

**17. WATER SUPPLY**

- A. 1. Provide 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.**

The following tables show water demand for the Project:

<b>TABLE 17-1 POTABLE/NON-POTABLE WATER DEMAND<sup>1</sup></b>							
<b>Land Use</b>	<b>Number of Units</b>	<b>Water Use (GPD/Unit)</b>	<b>Potable Water Demand (MGD)(*)</b>	<b>Potable Water Demand (with 20% conservation reduction) (MGD)(*)</b>	<b>Non-Potable Water Demand (Irrigation)</b>		<b>Maximum Water Demand (MGD)</b>
					<b>25% Waste Water Recapture (MGD)(*)</b>	<b>On-site Lakes</b>	
Single Family, detached	1,257 du	350 gpd/unit	0.440	0.352	0.088	-	0.792
Single Family, attached	2,436 du	250 gpd/unit	0.609	0.487	0.122	-	1.096
Multi-Family	3,248 du	200 gpd/unit	0.650	0.520	0.130	-	1.170
Retail	200,000 sf	5/100 gpd/sf	0.010	0.008	0.002	-	0.018
Office	100,000 sf	10/100 gpd/sf	0.010	0.008	0.002	-	0.018
Industrial – Flex Space	550,000 sf	20/1000 gpd/sf	0.011	0.009	0.002	-	0.020
School							
K-8	3,200 stud.	15 gpd/stud	0.048	0.038	0.010	-	0.086
High School	1,600 stud.	20 gpd/stud.	0.032	0.026	0.007	-	0.059
Staff	360	15 gpd/person	0.005	0.004	0.001	-	0.009
Hospital	200 beds	250 gpd/bed	0.050	0.040	0.010	-	0.090
Community Uses	50,000 sf	10/100 gpd/sf	0.005	0.004	0.001	-	0.009
Parks	67 acres	5 gpd/person	0.001	0.001	0.000	-	0.002
<b>Total</b>			<b>1.871 MGD</b>	<b>1.497 MGD</b>	<b>.375 MGD</b>	<b>1.125 MGD</b>	<b>3.369 MGD</b>

Source: Ford Armenteros

(\*) MGD= Millions of Gallons per Day

The Average Daily Demand (A.D.D.) is 1.497 MGD

The Maximum Daily Demand (225% of A.D.D.) is 3.369 MGD

The Peak Hour Demand (450% of A.D.D.) is 0.281 MGH

<sup>1</sup> Current agricultural water demand on the Project site is of 3.608 MGD of non-potable ground water. The Project's estimated 1.497 MGD water demand will result in a -2.111 MGD net change in water impacts on the South Florida area.

<b>TABLE 17-2 POTABLE/NON-POTABLE WATER SUPPLY</b>					
<b>Phase</b>	<b>On-Site Supply</b>				<b>Off-Site Supply</b>
	<b>Groundwater</b>	<b>Surface Water</b>	<b>Other</b>	<b>Total</b>	
Phase 1					
Potable					1.497 MGD (WASD)
Non-Potable					
Irrigation	-	1.125 MGD	0.375 MGD	1.500 MGD	None

Source: Ford Armenteros

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

Rates were obtained from Miami-Dade County "Schedule of Daily Rated Gallonage for various Occupancy" used by the Miami-Dade County Water and Sewer Department. The reduced conservation rates are based on a 20% conservation rate discussed with WASD staff.

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

The potable water demand noted in Table 17-1 will be provided by the Miami-Dade Water and Sewer Department. Portions of the non-potable demand are proposed to be met by the on-site reuse treatment facility.

**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 dual wells, this information may be grouped for projection purposes). Also provide a breakdown of the wells with regard to potable and non-potable sources.**

Any existing non-potable wells are irrigation wells. This project does not propose any potable water supply wells. Any future irrigation wells will be permitted through the Miami-Dade County DERM and the South Florida Water Management District (SFWMD).

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

No on-site potable water wells are proposed. Any future irrigation wells will be permitted through Miami-Dade County DERM and the South Florida Water Management District (SFWMD).

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

Water supply systems will be owned and operated by utilities providing water to the site. The utility that is capable of providing potable water to the Project are Miami-Dade County Water and Sewer Department.

**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 time during and after development. (This agency must be supplied with the water demand and supply tables in paragraphs A and B above).

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.

A letter to Miami-Dade Water and Sewer requesting the above information is included in Exhibit 17-1. A response letter from Miami-Dade Water and Sewer is also included.

**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 proposed development will use appropriate water conservation devices and methods. Such devices may include, but are not limited to low-flow plumbing fixtures such as those listed in Section 604.4 of the Florida Building Code. In addition, during periods of severe water shortage, the Project will adhere to the requirements of Chapter 24, Section 12.1(8) of the Miami-Dade Code and Chapter 40E-21 of the Florida Administrative Code. The Project's landscaping will adhere to Chapter 18A of the Miami-Dade Code which promotes the use of xeriscape principles, the use of moisture and rain sensor switches for irrigation and sets design standards for irrigation systems to not overthrow or overflow on to impervious surfaces.

In order to accommodate the growing population of Miami-Dade County, Parkland is committed to working with the South Florida Water Management District and Miami-Dade Water and Sewer Department in developing an on-site reuse facility and conserving the current potable water supply. Parkland shall comply with all South Florida Water Management District and Miami-Dade Water and Sewer Department rules and regulations. In addition, Parkland shall where feasible and practicable:

- (a) Design and construct buildings with minimal impact on site topography and natural drainage ways;
- (b) Disturb only areas needed to install foundations and roadways;
- (c) Install anti-backsiphoning valves between well and water pipes;
- (d) Maintain a naturally vegetated buffer next to streams, lakes, ponds and wetlands;
- (e) Maximize permeable materials for driveway, walkways and porches;

- (f) Use silt fencing or biofiltration (permeable bags filled with chips, compost or bales of straw) to control erosion during construction;
- (g) Designate appropriate location for washing vehicles and equipment – away from surface waters, storm drains and slopes that could erode, at carwash or at builders' shop with a sump during construction;
- (h) Immediately repair all equipment and vehicle leaks during construction;
- (i) Consider air assisted or compost toilets during design;
- (j) Consider low-flow equipment for toilets, showers, faucets;
- (k) Consider water efficient appliances and equipment;
- (l) Direct runoff from roof toward landscaping and away from foundation rather than down storm drains (reduces water use and well as storm water and pollutant runoff); and
- (m) Provide native trees and shrubs and utilize xeriscape landscape principles, as appropriate, for greatest drought-resistance.

As an example of the water savings that can be provided throughout the Project, the table below represents average savings for a single-family household resulting from the use of high-efficiency water-use fixtures. Applying a conservative 20% reduction to the Project's overall water demand projections would reduce the potable water demand from 1.871 MGD to 1.497 MGD.

The sewer water treatment demand would also be reduced by the same 20%, from 1.871 MGD to 1.497 MGD, after which an additional 25% (.375 MGD) is being planned to be recaptured for treatment and irrigation, resulting in 1.122 MGD of sewer water. Thus, 1.122 MGD of sewage flow would return to the WASD system, while .375 MGD would be treated and used for irrigation.

<b>High-Efficiency Water-use Fixtures Vs. Presently Required Fixtures</b>		
<b>Single-Family Home - Indoor/Outdoor</b>		
	<b>Currently Used Fixtures</b>	<b>Higher Efficiency Fixtures</b>
High Efficiency Toilets (HET)	1.6 gpf	1.2 gallons or less on average per flush (gpf)
Showerheads	2.5 gpm	2.0 gallons or less per minute (gpm)
Kitchen Faucets	2.2 gpm	2 gpm or less
Other Faucets	2 gpm	flow of 1 gpm
Washing Machines	27 gallons per load	average 18 gallons per load
Weather-based (WB) Irrigation controllers	--	20% savings over conventional irrigation controllers
<b>Water-Use Savings Associated with High-Efficiency Fixtures</b>		
Assuming 2 toilets, 2 showers, 3 faucets, 1 clothes washer and 1 WB controller - the potential savings are 22.7%.		

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

This proposed Project falls within the Miami-Dade Water and Sewer Department service area for both water and sewer.

**Exhibit 17-1**  
**Letters to and from**  
**Miami-Dade Water and Sewer**