unit
286	79900	87,200	90,700	85,933	
	82,500	93,000	96,700	90,733	22.4
291	53000	120,800	121,400	98,400	
292	13100	33,400	43,700	30,067	
293	1400	4,600	3,500	3,167	
	67,500	158,800	168,600	131,633	32.5

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Restaurant Accounts**

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Equivalent Dwelling Unit
5	35,100	38,000	35,500	36,200	8.9
12	74,700	76,700	78,700	76,700	18.9
18	70,100	90,200	80,500	80,267	19.8
22	29,900	23,800	16,900	23,533	5.8
61	10,500	9,400	8,500	9,467	2.3
78	17,400	19,400	20,300	19,033	4.7
	237,700	257,500	240,400	245,200	

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Commercial Accounts**

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Equivalent Dwelling Unit
7	3,100	2,800	1,300	2,400	0.6
8	28,700	23,000	36,800	29,500	7.3
33	3,100	3,100	3,000	3,067	0.8
38	8,000	8,600	6,600	7,733	1.9
213	1,200	1,400	1,200	1,267	0.3
	44,100	38,900	48,900	43,967	

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Irrigation Accounts**

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Equivalent Dwelling Unit
60	12,100	18,300	12,200	14,200	3.5
73	370	320	350	347	0.1
84	500	800	1,000	767	0.2
124	8,800	9,800	7,100	8,567	2.1
126	9,800	14,500	15,500	13,267	3.3
131	3,100	3,700	3,400	3,400	0.8
133	1,300	1,100	1,200	1,200	0.3
160	2,200	1,900	2,300	2,133	0.5
171	400	400	300	367	0.1
177	7,700	6,400	6,500	6,867	1.7
194	2,300	1,900	3,900	2,700	0.7
289	0	100	200	150	0.0
	48,570	59,220	53,950	53,913	

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Residential and Multifamily**

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Adjusted 3 Year Baseline Average
15	2,500	2,600	2,300	2,467	2,467
25	10,811	6,922	9,740	9,158	9,158
31	1,600	2,100	1,900	1,867	1,867
40	2,500	2,600	2,600	2,567	2,567
41	4,500	3,800	3,600	3,967	3,967
46	2,900	1,500	100	1,500	2,200
49	2,100	2,400	900	1,800	2,250
58	2,800	2,000	2,000	2,267	2,267
59	2,600	6,800	7,000	5,467	6,900
66	6,400	5,000	0	3,800	5,700
70	6,300	5,200	4,700	5,400	5,400
72	4,400	4,700	4,700	4,600	4,600
74	3,500	3,300	4,400	3,733	3,733
82	2,400	2,400	3,000	2,600	2,600
88	2,000	5,100	3,200	3,433	2,600
94	3,400	1,400	2,800	2,533	3,100
95	7,900	4,600	3,400	5,300	4,000
97	2,700	2,500	2,500	2,567	2,567
98	4,000	3,300	3,800	3,700	3,700
103	2,100	2,400	3,400	2,633	2,633
107	3,700	3,300	3,000	3,333	3,333
109	3,100	3,700	3,400	3,400	3,400
110	4,500	4,600	5,000	4,700	4,700
119	2,400	3,600	2,800	2,933	2,933
120	5,800	6,300	6,000	6,033	6,033
122	6,000	5,200	5,400	5,533	5,533
123	3,400	4,200	4,000	3,867	3,867
127	3,300	5,100	1,600	3,333	4,200
128	3,600	2,300	3,200	3,033	3,033
130	2,700	2,000	1,500	2,067	2,067
134	2,100	2,400	2,100	2,200	2,200
139	7,300	5,700	6,800	6,600	6,600
146	3,200	2,600	2,000	2,600	2,600
150	1,900	1,500	2,700	2,033	2,033
151	5,500	5,900	5,300	5,567	5,567
152	2,500	2,200	2,600	2,433	2,433
154	2,900	3,500	3,600	3,333	3,333
158	2,000	2,200	2,100	2,100	2,100
174	4,100	3,800	4,400	4,100	4,100
178	3,700	3,800	3,600	3,700	3,700
187	8,700	8,800	8,500	8,667	8,667
188	4,400	4,000	4,200	4,200	4,200

**San Simeon Community Services District
Water Usage Account Summary
Equivalent Dwelling Unit Calculation
Residential and Multifamily**

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Adjusted 3 Year Baseline Average
189	1,600	2,500	1,900	2,000	2,000
197	6,400	10,900	5,100	7,467	5,750
200	10,900	11,300	9,100	10,433	10,433
201	2,800	4,800	4,200	3,933	3,933
204	3,300	3,400	2,800	3,167	3,167
209	2,500	2,600	2,700	2,600	2,600
240	2,100	2,100	2,200	2,133	2,133
243	2,400	2,700	2,200	2,433	2,433
250	4000	6,300	6,300	5,533	5,533
257	8900	9,600	7,800	8,767	8,767
269	2600	2,700	2,400	2,567	2,567
271	7200	8,300	7,100	7,533	7,533
272	2400	2,700	1,900	2,333	2,333
287	2700	2,300	1,500	2,167	2,167
288	2900	3,600	3,900	3,467	3,467
294	2700	6,900	6,800	5,467	6,850
298	1500	6,500	6,300	4,767	6,400
	224,040	246,522	224,040	231,534	238,974
				Equivalent Dwelling Unit	4050

ACCT #	2010-2011 Total Usage	2011-2012 Total Usage	2012-2013 Total Usage	3 YEAR BASE LINE AVG.	Equivalent Dwelling Unit
16	0	93,000	115,100	69,367	17.1
217	2,400	300	300	1,000	0.2
26	11,100	56,900	60,200	42,733	10.6
221	6,400	300	300	2,333	0.6
27	18,200	17,800	15,900	17,300	4.3
28	29,900	11,100	10,900	17,300	4.3
29	1,600	20,200	20,800	14,200	3.5
30	100	30,300	17,200	15,867	3.9
37	1,100	25,000	20,000	15,367	3.8