

QUESTION 17 – WATER SUPPLY

NOTE: The information contained in the responses to Question 17 is for the entire Area 6 property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

Lee County:	
Adopted Level of Service Standard:	250 gpd / ERC
Existing Level of Service:	0 gpd / ERC
Level of Service After Project Buildout:	225 gpd / ERC *

*Lower than Lee County adopted level of service standard due to proposed water conservation practices and technology, and to achieve consistency with Charlotte County level of service after project buildout.

Charlotte County:	
Adopted Level of Service Standard:	190 gpd / ERC
Existing Level of Service:	0 gpd / ERC
Level of Service After Project Buildout:	225 gpd / ERC

- A.1. Provide a projection of the average daily potable and non-potable water demands at the end of each phase of development. If significant seasonal demand variations will occur, discuss anticipated peaks and duration. Use the format below:**

Table 17-1, Potable and Non-Potable Water Demand, is a projection of the average daily potable and non-potable water demands for the project. It is not anticipated that significant seasonal demand variations will occur on the potable water system. Non-potable demands (i.e. irrigation) vary seasonally due to climatic conditions with peak demand typically occurring in March April, and May.

**Table 17-1
Potable and Non-Potable Water Demands**

Phase / Land Use	Potable Water Demand (mgd)	Non-Potable Water Demand (mgd)	Total Water Demand (mgd)
Existing			
Agriculture	0.003	9.025	9.028
Single Family	0.000	0.000	0.000
Multi-Family	0.000	0.000	0.000
Retail	0.000	0.000	0.000
Office	0.000	0.000	0.000
Medical Office	0.000	0.000	0.000
Industrial	0.000	0.000	0.000
Golf Course	0.000	0.000	0.000
Hotel	0.000	0.000	0.000
Schools	0.000	0.000	0.000
Churches	0.000	0.000	0.000
Parks	0.000	0.000	0.000
Hospital	0.000	0.000	0.000
Assisted Care Living Facility	0.000	0.000	0.000
Civic Uses	0.000	0.000	0.000
Existing Total	0.003	9.025	9.028

Phase / Land Use	Potable Water Demand (mgd)	Non-Potable Water Demand (mgd)	Total Water Demand (mgd)
Phase 1			
Agriculture	0.003	8.172	8.175
Single Family	0.585	0.803	1.388
Multi-Family	0.315	0.432	0.747
Retail	0.069	0.095	0.164
Office	0.029	0.040	0.069
Medical Office	0.000	0.000	0.000
Industrial	0.010	0.014	0.024
Golf Course	0.000	0.000	0.000
Hotel	0.025	0.034	0.059
Schools	0.023	0.031	0.054
Churches	0.002	0.003	0.005
Parks	0.016	0.022	0.038
Hospital	0.000	0.000	0.000
Assisted Care Living Facility	0.000	0.000	0.000
Civic Uses	0.016	0.022	0.038
Phase 1 Total	1.093	9.668	10.760

Phase / Land Use	Potable Water Demand (mgd)	Non-Potable Water Demand (mgd)	Total Water Demand (mgd)
Phase 1 & 2			
Agriculture	0.003	7.543	7.546
Single Family	1.460	1.212	2.672
Multi-Family	0.786	0.653	1.439
Retail	0.152	0.126	0.278
Office	0.076	0.063	0.138
Medical Office	0.040	0.033	0.073
Industrial	0.040	0.033	0.073
Golf Course	0.018	2.000	2.018
Hotel	0.112	0.093	0.206
Schools	0.057	0.047	0.104
Churches	0.012	0.010	0.022
Parks	0.039	0.032	0.071
Hospital	0.044	0.037	0.081
Assisted Care Living Facility	0.084	0.069	0.153
Civic Uses	0.022	0.018	0.040
Phase 1 & 2 Total	2.945	11.971	14.915

Phase / Land Use	Potable Water Demand (mgd)	Non-Potable Water Demand (mgd)	Total Water Demand (mgd)
Phase 1, 2 & 3			
Agriculture	0.003	7.054	7.057
Single Family	2.165	1.733	3.898
Multi-Family	1.154	0.923	2.077
Retail	0.561	0.449	1.010
Office	0.275	0.220	0.495
Medical Office	0.100	0.080	0.180
Industrial	0.133	0.106	0.239
Golf Course	0.027	3.000	3.027
Hotel	0.150	0.120	0.270
Schools	0.090	0.072	0.162
Churches	0.021	0.017	0.038
Parks	0.053	0.042	0.095
Hospital	0.044	0.035	0.080
Assisted Care Living Facility	0.084	0.067	0.151
Civic Uses	0.028	0.022	0.050
Phase 1, 2 & 3 Total	4.888	13.942	18.829

Phase / Land Use	Potable Water Demand (mgd)	Non-Potable Water Demand (mgd)	Total Water Demand (mgd)
Phase 1, 2, 3 & 4			
Agriculture	0.000	5.229	5.229
Single Family	2.658	3.059	5.717
Multi-Family	1.407	1.619	3.026
Retail	0.585	0.673	1.258
Office	0.280	0.322	0.602
Medical Office	0.100	0.115	0.215
Industrial	0.133	0.153	0.286
Golf Course	0.027	3.000	3.027
Hotel	0.150	0.173	0.323
Schools	0.111	0.128	0.239
Churches	0.024	0.028	0.052
Parks	0.060	0.069	0.129
Hospital	0.044	0.051	0.095
Assisted Care Living Facility	0.084	0.096	0.180
Civic Uses	0.030	0.035	0.065
Phase 1, 2, 3 & 4 Total	5.694	14.749	20.443

A.2. Describe how this demand information was generated, including the identification of the consumption rates assumed in the analysis.

The potable water demands were based on the following water usage for each demand type and their respective quantities, as shown in the table below.

**Table 17-2
Potable Water Demand and Demand Type Quantities**

Type	Water Usage	Phase 1 Qty.	Phase 2 Qty.	Phase 3 Qty.	Phase 4 Qty.	Total Qty.
Single Family (units)	225 gpd per unit	2,599	6,490	9,624	11,816	11,816
Multi-Family (units)	225 gpd per unit	1,399	3,494	5,128	6,254	6,254
Retail (feet ²)	0.2 gpd per feet ²	344,640	758,280	2,804,903	2,925,943	2,925,943
Office (feet ²)	0.2 gpd per feet ²	146,160	377,860	1,374,740	1,400,000	1,400,000
Medical Office (feet ²)	0.2 gpd per feet ²	0	200,000	500,000	500,000	500,000
Industrial (feet ²)	0.2 gpd per feet ²	50,000	200,000	664,057	664,057	664,057
Golf Course (feet ²)	500 gpd per golf hole	0	36	54	54	54
Hotel (feet ²)	0.42 gpd per feet ²	60,000	270,000	360,000	360,000	360,000
Schools (students)	22 gpd per student	1,036	2,587	4,089	5,053	5,053
Churches (feet ²)	0.2 gpd per feet ²	10,000	60,000	105,000	120,000	120,000
Parks (acres)	200 gpd per acre	80	195	265	300	300
Hospital (feet ²)	250 gpd per bed	0	177	177	177	177
Assisted Care Living Facility (units)	200 gpd per unit	0	418	418	418	418
Civic Uses (feet ²)	0.2 gpd per feet ²	80,000	110,000	140,000	150,000	150,000

The potable water usage for each demand type was based on the Charlotte County Code, Section 3-8-46 and the Florida Administrative Code, Chapter 64E-6.008.

The total non-potable (irrigation) water use demand was estimated using acreages for each land use category and estimates of irrigated acreage per land use category. The percentages of irrigated area are based on experience with similar sites in southwest Florida. Once the total irrigated acreage for each land use category was estimated, the modified Blaney-Criddle Irrigation Model (used by the SFWMD to permit irrigation allocations) was used to estimate the total annual demand under 1-in-10 drought conditions. It should be noted that the site currently has an existing agricultural operation in place, and a portion of the agricultural land will be taken out of operation as the site is developed.

- B. Provide a breakdown of sources of water supply, both potable and non-potable, by development phase through project completion. Use the format below.**

**Table 17-3
Potable/Non-Potable Water Supply (MGD)**

Phase 1 ¹	On-Site Supply (in million gallons per day)				Off-Site Supply
	Groundwater	Surface Water ²	Other (Reclaimed)	Total	
Potable ³	1.61	0	0	1.61	N/A
Landscape Irrigation	0.90	0.90	0.60	1.50	N/A
Ag Irrigation ⁴	8.17	0	0	8.17	N/A
Other (Mine)	0.003	0.86	0	0.863	N/A
Total	10.68	1.76	0.6	12.14	

Phase 2 ¹	On-Site Supply (in million gallons per day)				Off-Site Supply
	Groundwater	Surface Water ²	Other (Reclaimed)	Total	
Potable ³	4.33	0	0	4.33	N/A
Landscape Irrigation	2.37	2.37	2.06	4.43	N/A
Ag Irrigation ⁴	7.54	0	0	7.54	N/A
Other (Mine)	0.003	0.86	0	0.863	N/A
Total	14.24	3.23	2.06	17.16	

Phase 3 ¹	On-Site Supply (in million gallons per day)				Off-Site Supply
	Groundwater	Surface Water ²	Other (Reclaimed)	Total	
Potable ³	7.19	0	0	7.19	N/A
Landscape Irrigation	3.11	3.11	3.78	6.89	N/A
Ag Irrigation ⁴	7.05	0	0	7.05	N/A
Other (Mine)	0.003	0.86	0	0.863	N/A
Total	17.35	3.97	3.78	22.00	

Phase 4 ¹	On-Site Supply (in million gallons per day)				Off-Site Supply
	Groundwater	Surface Water ²	Other (Reclaimed)	Total	
Potable ³	8.37	0	0	8.37	N/A
Landscape Irrigation	5.01	5.01	4.51	9.52	N/A
Ag Irrigation ⁴	5.23	0	0	5.23	N/A
Other (Mine)	0	0	0	0	N/A
Total	18.61	5.01	4.51	23.12	

¹ Volumes represent usage at the **end** of each phase listed above.

² Landscape irrigation will involve supplementing surface water (lake) withdrawals with groundwater on a 1-to-1 ratio, resulting in little to no net consumption of surface water. As such, surface water withdrawals have not been included in the total water supply volume per phase.

³ Potable supply groundwater volume assumes 68% supply system efficiency (treatment & distribution losses).

⁴ Agricultural irrigation volume assumes crop rotation system utilizing approximately 25% of existing acreage annually for row crop, and 320 acres for nursery stock and 780 acres for turf annually.

- C. If water wells exist on-site, locate them on Map H and specify those that will continue to be used. Also locate on Map H all proposed on-site wells. (For residential developments, if individual wells for each lot are proposed, simply indicate the number of units to be served, general locations, and any plans for eventual phase-out). Indicate the diameter, depth, and pumping rates (average and maximum) for each of the existing wells and project this information for the proposed wells (for lots served by individual wells, this information may be grouped for projection purposes). Also provide a breakdown of the wells with regard to potable and non-potable sources.**

Please see attached maps and tables for existing and proposed wells. Existing agricultural irrigation wells will be evaluated on a case by case basis to determine whether to retain the existing well or drill a similar replacement well in a more suitable location. The map and table for existing facilities assume all existing agricultural wells will remain as-is until further notice. Due to crop rotation schedules, not all existing agricultural irrigation wells will be used simultaneously in any given year. Please note that some existing wells will be phased out of use as the residential development expands. The phase during which use of each existing facility will cease has been listed on the table provided.

Existing Wells

Well Name	Casing Diam. (inch)	Total Depth (ft bls)	Cased Depth (ft bls)	Use Type	Max. Pump Rate (gpm)	Ave. Pump Rate (gpm)	Source	Phase Use Ending
JE-571	6	45.4	44.9	Ag Irrigation	700	525	Surficial aquifer	4
JE-572	6	20.9	19.8	Ag Irrigation	700	525	Surficial aquifer	4
JE-573	6	52.2	48.0	Ag Irrigation	700	525	Surficial aquifer	4
JE-574	6	45.9	42.8	Ag Irrigation	700	525	Surficial aquifer	4
JE-575	0	42.1	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-576	6	18.8	18.2	Ag Irrigation	700	525	Surficial aquifer	2
JE-577	6	24.8	23.2	Ag Irrigation	700	525	Surficial aquifer	2
JE-578	6	24.6	22.9	Ag Irrigation	700	525	Surficial aquifer	2
JE-579	2	Unknown	Unknown	Stock	50	38	Surficial aquifer	2
JE-592	6	24.9	24.4	Ag Irrigation	700	525	Surficial aquifer	4
JE-593	8	31.0	19.7	Ag Irrigation	700	525	Surficial aquifer	4
JE-594	8	Unkown	18.5	Ag Irrigation	700	525	Surficial aquifer	4
JE-595	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-596	6	23.7	22.9	Ag Irrigation	700	525	Surficial aquifer	4
JE-597	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-598	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-599	8	15.6	14.5	Ag Irrigation	700	525	Surficial aquifer	4
JE-628	10	Unkown	Unknown	Ag Irrigation	848	636	Surficial aquifer	4
JE-629	8	Unkown	Unknown	Ag Irrigation	525	394	Surficial aquifer	4
JE-630	10	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-635	8	Unkown	Unknown	Ag Irrigation	746	560	Surficial aquifer	4
JE-636	6	22.7	22.2	Ag Irrigation	700	525	Surficial aquifer	4
JE-638	4	Unkown	Unknown	Domestic	1,800 gpd	1,000 gpd	Surficial aquifer	None
JE-639	8	167.1	81.0	Ag Irrigation	700	525	Sandstone aquifer	2
JE-640	2	3.2	Unknown	Ag Irrigation	700	525	Sandstone aquifer	4
JE-641	8	28.8	23.9	Ag Irrigation	700	525	Surficial aquifer	2
JE-643	6	21.3	19.2	Ag Irrigation	700	525	Surficial aquifer	2
JE-644	6	20.9	20.4	Ag Irrigation	700	525	Surficial aquifer	2
JE-645	6	23.8	6.0	Ag Irrigation	700	525	Surficial aquifer	2
JE-646	10	24.4	23.7	Ag Irrigation	700	525	Surficial aquifer	1
JE-649	6	22.6	20.2	Ag Irrigation	700	525	Surficial aquifer	4
JE-650	2	Unkown	Unknown	Stock	50	38	Surficial aquifer	4
JE-651	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-652	2	1.4	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-653	6	19.7	17.2	Ag Irrigation	700	525	Surficial aquifer	4
JE-654	6	20.5	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-655	6	22.3	20.9	Ag Irrigation	700	525	Surficial aquifer	4
JE-656	8	25.8	13.2	Ag Irrigation	700	525	Surficial aquifer	4
JE-657	6	29.9	21.1	Ag Irrigation	700	525	Surficial aquifer	1
JE-658	6	21.8	19.9	Ag Irrigation	700	525	Surficial aquifer	3
JE-659	8	90.7	13.6	Ag Irrigation	700	525	Surficial aquifer	3
JE-660	8	83.3	Unknown	Ag Irrigation	700	525	Sandstone aquifer	4
JE-661	8	94.4	16.8	Ag Irrigation	700	525	Surficial aquifer	4
JE-662	6	22.9	20.5	Ag Irrigation	700	525	Surficial aquifer	1
JE-667	2	Unkown	Unknown	Stock	50	38	Surficial aquifer	1
JE-668	8	22.1	17.2	Ag Irrigation	700	525	Surficial aquifer	1
JE-669	6	Unkown	Unknown	Stock	50	38	Surficial aquifer	1
JE-670	8	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	1
JE-671	6	24.2	20.9	Ag Irrigation	700	525	Surficial aquifer	1
JE-672	8	20.1	15.5	Ag Irrigation	700	525	Surficial aquifer	1
JE-678	2	Unkown	Unknown	Stock	50	38	Surficial aquifer	4
JE-679	6	21.5	19.0	Ag Irrigation	700	525	Surficial aquifer	2
JE-680	6	49.1	30.9	Ag Irrigation	700	525	Surficial aquifer	3
JE-681	8	184.0	68.4	Ag Irrigation	700	525	Sandstone aquifer	4

Well Name	Casing Diam. (inch)	Total Depth (ft bls)	Cased Depth (ft bls)	Use Type	Max. Pump Rate (gpm)	Ave. Pump Rate (gpm)	Source	Phase Use Ending
JE-684	6	20.8	20.4	Ag Irrigation	700	525	Surficial aquifer	1
JE-685	8	176.4	14.4	Ag Irrigation	700	525	Sandstone aquifer	3
JE-686	8	95.7	29.6	Ag Irrigation	700	525	Surficial aquifer	4
JE-696	8	20.3	15.7	Ag Irrigation	700	525	Surficial aquifer	1
JE-697	6	20.4	20.2	Ag Irrigation	700	525	Surficial aquifer	1
JE-698	4	161.2	89.8	Packing house	250	188	Sandstone aquifer	3
JE-699	6	23.0	21.4	Ag Irrigation	700	525	Surficial aquifer	4
JE-700	12	86.8	38.5	Ag Irrigation	700	525	Surficial aquifer	4
JE-769	8	28.0	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-770	6	Unkown	30.4	Ag Irrigation	700	525	Surficial aquifer	4
JE-771	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-774	8	26.0	19.3	Ag Irrigation	700	525	Surficial aquifer	4
JE-780	8	33.5	26.6	Ag Irrigation	700	525	Surficial aquifer	2
JE-785	10	210.6	188.7	Ag Irrigation	1,074	806	Sandstone aquifer	4
JE-788	6	19.0	16.9	Ag Irrigation	700	525	Surficial aquifer	4
JE-791	6	106.1	25.8	Ag Irrigation	700	525	Sandstone aquifer	3
JE-792	6	141.6	Unknown	Ag Irrigation	700	525	Sandstone aquifer	3
JE-799	6	21.9	18.8	Ag Irrigation	700	525	Surficial aquifer	2
JE-800	8	222.7	70.7	Ag Irrigation	700	525	Sandstone aquifer	3
JE-801	10	323.3	Unknown	Ag Irrigation	865	649	Sandstone aquifer	2
JE-802	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-803	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	2
JE-804	4	Unkown	Unknown	Domestic	125 gpd	150 gpd	Sandstone aquifer	1
JE-805	6	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-806	8	13.8	8.4	Ag Irrigation	700	525	Surficial aquifer	4
JE-807	0	Unkown	Unknown	Monitor	0	0		1
JE-808	0	215.8	141.1	Monitor	0	0	Sandstone aquifer	1
JE-809	4	30.4	13.3	Monitor	0	0	Surficial aquifer	4
JE-810	4	22.0	18.5	Monitor	0	0	Surficial aquifer	3
JE-811	4	31.5	Unknown	Monitor	0	0	Surficial aquifer	3
JE-812	4	179.0	99.7	Monitor	0	0	Sandstone aquifer	3
JE-818	4	60.0	37.0	Potable	35	26	Surficial aquifer	4
JE-819	4	60.0	37.0	Potable	35	26	Surficial aquifer	4
JE-820	4	150.0	80.0	Potable	35	26	Sandstone aquifer	4
JE-821	4	Unkown	Unknown	Monitor	0	0		4
JE-822	4	Unkown	Unknown	Ag Irrigation	706	530	Surficial aquifer	4
JE-823	0	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-825	3	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-826	3	Unkown	Unknown	Ag Irrigation	700	525	Surficial aquifer	4
JE-827	8	35.8	33.5	Ag Irrigation	700	525	Surficial aquifer	4

** Ag well use based on crop rotation schedule;not all ag wells used simulataneously

Table 17-4: Existing wells

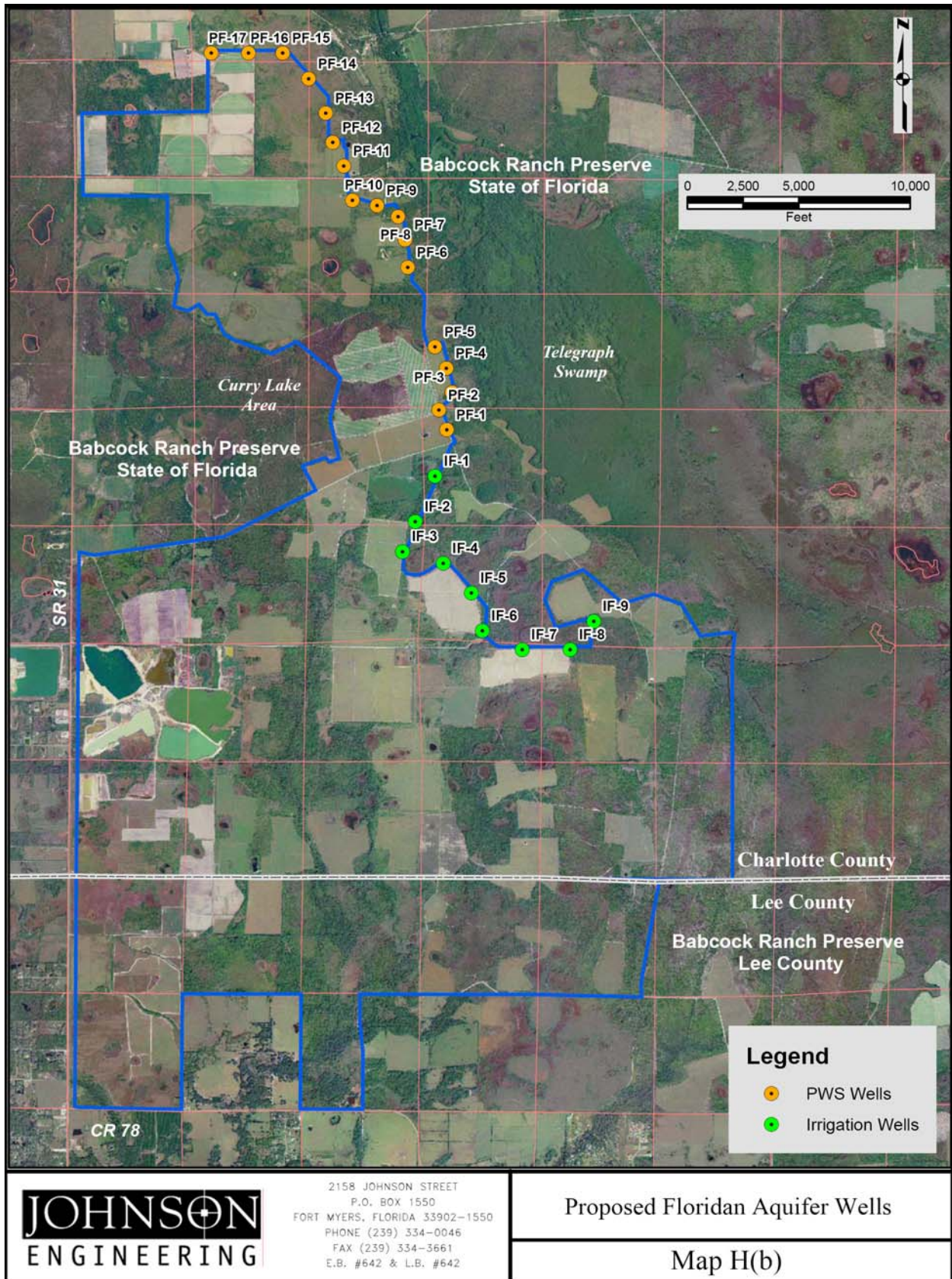


Figure 17-2: Map H(b) Proposed well locations

Proposed Wells

Well Name	Casing Diam. (inch)	Total Depth (ft bls)	Cased Depth (ft bls)	Use Type	Max. Pump Rate (gpm)	Ave. Pump Rate (gpm)	Source
PF-1	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-2	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-3	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-4	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-5	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-6	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-7	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-8	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-9	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-10	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-11	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-12	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-13	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-14	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-15	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-16	12	800	500	Potable Supply	400	300	Floridan aquifer
PF-17	12	800	500	Potable Supply	400	300	Floridan aquifer
IF-1	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-2	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-3	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-4	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-5	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-6	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-7	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-8	12	800	500	Landscape Irrigation	700	525	Floridan aquifer
IF-9	12	800	500	Landscape Irrigation	700	525	Floridan aquifer

**Pumping rates and facilities based on anticipated usage at build-out or maximum demand

Table 17-5: Proposed wells

D. If on-site water wells are used, will this result in interference with other water wells of result in adverse impacts to underlying or overlying aquifers? Document the assumptions underlying this response.

The project will withdraw both irrigation and potable water from the Floridan aquifer, a deep brackish source not utilized in the vicinity of the proposed wellfields by existing permitted users other than Babcock Florida Company (or the designated permittee on SFWMD WUP #08-00002-W). Most existing users in the area rely on the shallower and fresher surficial or Sandstone aquifers for domestic or irrigation supply. Due to the presence of greater than 100 feet of confining material separating the Floridan aquifer from these shallower groundwater sources, the potential for adverse impacts to these freshwater resources and their users is considered minimal.

Irrigation withdrawals from groundwater have been permitted on the project site since the early 1980s. At build-out in 2030, the project would require a maximum daily raw water allocation for potable supply of 8.37 MGD, which will be supplied by 17 Floridan aquifer production wells (PF-1 to PF-17). The maximum amount of irrigation water the project will ever require from groundwater amounts to approximately 11 MGD, which will be withdrawn from 9 Floridan aquifer wells (IF-1 to IF-9). Data recorded by USGS monitor well L-2328, west of the project at SR-31, show Floridan aquifer water levels have ranged between 46.1 and 54.7 feet-NGVD for the period of record from 1984 to 2006. Water level data collected at ROMP-5, located 6.4 miles northwest of the project site, show water levels ranging between 47.4 and 52.4 feet-NGVD for the period of record from 2001 to 2006. These water levels reflect historical water uses in the region, including PWS withdrawals by the City of Cape Coral, Lee County Utilities and the City of Fort Myers.

Johnson Engineering conducted an aquifer testing program that included the Floridan aquifer at the project site in 2001 and in 2006. This investigation revealed that the top of the Floridan aquifer occurs at approximately 500 feet below land surface (bls) at the project site. The aquifer consists of porous fractured and faulted limestone and dolostone formations, with some interbedded marl present in the uppermost Lower Hawthorn unit. Approximately 50 to 100 feet of interbedded marl, clay and limestone stringers separate the Lower Hawthorn from the overlying Mid-Hawthorn aquifer. Monitor data from ROMP-5 show that the Lower Hawthorn aquifer and Suwannee aquifer are hydraulically connected. The aquifer generally displays greater productivity in the northern portion of the project site, as well as fresher water quality.

A single-layer WINFLOW model was used to evaluate potential drawdown due to Floridan aquifer PWS and irrigation withdrawals for the project at build-out. The model simulated maximum daily withdrawals of 9.9 MGD from 17 Floridan aquifer potable supply wells (582,400 GPD per well) and 11 MGD from 9 Floridan aquifer irrigation wells (1.22 MGD per well) for 90 days without recharge. The model used aquifer parameter values based on results from 72-hour constant rate pump tests conducted on two Floridan aquifer test wells near the proposed wellfield site and those reported in other publications for APTs conducted in the area. The model used hydraulic parameters for the Floridan aquifer as follows: transmissivity = 1,500 ft²/day; storage coefficient = 5e⁻⁴; leakance = 5e⁻⁴/day (B = 2,236 ft). Figure 17-3 of the predicted drawdown in the Floridan aquifer is included.

Model results indicate that the 1-foot drawdown contour does not intersect any other users of the Floridan aquifer in the area. The nearest existing legal users should experience less than one one-hundredth (0.01) of a foot of drawdown due to the proposed withdrawals. Based on the lowest recorded water level of 46.1 feet, NGVD measured at L-2328 and a top of aquifer depth of -475 feet, NGVD, 448 feet of potentiometric head will remain above the top of the aquifer.

This model, based on SFWMD water use permitting criteria, represents an extremely conservative scenario unlikely to occur in practice; nevertheless, the results should provide regulators with adequate assurances that no adverse impacts will occur to either the resource or legal existing users.

Based on the available water level monitoring data collected over the past 25 years and the assessment described above, the proposed PWS and irrigation withdrawals should not adversely impact water levels in the area.

The agricultural operations currently withdraw groundwater primarily from the surficial and Sandstone aquifers. As the project progresses by phase, the expansion of residential development at the expense of the agricultural land uses will reduce the total historical consumption of groundwater from these shallow aquifers by nearly 3 MGD. The shift to deeper groundwater sources to serve the residential development will minimize the potential for impacts to the water resources, wetlands, and the users of the shallow and intermediate aquifer systems in the vicinity of the project.

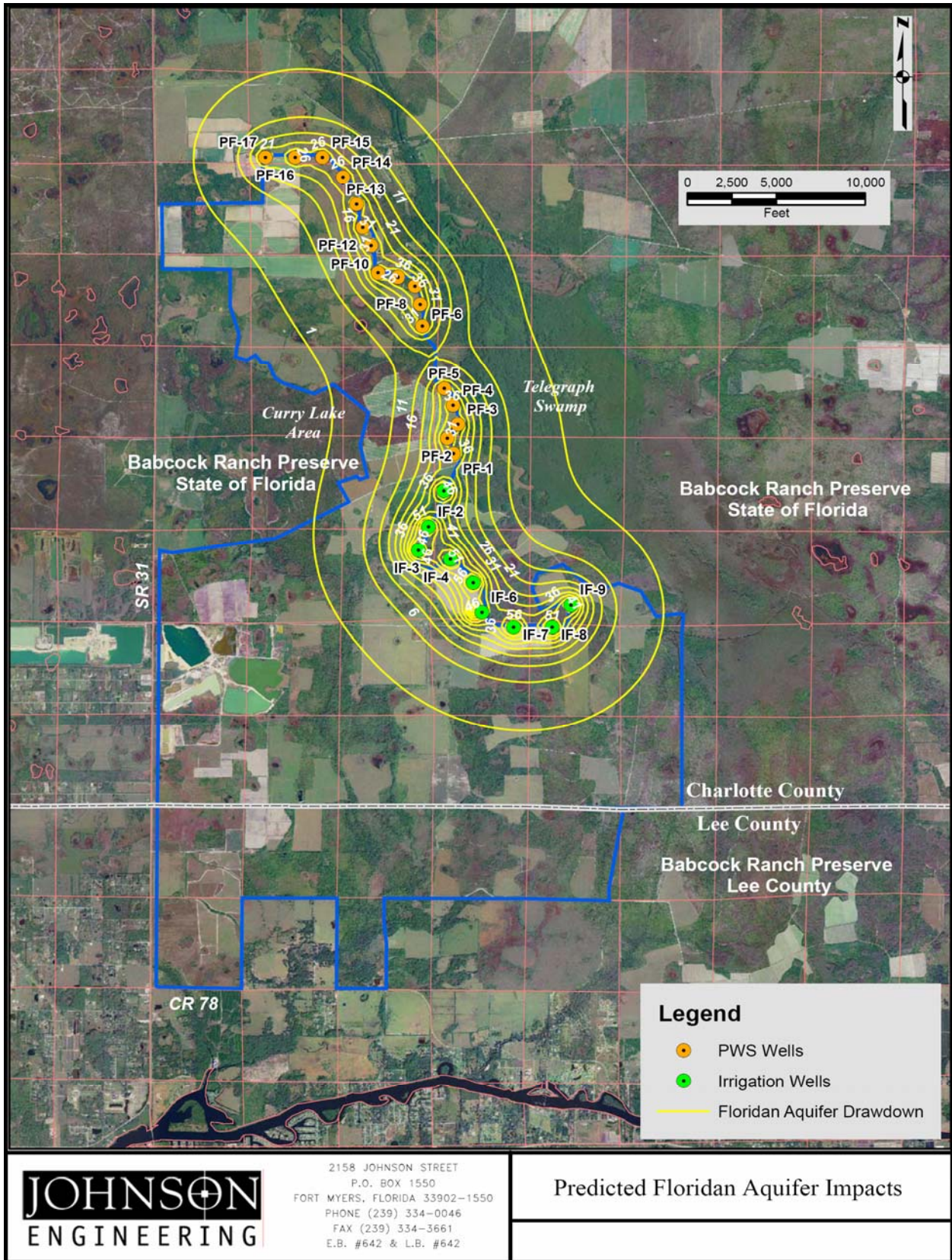


Figure 17-3: Modeled Floridan aquifer drawdown from proposed withdrawals

E. Who will operate and maintain the internal water supply system after completion of the development?

Following completion, the internal water supply system will be operated and maintained by Town and County Utilities Company and/or a dedicated entity, such as a homeowner's association or a community development district.

F. 1. If an off-site water supply is planned, attach a letter from the agency or firm providing service outlining:

- (a) the projected excess capacities of the water supply facilities to which connection will be made at present and for each phase through completion of the project,**
- (b) any other commitments that have been made for this excess capacity,**
- (c) a statement of the agency or firm's ability to provide services at all times during and after development. (This agency must be supplied with the water demand and supply tables in paragraph A and B above).**

No off-site water supply is planned for this project.

2. If service cannot be provided at all times during and after development, identify the required capital improvements, timing, cost, and proposed responsible entity for each phase in which service is unavailable.

No off-site water supply is planned for this project.

G. Please describe any water conservation methods or devices incorporated into the plan of development. What percentage of reduction is anticipated over conventional plans?

The project will implement water conservation plans for both potable and irrigation supply, per South Florida Water Management District (SFWMD) rules. The plans will include best management practices and commonly accepted, SFWMD-approved water conservation techniques, including the use of reclaimed water for irrigation and low flow fixtures. The project will begin implementing elements of these plans upon commencement of service. The plans described below may reduce water use by approximately 20 to 25% over conventional plans. On average, the use of reclaimed water alone will reduce the required irrigation allocation from traditional groundwater and surface water sources by more than 45% at build-out.

Potable Supply

Low Flow Fixtures: Ultra-low volume plumbing fixtures will be installed in all new homes and businesses. The plumbing fixtures will comply with the following maximum flow volumes at 80 psi:
Toilets: 1.6 gallons per flush
Shower heads: 2.5 gallons per minute
Faucets: 2.0 gallons per minute

- Rate Structures:** Customer billing will be based on the use of water conservation-based rate structures. The rate structure will incorporate at least one or more of the following: increasing block rates, seasonal rates, quantity based surcharges, and/or time of day pricing.
- Leak Detection:** The utility will implement leak detection programs in the event water losses exceed 10 percent. Reports of water leaks will be directed to personnel during working hours. Site tours and routine maintenance personnel trips along water supply and distribution lines will also be conducted. On a monthly basis, metered usage will be compared to the master potable supply meter reading.
- Public Education:** The utility will implement public education programs, including, but not limited to, distribution of literature to households describing water conservation practices.
- Plan Review:** The Water Conservation Plan will be reviewed by developer or its appropriate designee or successor on an annual basis and will have changes incorporated in the plan at that time.

Irrigation Supply

- Drought-Tolerant Landscaping:** The use of drought-tolerant landscaping and xeriscape principles will be incorporated as practicable throughout the project site.
- Irrigation Times and Days:** Landscape irrigation times will be restricted to the hours between 5:00 p.m. and 9:00 a.m. and will not occur more often than three days per week, as allowed under the SFWMD Mandatory Year-Round Landscape Irrigation Measures for Lee, Collier and Charlotte Counties (40E-24 F.A.C.).
- Reuse Water:** The project will utilize all available reclaimed water generated by the wastewater treatment plant to the greatest extent feasible. This will constitute the primary irrigation source, and traditional sources, including groundwater, will serve as secondary irrigation sources during times when irrigation demand exceeds reclaimed water availability.
- Leak Detection Program:** Reports of water leaks will be directed to personnel during business hours. Site tours and routine maintenance personnel trips along water supply and distribution lines will also be conducted. On a monthly basis, customer metered usage will be compared to the master meter reading.
- Irrigation System Design:** Rain sensors are required for developments within the project site in order to prevent irrigation during rainfall events. A rain gauge will be read, maintained and utilized to

aid in determining residential irrigation requirements. The project will install a sprinkler system activated by moisture sensors in the ground.

Plan Review and Updating:

The Water Conservation Plan will be reviewed by the management on an annual basis and will have changes incorporated in the plan at that time.

H. Indicate whether proposed water service will be provided within an established service area boundary.

The project is located within the service boundary of Town and Country Utilities Company, the anticipated service provider. Upon the conveyance of the Preserve lands to the State of Florida and Lee County, Florida, the service area of the Town and Country Utility Company was constricted to those lands comprising the Babcock Ranch Community only. Therefore, the service area of the utility and of the community are one and the same.

SFWMD DRI Addendum Questions:

- 1. With regard to existing public utilities, the applicant should provide a projection of average daily potable demands, by phase. The source (utility) should be specified and a commitment should be provided which specifies: the current pumpage, the current commitments and the excess capacity (in MGD).**

Town and Country Utilities, a wholly owned subsidiary of the Babcock Florida Company, is an existing utility regulated by the Florida Public Service Commission (PSC) that will supply potable water service to the project. Please refer to the response to question 17-A.2 of the DRI application for potable water demands by use type, and to the tables associated with the response to question 17-A.1 for potable demands by phase. The utility currently has no commitments other than those associated with the project. The utility will specifically design its water supply system to meet the project requirements.

- 2. If wells are to be used (existing or new), on-site or off-site (but not as part of an existing utility) the list of additional data frequently contains requests such as:**
 - a. Aquifer performance characteristics, if the proposed source is groundwater**
 - b. Water availability analysis if the proposed source is surface water**
 - c. Wellfield location and well design information (diameter, depth, pumping rates)**
 - d. Impacts on other existing users**
 - e. Impacts on environmentally sensitive lands (wetlands)**

Please refer to the response to question 17-D of the DRI application. Please see Map H(b) (Figure 17-2) for all proposed well locations and the associated table for well construction details and pumping rates.

- 3. Provide a plan for obtaining non-potable irrigation water supply from recycled effluent; or if effluent will not be available, provide a non-potable water use plan showing conservation measures that will be taken to reduce the demand.**

The project will utilize reclaimed water for irrigation to the greatest extent feasible. Please refer to the table included in the response to question 17-B of the DRI application. Reclaimed water effluent constitutes the total volume listed under the "Other" water source category for on-site supply.

4. Describe the methods used in developing per-capita and all other potable and non-potable water demands and projections for demands.

Please refer to the response to question 17-A.2 of the DRI application.

5. Relative to the total water demands for the proposed development, what impacts will these demands have upon the regional water resources because of on-site water development?

Please refer to the response to question 17-D of the DRI application.

6. If total water demands are to be supplied by off-site sources, through a regional water supply, private water utility, or public utility system what are the projected capabilities of that source to supply the required water demands at build-out?

On-site sources will supply all potable and non-potable water demands. No off-site sources will be required.

7. If a structural water facility modification would be required by an off-site water supplier to meet these demands, what alternatives are now being sought and what are the anticipated regional impacts as a result of the additional demands on the resource?

No off-site structural water facility modification will be required. As described above, Town and Country Utilities will supply all potable water demands using on-site facilities.

8. What plans are proposed for effecting water conservation in all aspects of the proposed development? This should include the use of lowest quality of water for irrigation and/or industrial needs, water conserving plumbing fixtures, etc. What percentage of reduction is anticipated over conventional daily water use estimates if conservation plans are implemented?

Please refer to the response to question 17-G of the DRI application. Separate water use conservation plans have been developed for potable and irrigation uses. The proposed source is not considered a source of limited availability in the Lower West Coast Planning area.